Exploring meaningful nature experience connectedness with nature and the revitalization of transformative education for sustainability

Dissertation

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Dissertation presented for the degree of
Doctor of Philosophy
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April 2014

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Declaration

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April 2014

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Dedication

To
Dad
Joshua
Christian
For
Lives
Legacies
Messengers

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Summary

Humanity's growing separation from nature is central to the convergent social and ecological crises facing earth. This is both a psychological (e.g. perceptual, emotional) and physical (e.g. experiential) disconnect and is therefore better understood as a *crisis in consciousness*. This research arises out of an intense interest in how to alleviate humanity's fading *connectedness with nature* and, specifically, if *meaningful nature experience* is capable of healing the divisive ways in which humans tend to think, see and act in the world.

This study brings together four core themes: *connectedness with nature* (CWN), *invasive alien species* (IAS), and *education for sustainability* (EfS); each of which are explored around - and in relationship to - the core concept of *meaningful nature experience* (MNE).[1] In doing so, this transdisciplinary research utilizes a theory of complexity to integrate diverse disciplinary perspectives by drawing upon: (conservation) ecology; (environmental-/eco-) psychology; (sustainability) education; and phenomenology as a guiding philosophy.

Adopting an interpretivist and pragmatic approach, this research employs mixed methods (quantitative and qualitative/phenomenological analysis) to, firstly, uncover the essences which help describe what MNE feels like (how it appears in consciousness) and that which makes MNE what it is. Secondly, the study explores the relationship between MNE and CWN; the extent to which MNE is perceived to influence attitudes and *environmentally responsible behaviour* (ERB); and whether ecological change as experienced through IAS may affect MNE or, in turn, how MNE and CWN influence perceptions on IAS. Thirdly, the research examines the implications of the above for EfS: is there merit for integrating MNE and CWN in EfS? What would such a process look like and how can it be applied in a way which revitalizes EfS? Finally, as a form of heuristic inquiry, this study represents my process of conscious transformative learning. Reflective narratives are dispersed throughout this dissertation to capture this enriching personal journey. Research findings draw on over 200 unique accounts of MNEs which were elicited from: online and public questionnaires; in-depth interviews, email submissions and complemented by *in-situ* field observation and participation. The questionnaires and in-depth interviews also elicited responses on CWN, IAS and EfS.

The research finds that a MNE is triggered by an unexpected encounter with the 'non-ordinary' in nature. It is characterized by heightened sensory awareness (e.g. the beauty and detail of natural phenomena arrest our attention), intensified emotional (e.g. awe, amazement) and physiological responses (e.g. a 'rush'). If an animal is involved, close proximity, extended length of time and reciprocity are key themes. For a MNE not involving an animal, perceived aliveness, vibrancy and energy pervading the land-/ sea-/ sky-scape is primary. As mind meets matter, one feels interrelatedness and a diminished sense of self. The privilege to commune with an 'other' (re)defines a person's being and belonging in the world. *Synchronicity as a MNE* is distinctive as an uncanny (e.g. numinous) experience of: insight; flow; guidance; a 'knowing'; and interconnectedness.

[1] A MNE is a non-ordinary experience with/in nature that is particularly profound, significant, affective and difficult to wholly describe (Swan 2010; Morse 2011). One type of MNE of particular interest to this study is synchronicity with/in nature: the experience of two or more (physical or psychological) events of comparable content coinciding in an unlikely and meaningful way and whereby at least one event involves (non-human) phenomena of/in nature.

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Respondents who have had a MNE exhibit a higher CWN; a positive correlation exists between frequency of MNE (*f*MNE) and CWN. Stronger correlations with CWN were found when a wild animal was involved in the MNE. Spiritual / religious practices positively correlate with *f*MNE and CWN with regular displays of gratitude toward nature returning slightly stronger correlations with CWN. Strongest correlations were found between the experience of synchronicity and CWN. A qualitative analysis of respondents' MNEs and their responses on how they perceive their MNE(s) to have changed them, found multiple and diverse mention of (newfound) appreciations of (inter)connectedness. This suggests that MNE acts as a conduit for CWN: one powerful MNE may be sufficient to catalyse the process; however, a higher *f*MNE increases the likelihood for heightened CWN. Such results affirm the idea that MNEs facilitate a relational worldview necessary for a consciousness attuned to CWN. CWN is considered to be a reliable predictor for ERB.

Over 90% agreement was found between respondents on the positive impact of MNEs in: shaping their views on nature and biodiversity; influencing their current behaviour and actions toward nature and the environment; and heavily influencing, changing or transforming their outlooks on life. The most common themes to emerge on how MNE was perceived to have changed respondents related to understanding of (inter)connectedness/interdependence; career choice; respect for nature / life; and new ways of seeing the world. This supports the premise that, by affectively bonding with nature, MNEs can motivate: ERB; life paths into conservation-minded careers; and serve as catalysts for personal growth and transformation, particularly when complemented with reflection, social (guided) facilitation and ecological literacy.

The presence of IAS in landscape is likely to adversely affect MNE for stated reasons of ecological impacts, diminished 'naturalness', destructiveness and reduced diversity. Those viewing IAS as potentially enhancing their MNEs cite reasons of beauty, novelty and enjoyment. Respondents' CWN does not appear to affect perceptions of IAS; however, elevated CWN may invoke empathy, a sense of relatedness and appreciation of their intrinsic value as 'life'. IAS may also feature in MNEs and, through experiential and metaphorical insight, can deliver newfound understandings of social and ecological connections as they relate to IAS.

Respondents concur that today's education does not prepare society to learn from MNE: overwhelming agreement was found on the societal and ecological benefits of an education that promotes understanding of MNE through a blend of intellectual concepts; experiential activities; values and ethics; and integrated learning approaches. Experiential nature-based activities were encouraged as vital EfS vehicles for enhancing sensory awareness; respect for nature; ecological knowledge and encountering connectedness. In-depth interviewees saw future EfS opportunities and solutions as focusing more on: participating with nature; bridging spirituality and science; facilitating 'openness' and shared experience; instilling values reflecting an interconnected reality; mentoring; contemporary rites of passage; and simply learning to live better. The essence of this research is an expanded appreciation of *connectedness* - embodying *Nature, Community, Self, Source* - and the manifold ways it is encountered through MNE. Revitalized EfS (realized through *Theory edU*) invites a *consciousness* that attends to an enlivening process of *connecting*, *harmonizing* and *becoming*.

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Opsomming

Hierdie studie bring vier kern temas na vore: *verbintenis met die natuur* (VMN), *indringende uitheemse spesies* (IUS), en *opvoeding vir volhoubaarheid* (OVV); waarvan elk verken is rondom – en in verhouding is tot die kern konsep van *betekenisvolle natuur ervaring* [2] (BNE). Deur dit te doen, wend hierdie transdisiplinêre studie 'n teorie van kompleksiteit aan om diverse dissiplinêre perspektiewe te integreer deur gebruik te maak van: bewarings ekologie; omgewings-/eko- sielkunde; onderwys; en femenologie as 'n rigtinggewende filosofie.

Deur 'n interpretatiewe en pragmatiese benadering aan te neem, is gemengde metodes (kwantitatief en kwalitatief / femenologiese analise) gebruik om eerstens die essensies wat help om te beskryf hoe BNE voel (hoe dit in die bewussyn voorkom) en dit wat BNE maak wat dit is, te ontbloot. Tweedens verken die studie die verhouding tussen BNE en VMN; die mate waartoe BNE beskou word om houdings en *omgewings verantwoordelike gedragte* beïnvloed (OVG); en of ekologiese verandering soos deur IUS ervaar word BNE kan affekteer, of, op sy beurt, hoe BNE en VMN persepsies van IUS kan beïnvloed. Derdens bestudeer die navorsing implikasies van die bogenoemde vir OVV: is daar meriete vir die integrasie van BNE en VMN in OVV? Hoe sal so 'n proses lyk en hoe kan dit toegepas word op 'n manier wat OVV weer nuwe lewe sal gee? Ten einde, as 'n vorm van heuristiese ondersoek, stel hierdie studie my proses van bewuste transformatiewe leer voor. Reflektiewe narratiewe is regdeur die proefskrif versprei om hierdie verrykende persoonlike reis vas te lê. Navorsing bevindinge gebruik meer as 200 unieke verklarings van BNE's wat aan die lig gebring is deur: aanlyn en publieke vraelyste; in-diepte onderhoude, e-pos indienings en dit is gekomplementeer deur in-situ veld observasie en deelname. Die vraelyste en in-diepte onderhoude het ook reaksies op VMN, IUS en OVV ontlok.

Die navorsing het bevind dat 'n BNE word veroorsaak deur 'n onverwagste ontmoeting met die 'nie-gewone' in die natuur. Dit word gekarakteriseer deur verhoogde sensoriese bewustheid (bv. die prag en besonderhede van natuurlike verskynsels beset ons aandag), versterkde emosionele (bv. verwondering en verbasing) en psigologiese reaksies (bv. 'n stormloop). Indien 'n dier betrokke is, is nabyheid, verlengde duur van tyd en wederkerigheid sleutel temas. Vir 'n BNE wat nie 'n dier insluit nie, is waarneembare lewendigheid, dinamiek en energie wat die landskap / see / luglandskap deurdring primêr. Soos wat die gees die stof ontmoet, voel 'n mens 'n onderlinge verband en 'n verminderde sin van die self. Die voorreg om in noue aanraking met 'n 'ander' te kan wees (her)definieër 'n persoon se wese en behoort in die wêreld. '*Synchronicity*' as 'n BNE is kenmerkend as 'n ongelooflike (bv. numineuse) ervaring van: insig, vloei, leiding; 'n 'wete'; en onderlinge verbintenis.

Respondente wat 'n BNE gehad het, het 'n hoër VMN getoon; 'n positiewe korrelasie bestaan tussen die *frekwensie van BNE* (fBNE) en VMN. Sterker korrelasies met VMN was gevind in die geval waar 'n wilde dier in die BNE betrokke was. Geestelike / religieuse praktyke korreleer positief met fBNE en VMN waar

[2] BNE bestaan uit ongewone ervaringe met/in die natuur wat veral diepsinnig, belangrik, affektief en moeilik is om te beskryf (Swan 2010; Morse 2011). Een tipe van BNE wat van spesifieke belang tot hierdie studie is, is synchronicity met/in die natuur: die ervaring van twee of meer (fisies of psigologies) gebeurtenisse van vergelykbare inhoud wat saam loop in 'n onwaarskynlike en betekenis volle manier, en waarby ten minste een gebeurtenis natuurlike (bv. anders-as-mens) verskynsels behels.

gewone openbarings van dankbaarheid tot die natuur effens sterker korrelasies met VMN terugbring. Die sterkste korrelasies was gevind tussen die ervaring van *'synchronicity'* en VMN. 'n Kwalitatiewe analise van respondente se BNE's en hul response van hoe hulle hul BNE(s) as dit wat hul verander het, beskou, het veelvoudige en diverse antwoorde van (nuutgevonde) erkennings van (onderlinge) verbintenis navore gebring. Dit dui daarop dat BNE as 'n toevoerbuis vir VMN optree: een kragtige BNE mag voldoende wees om die proses te kataliseer; aan die anderkant verhoog 'n hoër fBNE die waarskynlikheid vir verhoogde VMN. Sulke resultate bevestig die idee dat BNEs 'n relasionele wêreldbeskouing is wat nodig is vir 'n bewustheid wat ingestel is vir VMN. VMN word as 'n betroubare voorspelling vir OVG beskou.

Meer as 90% van respondente was in ooreenstemming ten opsigte van die positiewe impak van BNEs in: die vorming van hul beskouings van die natuur, biodiversiteit; beïnvloeding van hul huidige gedrag en aksies tot die natuur en die omgewing; en hoe dit hul vooruitsigte op die lewe hewig beïnvloed, verander of transformeer. Die meesal gemene temas wat ontluik het, was oor die beskouing van hoe BNE respondente se verstaan aangaande (onderlinge)verbintenis / onafhanklikheid; beroepskeuse; respek vir die natuur / lewe; en nuwe maniere om na die wêreld te kyk, verander het. Dit ondersteun die uitgangspunt, dat deur affektiewelik met die natuur in verbinding te tree, BNEs gemotiveer kan word: OVG; lewens paaie tot bewaring-gesinde beroepe; en as katalisators dien vir persoonlike groei en transformasie, veral as dit met refleksie, sosiale (begeleide) fassilitering en ekologiese geletterdheid gekomplimenteer word.

Die teenwoordigheid van IUS in 'n landskap kan waarskynlik BNE nadelig affekteer weens verklaarbare redes van ekologiese impakte, afneembare 'natuurlikheid', verwoestendheid en verminderde diversiteit. Diegene wat IUS as iets positief tot hul ervaring beskou, verskaf redes soos skoonheid, nuutheid en genot. Dit wil voorkom of deelnemers se VMN nie algemene persepsies van IUS affekteer nie; alhoewel, verhoogde VMN empatie, verwantskap en waardering vir hul intrinsieke waarde as 'lewe' mag oproep. IUS mag ook in BNE vertoon en deur ervarings- en metaforiese insig, kan dit waardevolle nuut-bevinde begrippe van sosiale en ekologiese verbande soos wat hulle aansluit by die probleem van IUS, lewer.

Respondente is dit eens dat vandag se onderwys nie die samelewing voorberei om te leer van BNE nie: oorweldigende ooreenstemming was gevind aangaande die maatskaplike en ekologiese voordele van onderwys wat die verstaan van BNE bevorder deur middel van 'n vermenging van intellektuele konsepte; ervarings leeraktiwiteite; waardes en etiek; en geïntegreerde leer benaderings. Ervarings leer natuur-gebaseerde aktiwiteite was aangemoedig as essensiële middels vir OVV vir die verhoging van sensoriese bewussyn; respek vir die natuur, ekologiese kennis en die teëkoming van verbintenis. In-diepte ondervraagdes het geleenthede en oplossings vir toekomstige OVV gesien in terme van 'n groter fokus op: deelname aan die natuur; die oorbruging van spiritualiteit en wetenskap; fassilitering van 'oopheid' en gedeelde ervaring; vestiging van waardes wat 'n onderlinge verbonde realiteit reflekteer; mentorskap; kontemporêre deurgangsrites; en om eenvoudig te leer om beter te lewe.

Die kern van hierdie navorsing behels 'n toenemende waardering van verbintenis – beliggaming van die Natuur, Gemeenskap, Self, Bron – en die menigvuldige maniere waar op dit deur BNE ondervind is. Hernude OVV (soos ontdek deur *Theory edU*) nooi 'n bewustheid uit wat aandag skenk aan 'n verlewendige proses van *verbintenis*, *harmonisering* en *wording*.

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Acknowledgements

I feel deeply grateful toward the nature which inspired me to begin, nourished me during, and motivated me to complete this work. Whilst being mostly based in various parts of the Baviaanskloof Mega-Reserve, I was fortunate to be able to write up this work from an array of other special places in South Africa, Australia and Costa Rica. Across and within each, I was afforded experiences which I will forever cherish.

There are innumerable persons who contributed to this dissertation and, in so doing, my own learning and personal growth. Each offered their unique input which helped in opening doors, providing inspiration, seeding epiphanies, directing me toward key literature or lending an ear to listen, support and feedback. First and foremost, my supervisory team: Prof. Karen Esler, Dr. Andrew Knight and Prof. Lesley Le Grange. I feel privileged to have had them walk this long explorative and sometimes treacherous path with me. This research edged us into new territory and this work was not the easiest to review. Despite challenges, their commitment was genuine and unwavering and their contributions complementary: Karen's superb all-round tireless support and caring guidance; Andrew's friendship and direction in discussing ideas, structuring and improving my thinking and writing; and Lesley's ability to provide timely research insights and literature that were a revelation to me. I will always remember the energy which infused our early gatherings as a team.

The *DST-NRF Centre of Excellence for Invasion Biology (C·I·B)* provided three-years of bursary funding for this research. Ultimately, without such generous backing, this research may have never been pursued. I am extremely appreciative for this essentially life-changing opportunity and I trust that, in return, my work may be valuable to their mission and mandate in some shape or form, now or into the future. I equally extend my gratitude to the *TsamaHUB Hub* for accepting me into the inaugural intake of their *Transdisciplinary Doctoral Programme in Sustainability*. The core modules, summer schools, opportunities to present and discuss with colleagues have been instrumental in evolving my understanding of the philosophy of science and the necessary marriage of science with society. A special thanks to John van Breda for his ever-willing and enthusiastic assistance and to fellow *TsamaHUB* student Nadia Sitas for her friendship and solidarity.

I am highly appreciative of the support provided by my department (*Conservation Ecology & Entomology, (ConsEnt), Stellenbosch University* (*SU*)). This research was somewhat left-of-centre to their core research focuses yet, despite not being physically based in the department, I always felt welcome and have met some fine people. Particular thanks to Prof. Michael Samways for stimulating thoughtful discussion and Monean Wenn for her friendliness, willingness to assist and sharp efficiency. Thank you to Prof. Martin Kidd (*SU Centre for Statistical Consultation)* for his time, efforts, patient guidance and valued assistance with the statistical analysis included in this study. Gratitude to Carine Tymbios from SU Library and Linda Uys and Sanchia Van Staden from SU Postgraduate & International Office for enrolment and study permit assistance.

My research assistants Carly Appleby, Noël Isaacs, Barbara Seele and Vanessa Sheehan were not only highly committed but also genuinely engaged with the tasks required and subject matter. The soulful, reflective and motivating exchanges emerging out of our collaborations and friendship are very much treasured.

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I am greatly indebted to my in-depth interviewees who thoroughly deserve mention by name if it were not for the fact it would be in breach of our confidentiality agreement. These persons collectively gave me a memorable few weeks as I travelled along the Southern Cape to meet, interview and dialogue with them. Their experiences, candour, insights and wisdom are utterly foundational to the results and outcomes arising out of this dissertation. I owe so very much to them, not least of all a hugely inspired 'thank you'. Similarly, sincere thanks to the respondents who participated in this research via online questionnaire, public questionnaire, email correspondence or while in the field (on, e.g. trails, programs). Without their collective input, this research would not be. Their contributions helped give this research its unique flavour. I was also encouraged by the numerous respondents who appreciated the chance to reflect upon their experiences and/or who equally saw a need for this topic to enter scientific and societal discourse.

My interactions with the *Baviaanskloof Nature Awareness Group* were highly rewarding and gifted me some of my fondest memories. I am also thankful for the contributions and support from Bruce Dell, Ian Read, Japie Buckle, Robin Carelse and valued funding from Kenchaan Foundation and the Table Mountain Fund. Thanks to Eastern Cape Parks & Tourism Agency (ECPTA) and Sewefontein for allowing us to access land under their management. I remain hopeful that the vision of the *Baviaanskloof Nature Awareness Group* will live on.

I am very appreciative to past and present colleagues at *Living Lands* who accommodated my whims during a tricky transition to full-time PhD research. Collectively, they provided the space and support I needed. Thanks to the various staff at *TerraPi* (now *Hartsfontein*) who facilitated my special stay during 2010 - 2011. Other organizations that contributed to this work in various ways include: *Cybertracker, EarthCollective, Foundation for Natural Leadership (FNL), Friends of the Baviaanskloof Wilderness Area (FOBWA), IDEA WILD, ORCA, PRESENCE, Spirit of the Wild, Wilderness Leadership School (WLS - Gauteng)* and *Wildlands Studies*.

Many persons aided, inputted or inspired me in diverse ways. On numerous occasions, it may have only been a fleeting encounter but remains fresh in memory as being of profound significance to me at the time. I had originally listed each and every individual but that appeared a little too self-indulgent (and lengthy) so instead I look forward to thanking everyone personally. The past efforts of other scholars, philosophers, writers, artists and (scientific) researchers are often overlooked but are equally deserving of a special mention in that their work has been either highly influential and/or deeply enriching. Again, many names could be cited but I suspect key influences will be evident from the references used in this dissertation.

To those especially cherished persons saved for that final heartfelt paragraph: loving thanks to my caring mother who was always willing to listen, advise and console even though I tended to often make contact when in need! Andrew: where do I begin? I could not wish or be appreciative for more: creative designer behind eyes4earth.org, research assistant, filmmaker, composer, genuine listener and always empathetic brotherly support. Finally, to Alejandra, who endured much more for much longer than she should have – investing so much of herself in this process and keeping me afloat with her catching humour, peace, encouragement, insight, love, life perspective as well as being a needed teacher. Deeply grateful vibes to all.

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Acronyms

Acronym	*Meaning*
BNA Group	Baviaanskloof Nature Awareness Group
BMR	Baviaanskloof Mega-Reserve
CE	Conservation Education
ConsEnt	Department of Conservation Ecology and Entomology, Stellenbosch University
CIB (DST-NRF)	Centre of Excellence for Invasion Biology (Dept. Science and Technology - National Research Foundation)
CNS	Connectedness to Nature Scale
CP	Conservation Psychology
CWN	Connectedness With Nature
ECPTA	Eastern Cape Parks and Tourism Agency
EE	Environmental Education
EESD	Environmental Education for Sustainable Development
ERB	Environmentally Responsible Behaviour
EiC	Education in Connectedness
EfS	Education for Sustainability
EHE	Exceptional Human Experience
EIS	Environmental Identity Scale
ESD	Education for Sustainable Development
FOBWA	Friends of the Baviaanskloof Wilderness Area
GFRR	Great Fish River Reserve
IAS	Invasive Alien Species
IAT	Implicit Associations Test
ICCB	International Congress for Conservation Biology
IK	Indigenous knowledge
INS	Inclusion of Nature in Self
IUCN	International Union for the Conservation of Nature
LfS	Learning for Sustainability
MMR	Mixed Methods Research
MNE	Meaningful Nature Experience
NEP	New Environmental Paradigm
NL	The Netherlands
NR & NRS	Nature Relatedness & Nature Relatedness Scale
OE	Outdoor Education
OQ	Online Questionnaire
PhD	Doctor of Philosophy
PRESENCE	Participatory Restoration of Ecosystem SErvices and Natural Capital (Eastern Cape)
PQ	Public Questionnaire
SA	South Africa
SE	Sustainability Education
SU / US	Stellenbosch University / Universiteit Stellenbosch
Td programme	Transdisciplinary Doctoral Programme in Sustainability, Stellenbosch University
TEK	Traditional Ecological Knowledge
TsamaHUB	Transdisciplinarity, sustainability, analysis, modelling & assessment HUB
UN	United Nations
UNDESD	United Nations Decade of Education for Sustainable Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
WLS	Wilderness Leadership School
WS	Wildlands Studies
WUR	Wageningen University and Research

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The unexpected and the incredible belong
in this world. Only then is life whole.
~ Carl Jung

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How to read this dissertation

Given the volume and diversity of this dissertation's contents, the following guidance is designed to assist readers in navigating their way to specific sections of interest. For an overview, the reader is advised to peruse the key points summarized at the end of each chapter, as well as the summary (opening pages) and conclusion (Chapter 7) of this dissertation. Personal reflections, relevant quotes and topical tangents can be found in boxes or footnotes throughout the dissertation (Vol. I) and the appendices (Vol II).

Preface: A reflection on the challenges, processes and vision for this transdisciplinary doctoral research.

Chapter 1: Sets the scene and highlights motivations for the research by introducing the social-ecological relevance and the uniqueness of the study in terms of expected scientific and personal contributions. It also contains a short autobiographical section (elaborated in Appendix 9.2) which summarizes the researcher's personal context and formative experiences which triggered and influenced an interest in the topic.

Chapter 2: Contains literature reviews on core concepts: *connectedness with nature* (CWN), *meaningful nature experience* (MNE); *synchronicity*; and *education for sustainability* (EfS). As it has been submitted for peer-review publication, the CWN review is quite comprehensive and thus recommended. The MNE review begins with foundational concepts such as consciousness and experience, types of meaningful experience before moving to MNE and its known triggers and benefits. The comparatively brief synchronicity review is likely to be of interest to both those unfamiliar or uncertain about the concept and its legitimacy as well as those who are familiar with the concept but would like it see it 'fleshed out' a little more. The EfS review is more of an interpretive summary of key understandings and covers salient themes relevant to the research.

Chapter 3: In dealing exclusively with methodology and method, this chapter is quite dense. However, it is recommended for those interested in the philosophical underpinnings of post-paradigmatic research and the researcher's interpretation and application of transdisciplinary research. The conceptual frameworks are worth viewing as they assist in understanding how this body of work all fits together. Phenomenology, as both a philosophical tradition and methodology, is introduced and may be a useful reference for those new to the movement. This is followed by a detailed lay-out of methods: i.e. the who, what, where, when and how of carrying out the on-ground research and the approaches adopted for subsequent analysis.

Chapter 4: This phenomenological analysis of MNE is a voluminous chapter. It takes this detailed approach to: i) make transparent the basis upon which composite descriptions and essences are founded; and ii) to provide significant stories and statements which allow the reader to 'live into' the experiences described. It is hoped this assists in creating a 'resonance of meaning' which helps identify with MNE. Should the chapter be too much to absorb, the reader is advised to peruse the various thematic tables before reading the final concise composite descriptions of *general MNE* and *synchronicity as a MNE* (essential reading). The case study provides an in-depth account of one respondent's MNE and the structure and meaning of its essential themes. The chapter discussion reflects on key themes and relationships most relevant to understanding

MNE, links to existing literature and implications for this study. The discussion also addresses and dialogues around notable but contentious concepts such interspecies communication and anthropomorphism.

Chapter 5: Contains conventional quantitative and qualitative analysis as it relates to five sub-sections: i) relationships between MNE and CWN; ii) influence of MNE on attitudes and behaviour; iii) impact of *invasive alien species* (IAS) on MNE; iv) relationship between MNE and education; and v) concerns and opportunities for MNE and education. These sections are likely to interest readers comfortable with the standard scientific 'introduction-methods-results-discussion' format and who are seeking more conclusive statements concerning the outcomes and implications of this research (in this specific context). Chapter 5 also includes numerous summary tables and figures (extended to the Appendix) highlighting important themes and relationships which should facilitate a quicker grasp of the material presented and discussed.

Chapter 6: Synthesizes the essence of the research in terms of its implications for education. In adopting a more personal and impassioned writing style, the chapter elucidates and integrates the insights arising out of relevant literature, research results and the researcher's own lived experiences of the phenomena under study. Building on Scharmer's (2009a) *Theory U*, Chapter 6 introduces *Theory edU* as a map for pursuing and realizing an *education in connectedness*. It draws parallels with multiple other approaches, theories and philosophies to highlight commonalities as well as their essences in the illustrated *process of becoming*. The chapter considers the implications of *Theory edU* to MNE and IAS. Figures are used to aid comprehension of the salient concepts. Personal 'stories from the field' (Appendix) exemplify the applications of *Theory edU.*

Chapter 7: Summarizes the dissertation with a scientific, personal and final 'close'. The scientific close provides a thorough summary of the content as it relates to the research questions and other literature. It discuss theoretical implications of the study's outcomes in terms of how it builds on existing research in the field and meets the aims or 'sits' in the context of transdisciplinarity and *complexity theory*. Readers may be most interested in the scientific and practical implications of the research and the researcher's experiences in endeavouring to bridge the science-society interface. Limitations and recommendations of the research are outlined and this is critical reading for anyone considering furthering this work. The personal close is written as a reflective narrative of the research journey. In line with a phenomenological approach, it focuses on the essences and their inspiration to the researcher. The final close synthesizes the entire study.

References: With several hundred citations, there should be sufficient basis for researchers or interested persons to verify or delve deeper into material covered or further dimensions of this research as desired.

Appendix: Contains questionnaires, conceptual models, complementary results and analysis, reflections, outreach (e.g. online content and field activities) and other thought-provoking material possibly more accessible and appealing to general readership. The final essay is a personal highlight. As with all sections comprising this dissertation, this reader is encouraged to explore, read and reflect with an open mind.

Preface

The average Ph.D. Thesis is nothing but transference of bones from one graveyard to another.

~ James Frank Dobie (1888–1964)

"PhDs have ruined most of my friends."

Her statement caught me off guard. Ensuring I had heard correctly, I feigned a little sympathy as I allowed thoughts to trail off in appreciation for my own situation. After all, I had been admitted into a new and promising transdisciplinary doctoral programme that promoted science for society and sustainability. I had understanding and supportive supervisors who afforded me freedom to explore and challenge personal boundaries and disciplinary assumptions. I was engaged with a topic largely of my own choosing (or that chose me) and which motivated and inspired. And here I was grateful to be at the World Conference on Ecological Restoration, presenting research in an effort to bridge and integrate disciplinary perspectives.

"They are not the same people they were," she laments, interrupting my silent ego-inflating tirade.

"Really?" I challenged, gradually becoming alarmed. "In what way?"

She frowned, sighed and, with a visible sense of unease, gazed forlornly into the distance. At the time, her sentiments seemed a touch melodramatic and I did not fully understand them. However, in the two years following that exchange, I was confronted with ample evidence and, most influentially, personal research experiences which drew me into empathetic relation with this woman's grievances and ignited a desire and commitment to try and help see those tables turned.

~~~~~~~

In April 2011, *Nature* journal published an editorial titled *Fix the PhD* (Nature 2011). The piece prefaced a special section dedicated to casting a critical eye over the current PhD system both in the U.S.A and globally. The various articles which followed ran with titles such as: *Rethinking PhDs*; *The PhD factory;* and the provocative *Reform the PhD system or close it down*. Immersed in doctorate research and increasingly plagued by questions concerning 'the PhD', I was intrigued by these critiques. Like the majority of PhD students (at least according to my consoling supervisors), I was facing the usual challenges and frustrations which only exacerbated as I pushed on in an endeavour that increasingly felt akin to chasing rainbows. To what extent was this work going to make a worthwhile contribution to science *and* society? Was the unquestioned dissertation format of the natural-cum-social sciences PhD a suitable vehicle for effectively communicating insights arising from the research with which I was engaged? Could or should I log the evolution of my own thinking and being which had been so critical to the outcomes of this dissertation? Did I need to invest so much effort in pre-empting criticisms and providing justifications to an imagined 'hard sciences' opponent? And could the passion and flow which I had once felt so strongly at the outset of this research be rediscovered, integrated and transmitted through this PhD research output? Where had 'the spark' gone?
~~~~~~~

Nature's concerns primarily focused on the growing mismatch between educational supply and occupational demand as the 'PhD factory' continued to manufacture more products – i.e. graduates - than ever before. Other concerns involved (outdated) PhD programme structures, lack of real-world postgraduate science training, research redundancy, over-specialization, poor inter-disciplinary communication and funding processes linked to an ineffective system. The *Nature* editorial (Nature 2011) was forthright in its surmise:

> Something needs to change — but what? Ideally, the system would produce high-quality PhD holders well matched to the attractive careers on offer. Yet many academics are reluctant to rock the boat as long as they are rewarded with grants (which pay for cheap PhD students) and publications (produced by their cheap PhD students). So are universities, which often receive government subsidies to fill their PhD spots.

This provocative generalization was echoed by Taylor (2011: 261) who, in the same issue, suggested that:

> …significant change is unlikely to come from faculty members, who all too often remain committed to traditional approaches. Students, administrators, trustees and even people from the public and private sectors must create pressure for reform. It is important to realize that problems will never be solved as long as each institution continues to act independently. The difficulties are systemic and must be addressed comprehensively and cooperatively.

Academic insulation and a lack of interdisciplinary cooperation have long been recognized. At this point in the research process, I was, however, most concerned with two related and mutually reinforcing trends:
i) The copious amounts of information already 'out there' (specifically relating to fostering conservation and sustainability behaviour) was overwhelming – I questioned what 'new' knowledge I could produce which, without simply perpetuating 'information proliferation', might invite itself to be read or implemented; and
ii) All this information generation was not being sufficiently translated into action which benefited society (e.g. Knight et al. 2008; Bioptropica 2009; Esler et al. 2010). I was therefore motivated to find ways of bridging the 'knowing-doing' gap through innovative research and/or engaging public outreach strategies. Taylor (2011: 261) was acknowledging much of the same in emphasizing the urgent shift required:

> If doctoral education is to remain viable in the twenty-first century, universities must tear down the walls that separate fields, and establish programmes that nourish cross-disciplinary investigation and communication. They must design curricula that focus on solving practical problems…

Transdisciplinary PhD research

Stellenbosch University (SU) was however answering calls to evolve. In 2009 / 2010 the university initiated the *Transdisciplinary Doctoral Programme in Sustainability* (Td programme). Grateful to have been accepted into this nascent initiative, I was equally excited about pursuing doctoral research guided by the progressive philosophy of "Science *for* Sustainability *with* Society" which underpinned collaborative ways of knowing and doing. With considerable interdisciplinary support from both within SU, with partner organizations and valuable training for participating students on offer, the *Td programme* was positioned to break down some of the systemic barriers to ensure that academia hits – rather than misses - 'the mark'.[3]

[3] Like many nascent initiatives, initial flurries of enthusiasm spawned by prospects of innovation and collaboration can gradually slip back to the *quo* as they succumb to systemic barriers which impede effective operationalization and engagement, e.g. time constraints, bureaucratic requirements and incompatible disciplinary mindsets. It is sincerely hoped that the SU *Td programme* can negotiate these anticipated hurdles and continue to flourish into the future.

Intrinsic to this process is to realize that one academic or disciplinary mode of research is ill-equipped to understand, let alone address, the multi-faceted nature of the challenges facing present-day society and the plurality of perspectives involved (Jahn 2008). Instead, a reflexive (and reflective) learning process involving society and science is required; which, in liberating itself from disciplinary boundaries, allows for problems to be defined, researched and solved independently of any single discipline (Mittelstraß 1998; Jahn 2008). Scientific 'progress' is therefore redefined by the new ways it opens up through integrated and participatory approaches to provide useful options, interventions and, ultimately, solutions for society (Jahn 2008). This, therefore, is one hallmark of transdisciplinarity; another, equally important, is complementing traditional scientific criteria for 'objectivity' (in e.g. the natural sciences) with the subjective and normative domains in which societal worldviews, values and ethics are expressed (Max-Neef 2005; Jahn 2008). In bridging these divides, it is argued that the relevance and ability to address social-ecological problems is enhanced through the likelihood that the research (the 'knowing') will be effectively used in implementation (the 'doing'). Transdisciplinary approaches are therefore vital to sustainability science (Burns & Weaver 2008).

Schizophrenic PhD research

> *In Darwin's time, it was possible to write a book that was both a primary scientific report and a popular bestseller. Today, however, that seems like a remote ideal. Not only is it difficult to communicate scientific ideas to the general public, but scientists seem to have increasing difficulty communicating with each other.* (Nature Neuroscience 2000: 97)
>
> *…We are witnessing what can be recognized as a disciplinary big bang.* (Max-Neef 2005: 10)

Whilst the concept of transdisciplinary PhD research for sustainability is appealing, the practice is highly complex. Authentic transdisciplinary processes involve stepping between scientific questions and societal problems alongside continual disciplinary and epistemological 'border crossings' (Jahn 2008). This process can feel futile at times and may invoke a sense of *research schizophrenia*. A well-coordinated transdisciplinary team may defuse this tension[4]; however, for the individual student tackling a transdisciplinary endeavour, the challenge can appear insurmountable as one oscillates precariously between seemingly irreconcilable ontologies, epistemologies and methodologies. While embracing notions of *pragmatism* and its aims of transcending existing paradigms, there is an ever-present concern in the mind of the researcher about confounding philosophical underpinnings, sacrificing disciplinary depth (in preference for transdisciplinary breadth) and flouting the norms against which the research will be ultimately judged across disparate disciplines within the scientific community (cf. Bradshaw & Bekoff 2001).

In prefacing her PhD work on applying social marketing to effect conservation practice, Wilhelm-Rechmann (2011: 12-13) provides personal insight into the challenges of bridging the natural-social sciences divide as part of a single research endeavour - her experiences are relevant in understanding this study's challenges:

[4] However, an anecdote heard about another university's processes indicated that various interdisciplinary projects were being derailed due to the inability to find common (epistemological) ground between academic researchers.

> …I honestly cannot recommend any student to venture into a similar situation in which no defined system of reference provides structure…The perceptions of how the world functions are very different indeed between the natural and social sciences, and to be operating constantly at the boundary - or rather the gap - between the two is a tedious exercise and often does not reflect positively on the student. Concepts that appear simplistic in the one world are often simply too far away from the perception of reality of the other world to be easily adopted…Even terminology may be interpreted quite differently. Naturally, a large part of what the student has worked on goes unnoticed: the student has to achieve a certain degree of mastery in a (sub-) discipline to judge what is appropriate for the developing project, but only a fraction of this will be adoptable in the work delivered on the other side of the gap…

Despite Mittelstraß' (1998) transdisciplinary ideal of being free of disciplinary boundaries, the stark reality is that PhD students are bound to university Faculties and funders with their own norms and expectations. [5] Likewise, students must necessarily publish in journals receptive to the approach adopted. Publishing in transdisciplinary-minded journals seems the obvious recourse however this may further promote insulation rather than interdisciplinary communication (i.e. by diffusing innovation into established disciplines). Sustained effort is therefore required to: i) overcome ingrained tendencies to dismiss as 'wrong' concepts (and their messengers) which do not easily conform to one's worldview; and ii) proceed with sensitivity to ensure that well-intentioned efforts to nudge disciplinary boundaries (through, e.g. innovation, integration) do not undermine one's credibility should it be perceived as deviating too far from the norms of the prevailing system / paradigm (Rogers 2003; Bradshaw & Bekoff 2001; Wilhelm-Rechmann 2011).

Personal processes in PhD research

> *In a society drowning in information, we are starving for wisdom.* ~ E. O. Wilson

Whilst finding a degree of harmony between epistemologies (i.e. natural sciences-social / human sciences) was a genuine concern, my prime motivation was to better connect science and society. This search has centred on understanding what a transdisciplinary PhD dissertation should look like in terms of striking a balance between societal (e.g. stakeholder) *accessibility* and scientific (e.g. disciplinary, Faculty) *acceptability*. Alongside using eyes4earth.org as an outreach tool for engaging with citizenry and communicating research insights, the intent was also to produce a dissertation that might encourage broader readership and discussion, without over-inflating its potential value or contribution to science and society. In this sense, I sought to produce a more accessible dissertation which would extend boundaries of convention without compromising scientific rigor and robustness. Literature comprising this research also fuelled my growing realization that information and knowledge production was failing to effect desired changes in society. What could transform the knowledge generated through this study into an understanding to inspire action?

[5] The initial rejection of my research proposal was centred on the concern that the research didn't 'fit' within the Faculty and would be better situated in Anthropology. However, it is likely that anthropologists would equally contend that this research does not belong there either. From a transdisciplinary perspective, where should such studies be best housed in order to foster 'cross-pollination', enhance communication and bridge disciplinary divides?

> *I don't think we learn from history as a species...If we did we would not be in the mess we are in and facing such devastating environmental, economic and social challenges. So we generate all this data for who? Who is going to look at it? Who is going to learn from it? We might cross-reference it at some point. Great, fantastic, but does that have any impact on your actions in the world right now? On how your behaviour manifests? Does it? We need this or that person, science as such, or the reductionist approach to substantiate our experience, or our finding ...what bullsh*t! What we need is to have the confidence in our own discovery and to make those insights personal and contextual.* ~ Galeo [In-depth interviewee]

I found that the literature that impacted most was that which skilfully conveys and weaves in the author's lived experience. Stepping into their subjective shoes allows one to 'live into' the subtle textured territories of their journey such that their experiences also become the reader's and cultivates a shared understanding (Senge in Jaworski 1996; Young et al. 2010). More importantly, these are often stories of *becoming:* personal accounts of how life pursuits (e.g. scientific discovery) arouse fascination and awakened a sense of purpose. It is this *process* which reveals much about the individual's perspectives, the context within which they are embedded and its influence on them and vice versa (Audouin et al. *in prep*). Grounded in experience, stories help science communicate complex concepts which, instead of being splintered along disciplinary lines, incorporate the diversity of perceptions, values and worldviews permeating social-ecological systems.

I envisioned that this dissertation might capture some of my journey of awakening, learning and becoming. Immersed in the subject matter, dialoguing with people and communing with nature, it became clear that personal experiences were not isolated but rather intersecting and entangling with the research endeavour, a realization central to the posthumanist idea of "mangling practices" (Jackson 2013). In enriching personal perspectives on the subject material, there was a growing sense that sharing these insights could benefit the reader's appreciation of underlying themes. So alongside research providing explanations appealing to the intellect, I felt an impetus to balance this with stories that could make contact with the realm of experience and meaning to forge greater intimacy, connection and understanding with that being explained (Harding 2006). Autobiographical accounts recognize the situatedness of a specific context, provide greater transparency and thus provide a more rounded representation of 'research findings' (Riley-Taylor 2002).

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The exchange with the woman was interrupted and I never did learn what 'ruined' her friends. However, I subsequently read Kaplan's (2012) boldly titled *Academia misses the mark* (in *Nature*) which, in synthesizing a report from Sauermann and Roach (2012), found that natural science students' interest in academic research declines during their study with increased disillusionment as they approach graduation. Underlying reasons for this trend apparently still needed to be researched but, based on personal experiences by then, I identified and understood enough. Indeed, it was sobering to realize that, after years of research, the only truly 'new' knowledge I might bring forth is that which is embedded in my own lived experience. Whilst attempting to convey such, I ultimately faltered on these ambitions (Section 7.2.3). However, with 'ruin' circling menacingly at times, it alerted me to the fact that any reform of the PhD system must include the oft-forgotten third element: *Self*. Only when a (transdisciplinary) PhD process consciously attends to *science, society* and *Self* can it be transformative. To this end, I hope this dissertation affords such a glimpse.
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1 Introduction [6]

1.1 Social-ecological relevance

Environmental problems have escalated to the point that many refer to the current state of affairs as one of 'crisis' (Barry & Eckersley 2005; Bowers & Apffel-Marglin 2005; Ehrlich 2010; Le Grange 2012). The *ecological* crisis perceived to be afflicting earth is well described, with the predicament focusing largely on global climate change, toxification of the planet and the loss of biodiversity and ecosystem services (MEA 2005; Ehrlich & Ehrlich 2009; Ehrlich 2010; Mittermeier et al. 2011). Indicators used to support such arguments include: accelerated species extinctions; declining water, air, soil quality and natural resource availability; proliferation of invasive alien species, habitat fragmentation, degradation and destruction; increased pollutant presence and concentrations, rising greenhouse gas emissions and global temperatures; and incidences of extreme and unpredictable weather events (Kellert 2005; MEA 2005; Ehrlich 2010). Similarly, we are increasingly confronted with disturbing trends in the *social* domain: rising poverty levels, population growth and inequities in standards of living; health and family breakdowns; increased crime; value crises; financial crises; education shortfalls; political polarization and institutional inertia; anger, alienation, apathy, discontent, stress and depression (Kellert & Derr 1998; Maller et al. 2008; Naess 2008; Ateljevic 2009; Ehrlich 2010; Bratman et al. 2012). The pervasive combination of such trends gives rise to what may be considered a *convergence of crises* and undermines social-ecological resilience at varying scales.

Appreciating what a *convergence of crises* really means is to recognize that the social and ecological domains are inextricably connected: a dynamic system defined by myriad interactions which trigger, feed and amplify one another. Recognizing the complexity of environmental problems and the fluid continuum of the 'social-ecological' system demands improved interdisciplinary, multidisciplinary and transdisciplinary models for addressing the *convergence of crises* from within an integrated perspective (Burns & Weaver 2008; Esbjörn-Hargens & Zimmerman 2009; Appendix 9.1; Figure 32). At least since Descartes' (1641), the Western mind has become conditioned to see the world in terms of separation (Riley-Taylor 2002). This dualistic thinking appears to rest on a cognitive assumption which splits reality into parts, remaining blind to the fact that reality is unified (Greenway 2011). It is a view which divides subject from object, mind (human) from matter (nature), the social from the ecological and thus laying the foundation for a division between the social and

[6] Creswell (2007) (based on Moustakas (1994)) recommends that a phenomenological study begin with statements concerning the topic, specifically: the social and ecological relevance and implications; an autobiographical statement about experiences of the author leading to the topic; incidents that lead to a curiosity or intrigue about the topic; knowledge anticipated to be gained by the research; expected contribution to conservation as discipline and the broader social-ecological complex as a 'trans-discipline'; and the research questions. Whilst this dissertation is not strictly a phenomenological endeavour, it nevertheless is underpinned by a phenomenological philosophy to guide the chapters and the overall approach (Chapter 3). Chapter 1 therefore addresses these dimensions of the research.

natural sciences (Bradshaw & Bekoff 2001). If the problem is one of how we see the world, then it alerts us to the fact that we are dealing with a *crisis of perception* (Capra 1996).

Paradoxically, the *crisis of perception* extends to whether there is a reason to accept that the social-ecological crisis exists at all - or at least to the magnitude which has been portrayed by conservation-minded persons in recent times. The 'crisis' mentality pervading much of contemporary environmentalism has come under increasing criticism (from, e.g. 'modernist greens'), questioning: whether it is overly ideological, fanatical and thus an ineffective approach (Shellenberger & Nordhaus 2004; Kareiva et al. 2012b; Section 2.2.12); if claims of pending apocalypse are overstated (Kareiva et al. 2012a [7]; Lovelock in Ledwith 2012; Shellenberger & Nordhaus 2013); and/or if certain 'green' rhetoric, rooted in historical visions of a nature separate from Man, creates an 'us' and 'them' problem that exacerbates (e.g. class, cultural) divides between people and collective interests over personal well-being and environmental health (Price 2012).

Perception is thus the lens through which we view 'the other' (Abram 1996). It is coloured by an array of sensory, cognitive and emotional impressions arising from accumulated life experience (Maund 2003). Our perception and experiences are shaped by historical, cultural and systemic factors (Riley-Taylor 2002). Perceptions which resonate and reinforce one another in our mind become worldviews. Worldviews (and perception) both construct, and are validated by, lived experience which, in turn, comprises the content of consciousness (Jacobs 2006; Morse 2011). These all become further etched in consciousness through the stories we tell ourselves and others - defined by both what is told and what is omitted (Riley-Taylor 2002).

Collections of similar stories repeatedly told in society form discourses. In science, this might be better understood as paradigms (Kuhn 1962). Discourses and paradigms define which stories can be expressed, which questions asked and how, permitting some and forbidding others (Pagano 1990; Riley-Taylor 2002; Sheldrake 2012). The story of the Western[8] discourse is a narrative which perceives humans as being separate from, and typically above, nature (Plumwood 1991; Bernard 2007; Schultz 2011). This inability to see oneself as part of nature runs central to the *crisis of perception*. This dualistic view pervades both science (mind *and* matter) and religion (God *and* humans[9]) (Greenway 2011). The result is a shared crisis in ontology manifesting as alienation from nature, self and community (Riley-Taylor 2002) - and viewed as the key driver for continued environmental apathy (Vining 2003; Balmford & Cowling 2006; Nisbet et al. 2009).

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[7] For extensive debate surrounding Kareiva et al.'s (2012) controversial article, see: (*Retrieved 30 December 2013*) http://thebreakthrough.org/index.php/journal/debates/conservation-in-the-anthropocene-a-breakthrough-debate/

[8] 'Western' (discourse, culture, worldview, society) is a broad and, nowadays, imprecise term which can be variously defined according to context. Throughout this dissertation, 'Western' refers to the culture and philosophical tradition that has its historical roots in early European cultures (e.g. Greco-Roman, Germanic), Judaic and Christian values and Enlightenment thinking which have all shaped Western civilization (i.e. European and Anglo-American societies). Importantly, 'Western culture' should no longer be considered as being geographically confined to Europe or the (North) Americas – colonization, immigration and globalization have meant that Western systems of thought have been exported, absorbed and modified by both individuals and cultures of, e.g. 'The East' and 'The South'. In this dissertation, umbrella labels such as 'Indigenous' and 'Western' are largely unavoidable despite it being recognized that many differences exist between specific cultures comprising these groups (Esbjörn-Hargens & Zimmerman 2009).

[9] A non-dualistic and more unitive way of expressing the relationship would be mind *in* matter and God *in* humans.

> *Yet somehow we have lost this sense of wonder, this feeling of belonging in this world of ours. The study of European history, the civilisation from which most of our values derive, indicates that gradually there has arisen a great cataclysmic divide with human nature. As we have become rational we have lost touch with our primitive nature, and as a result have lost touch with the sense of being known and of belonging. This divide has meant a loss of meaning in our hearts and minds. This is where we stand today… a crisis of meaning in the modern world.* (van der Post in Junkin 1987: ix)

The subject-object partitioning of the world has resulted in an inability for people to see a connection between their thinking and doing (van Breda 2008). This disjuncture – which tends to exclude or banish the subjective - risks creating a world where values are marginalized and deeper meanings missed or denied (Riedy 2003). In privileging a 'rational model' of reality, persons may operate with limited perspective-taking abilities and accept distanced ways of thinking and speaking (about nature) as the norm - conditions which form part of the *crisis of consciousness* (Scull 1999; Riley-Taylor 2002; Mattson 2009).

The *crisis of consciousness* may be seen as one of four main terrains of the social-ecological crisis alongside a *crisis of systems*, a *crisis of behaviours* and a *crisis of cultures* (Appendix 9.1.1) (Esbjörn-Hargens & Zimmerman 2009; Mattson 2009). However, it is the neglected and "irreducible interiority of our ecological problems" - a choice between consciousness and catastrophe - which compels humanity to develop and mature their 'interiors' such that cultivates the higher potentials necessary to realize solutions (Mattson 2009: 226). In speaking of 'crisis' we are inclined to think of impending disaster; however, it may equally indicate:

> …a civilisational threshold whereby outmoded thinking and values are replaced by new ones (or where old values are rejuvenated) (Le Grange 2012: 329).

> *Most of humanity passes its time in idle pursuits…Will we awaken when the crisis comes?* ~ Roland (1995: 6)

In revitalizing our thinking, we are urged to *change the way we think about our thinking* in order to move beyond compartmentalism, reductionalism, rationalism, materialism and separation toward a 'fusion of horizons' - a unity of knowledge which recognizes the 'subject' and 'object' as a mutually interdependent relationship and sees "our coming into consciousness as a process in which the subject becomes aware of its 'otherness' in the world in a self-affirming and inclusive way" (van Breda 2007:3; 2008).[10] This is a mind capable of recognizing interrelated patterns, connections and the inherent 'oneness' in the universe (Bolen 1979). To realize this is to see the problem as neither only 'social' nor 'ecological' but rather a Zen-like complementarity with each embedded within the other and part of an indivisible whole. In contrast to focusing on narrow, short-term human interests, this revitalized thinking also encourages deep questioning of our fundamental values, lifestyles, methods, purposes and relationships with nature and others (Drengson in Naess 2008). It is thinking built on respect and appreciation for the intrinsic worth of all life.

[10] The notion of "All that we are is a result of all that we have thought" is inspired by the Buddha's teachings: *"The thought manifests as the word. The word manifests as the deed. The deed develops into habit. And the habit hardens into character. So watch the thought and its ways with care. And let it spring from love, born out of concern for all beings."*

How can we come to view the world in this way? It appears one of the most effective ways of transforming these intellectual ideals into understanding (and, ultimately, wisdom) is through *direct lived experience*. Yet the everyday experience of most persons socialized in Western thinking rarely aligns with these seemingly abstract concepts. So what types of experiences are then capable of bridging, reconciling and healing the divisions and conflicts within the psyche in order to arrive at a more inclusive view of the world? What would they comprise of? Why are some experiences more valuable, influential or meaningful than others? What might allow us to break away from technological fascination - *the Great Distraction* - in order to return attention to the natural world and that which is of direct relevance to our health and survival as a species? What experiences might enable persons to arrive at a perception that transcends the profane and allows an opportunity to place themselves within the world such that their interaction with it results in a merging of self and surrounds (Morse 2011)? If such experiences could be identified, would newfound perceptions of a unified reality be reflected in a person's everyday behaviour? Since the collective actions of individuals is central to the crises of our time (Ehrlich & Kennedy 2005; Ehrlich 2010), how can experience be reliably used to influence people to think *and* act sustainably over time (Wilhelm-Rechmann & Cowling 2008)?

Efforts aimed at motivating behaviour change have largely focused on providing 'the right information', even though it is well established that this alone has limited influence on behaviour (McKenzie-Mohr & Smith 1999; Kollmuss & Agyeman 2002; Miller 2005; Wilhelm-Rechmann & Cowling 2008; Fishbein & Ajzen 2010; Schultz 2011). Conversely, it has been found that an 'educate-the-public' approach may be inadvertently disempowering through 'doom-and-gloom' scenarios or information overload which may have the perverse effect of lulling citizens into an erroneous belief that awareness and knowledge *about* an issue is sufficient without corresponding action (Gruenewald 2003; Miller 2005; Mayer et al. 2009; Le Grange 2010). Additionally, many conventional appeals lack effectiveness because they fail to convey the importance, wonder and relevance of biodiversity to people's everyday life (Miller 2005). A focus on rational arguments can distance us from what it means to *feel* for - and to be in *relation* with - biodiversity (Samways 2007). If we no longer behold nature as relevant and meaningful to our lives, will we care enough to be willing to change behaviour to ensure its future conservation (Balmford and Cowling 2005; Miller 2005)?

Research shows that the experience of nature is one of the most influential factors for commitments to - and learning for - environmentally responsible behaviour (Kals et al. 1999; Bögeholz 2006; Chawla 2006; Nisbet et al. 2009; De Lange et al. 2010). It is therefore critical to find ways of "rescuing the extinction of experience" (Samways 2007) to reverse the largely unnoticed loss of regular, direct and meaningful contact with nature and the sublime (Pyle 2003; Saunders 2003; Miller 2005). Insufficient attention has been given to understanding the 'right types' of nature experience such that it moves society beyond a 'crisis mentality' and toward an inspired commitment to sustainability (Redford & Sanjayan 2003; Zaradic et al. 2009). More directly, and irrespective of how the *convergence of crises* is interpreted, it brings the fundamental and "perennial existential question" to the fore: *How should we live*? (Le Grange 2012: 329)

This question presents a major challenge for a contemporary education which is struggling to precipitate social-ecological change at the speed required (Zelezny 1999; De Wet 2007). It is evident that the ingrained separations (e.g. mind as separate from body, nature and spirit) inherent to the Western cultural worldview have been transferred to the specific ways in which we approach education and curriculum (Riley-Taylor 2002). As Albert Einstein has observed, no problem can be solved with the same level of consciousness that created it. Overcoming these pervasive divisions to engender any shift in worldview or conscisousness will therefore require "conscious transformative learning" – whatever that may prove to be (Jackson 2007; Shava 2008: 55). What is certain is that the only place that a fragmented world can re-integrate to find wholeness is within our own awareness and perception: *consciousness counts most* (Appendix 9.1.1).

This research explores meaningful nature experience in order to advance understandings on its qualities, essence and conditions under which it is encountered, enhanced, threatened or has greatest influence and impact. It investigates the relationship between meaningful nature experience and connectedness with nature; specifically, how each may potentially act as a conduit for the other. In the quest for revitalizing education for sustainability as part of conscious transformative learning, this research explores if and how meaningful nature experiences might afford a breakthrough in re-storying the Western worldview such that it can create a consciousness capable of perceiving wholeness and interrelatedness in an unfolding universe.

> *A radical inner transformation and rise to a new level of consciousness might be the only real hope we have in the current global crisis brought on by the dominance of the Western mechanistic paradigm.* ~ Stanislav Grof

1.2 Uniqueness

This transdisciplinary study investigates subject matter interfacing the natural sciences (conservation ecology), social sciences (environmental psychology) and human sciences (education for sustainability). It is perhaps the first of its kind to use phenomenology as part of a pragmatic mixed methods approach and which draws on personal experience and insight to deepen understanding of the phenomena under study.

1.2.1 Scientific and societal contribution

From an academic and theoretical perspective, this study:

i) Reviews interdisciplinary literature to highlight the current state of knowledge on connectedness with nature (CWN), meaningful nature experience (MNE), education for sustainability (EfS) as basis for integrating and expanding with revised definitions, interpretations and understandings;

ii) Describes characteristics of meaningful nature experiences in order to uncover commonalities and distil essences which may resonate with readers who have had such encounters;

ii) Performs empirical research which tests for relationships between CWN and MNE as a basis for validating whether continued research (in the context of conservation and EfS) is warranted;

iv) Incorporates results and insights into the 'bigger picture' in terms of their value to education for sustainability and in promoting dialogue between academics, researchers, educators, facilitators and practitioners about the implications for fostering environmentally responsible behaviour (ERB); and

v) Explores the ideals and boundaries of transdisciplinarity as a part of a single PhD research endeavour, particularly in terms of being able to generate the depth of knowledge capable of serving both the evolution of science and the needs of society.

As one of the first students admitted into Stellenbosch University's *Transdisciplinary Doctoral Programme in Sustainability*, it is hoped this research sheds light on the complexity of connected social-ecological systems and my role and experience as a researcher therein. There often exists an irreconcilable tension between the ideals of a transdisciplinary process which acknowledge intuition, participation and subjectivity as a precedent to empirical knowledge and the norms of conventional scientific approaches which, through an allegiance to logic, detachment and objectivity tend to discount such inclinations (Moustakas 1994; Nicolescu 2002; Max-Neef 2005). This work is an experiment in transdisciplinarity: an exploration and reflection on process, style and output sitting uneasily at the nexus of science, society and soul. The dissertation seeks integration, particularly in crossing – with a vision to bridge – disciplinary divides.

1.2.2 Personal contribution

This decision to undertake this study is largely the result of 'a call', in the sense that I was initially reluctant to pursue doctoral research. However, a flowing and energized sequence of events - from the emergence of supervisors and funding to the unfolding of the topic itself – compelling me to engage with this study. These fuzzy dimensions are recognized upfront because they set the stage for a research process which was equally characterized by events that both challenged and enriched my beliefs and understandings. My experiences reflect much of what I have both gained as well as brought to this research: an appreciation of the currents of meaning and purpose that every so often take hold of - and imbue - our being in the world. With their numinous overtones, these enticing experiences are difficult to resist and likely influenced - but hopefully equally enhanced - the directions of my intellectual curiosity and intepretations of the research.

Therefore, the scientific outputs presented in this dissertation are complemented with personal accounts which dovetail with my parallel life as a researcher. Whilst these few reflections do not do justice to the quantity and quality of experiences encountered during this journey, they nevertheless highlight both the 'messiness' of (research) life and its complementary beauty, allure and fluidity. This journey was characterized by inspiring moments and meaningful experiences across diverse contexts. In embracing an element of (synchronistic) opportunism, I was afforded valuable research and learning opportunities. This in itself is probably not all that unique. In fact, most research endeavours are likely characterized by helpful coincidences – possibly a natural result of perception and attention conspiring in the search for patterns of meaning. The difference, however, is the extent to which these events are opened up to, made explicit, embraced and embodied by the researcher as part of their unique context-specific research process.

The opportunity to become involved with field-based education for young adults during the course of this research has drawn me into reflecting on pedagogical approaches and becoming aware that my own approach was informed by *constructivism*, i.e. emphasizing the construction of meaning through experience (Morse 2011). I am inspired by how students learn, what motivates their learning, how they make meaning from their experiences, what they do with it and how this all contributes to personal growth and the ability to find career direction or life purpose. This research has therefore contributed to a personal realization that I am impassioned by seeing people awaken and 'come alive' in finding their passion, particularly when that is revealed or confirmed through meaningful nature experience. Similarly, this research process also enriched my own sense of purpose, passion and becoming. However, at the close of the research, I also understood that the essence of this personal contribution is how my transformative learning might, in turn, engage and serve society through action and education for sustainability.

1.3 Bracketing: background and personal context

> *…in phenomenological research, the question grows out of an intense interest in a particular problem or topic. The researcher's excitement and curiosity inspire the search. Personal history brings the core of the problem into focus.* (Moustakas 1994: 104)

This autobiographical section describes key personal experiences with the phenomenon under study (Creswell 2007). The approach follows that demanded of heuristic inquiry (Section 3.2.2.5 and Appendix 9.4) which, in recognizing that the research question reflects a concern of the researcher to understand themselves and the world in which they live, demands a high degree of transparency (Hiles 2008). The premise here is therefore to make explicit, set aside (i.e. 'bracket out') the meaning of my own personal experiences so that the reader's focus may be directed toward participants' experiences comprising this study, without otherwise being distracted by speculation about my motives, values and perceptions (van Manen 1990; Moustakas 1994; Creswell 2007; Morse 2011). It is impossible to entirely set aside one's own experiences but it is important to the integrity and thoroughness of the study that efforts are made to 'suspend' personal experiences and meanings prior to commencing the analysis (see also Appendix 9.2).

Committing to this study rested on being able to speak the truth about what I felt compelled to investigate: i.e. *understanding to what extent meaningful (and, in particular, synchronistic) nature experiences were encountered by others and if those experiences registered a similar impact on them as they have had on me, in terms of shaping perception and deepening connectedness with nature*. A reluctance to broach this somewhat obscure and potentially problematic field seems indicative of why dimensions of this topic remain at the scientific fringe.

My background to this research topic is varied but is product of a multi-disciplinary education, a cross-sectoral career and key life experiences over the past 15 years. I have attained a Bachelor of Business (major: marketing; minor international business) from Queensland University of Technology and a Master

of Environmental Science (major: environmental systems analysis / integrated ecosystem assessment; minors: environmental policy and fisheries) from Wageningen University, The Netherlands. I have not been specially trained or educated in fields of psychology and my dealings with - and pursuit of – (sustainability) education as a vocation only surfaced during the first year of this doctoral research.

During my late teens, I broke a cycle of angst by experiencing what might be called a 'spiritual awakening'. In the enriched 18 months after that time, life felt like it was imbued with a numinous sense of 'flow'. I also encountered the concept of 'synchronicity' and, as my experiences of this phenomena multiplied, it seemed to have a significant and positive effect on the way in which I engaged with others and the world at large.

During my 20s, I lived abroad in Europe initially working as a telecommunications market analyst before pursuing a master's in environmental science (Wageningen University). Afterwards, I was employed as a scientific researcher working on projects related to ecosystem services and valuation. Whilst intending to abandon my marketing roots, I came to appreciate its insights (e.g. on the psychology of human (consumer) behaviour and perception) whilst completing my master's (MSc) degree. At that stage, my experience of the environmental science community was that it did not appear to prioritize – or have a sufficient grasp of - the dimensions of human behaviour as they applied to conservation. This observation served as a catalyst for a growing interest and motivation toward finding effective ways to communicate the benefits of nature with the aim of changing human perception. During this time, I also shied away from spiritual inclinations as part of an earnest ambition to build scientific intellect and knowledge in the environmental sciences. Yet, time and again, it seemed like these non-material 'fuzzy' impulses could not easily be subverted. Experiences in northern Australia in interacting with Aboriginal persons and seeing their connection to land and wildlife as part of my MSc fieldwork in 2004 was an initial turning point. But it was not until end-2005, just after completing my MSc degree and preparing to embrace a conventional scientific career, that a cathartic nature experience forced me to reassess perceptions, priorities and directions in life (Appendix 9.2).

In 2007, my path led to the Baviaanskloof, South Africa and presented a fantastic hands-on opportunity to put knowledge, skills and passion into practice as part of collaborative landscape restoration initiative, known as PRESENCE. It was also the first time since my MSc fieldwork that I had spent extended periods in wilder nature, away from urban settings. I began to feel a deeper connection with nature, having some profound wildlife encounters and, at the same, time hearing 'African bush stories' of unlikely happenings which purportedly had a significant impact on those involved. So there was this emerging polarity and tension between being engaged in work which required our team to generate scientific knowledge in order to build the a rational case for encouraging stakeholders to support ecological restoration and, on the other hand, being increasingly confronted with the idea that certain experiences in nature can catalyze desired shifts toward environmentally responsible behaviour. The fact that one of the farmers championing restoration in the Baviaanskloof had a quasi-religious nature experience on his land which he considered pivotal in propelling him on a path of environmental stewardship only served to further pique my interest.

These realizations raised many questions: What is the real evidence base for these anecdotal experiences? Who was having them and how? Were they really as important as people made them out to be? Was there any commonality or continuity to the experiences? Were they changing people's attitudes and behaviour? If so, could these experiences be cultivated? Could they be used as an intervention strategy - as either part of social marketing toolkit or a formal education program? I sought answers. At that time (2007-2008), I did not know how to refer to these diverse experiences since they seemed so unique to every individual. How could one term capture what may be invariably referred to as epiphany, spiritual, numinous, profound, peak, mystical, significant, exceptional, synchronistic, awakening, revelationary and transcendental? Soon after commencing research in mid-2009, it became apparent that all these experiences were essentially connected by a single thread – their *meaning*. And so *meaningful nature experience* (MNE) was born. [11]

Various uncanny events characterized the coming together of this study. Concerning MNE, it seemed that once a commitment to this research had been made, my own MNEs seemed to multiply. As I subsequently learned as being characteristic of synchronicity, these MNEs were often mirrored or intimately entwined with the questions or themes consuming my attention at the time. As mentioned earlier, there was a constant struggled with i) being upfront and unwavering in addressing the real interests which were driving my research curiosity; and ii) allowing myself to be 'knocked off course' as I swayed in response to the (often imagined) opinions and expectations of others. It was here that MNEs provided greatest reassurance, meaning and impact as they felt like a less-than-subtle nudge urging me to avoid becoming diverted with activities which were not in service to the 'true vows' [12] which I knew I should be honouring.

Of the numerous MNEs characterizing a turbulent first-year transition into full-time research, perhaps the most lucid and unfathomable was the appearance of a deadly scorpion at my feet during a morning shower. At that time, I was battling to give this research the time and attention needed and was also wrestling with how to speak the personal truths that I felt should be a part of this learning journey. Immersed in thought, I gazed ahead toward the window and dispassionately watched the sunrays slice the rising steam. As I let my neck savour the blast of hot water, I casually looked down: the sudden sight a large scorpion at my feet was too surreal to fully process. I stared with a strange sort of bemusement. There was no fear, fright, nor instinctive movements - just a simple bewilderment as to why a large scorpion was in the bathtub. Within a moment, the water carried it feebly down the plughole, which in retrospect seemed too small to be able to fit a body of its size. And that was it. But I immediately knew then as I know now that the presence of that scorpion was an important wake-up call. During the years to follow, key MNEs with eland, otter, orcas and swallows all provided much needed orientation and reminders of 'a calling'. Most significantly, repeated appearances of the praying mantis at timely moments along this journey provoked curiosity and wonder. The lived experiences of a number of those key encounters are interspersed throughout this dissertation.

[11] I had not seen this term used elsewhere until being sent Morse's (2011) PhD dissertation in late 2011.
[12] See poem by Whyte (1997) *All the True Vows*: http://www.poetry-chaikhana.com/blog/2012/04/09/david-whyte-all-the-true-vows-2/ ; or in spoken word: https://www.youtube.com/watch?v=8tdrVLfe1M8 (*Retrieved 10 December 2013*).

1.4 Research questions

This research aims to understand whether *meaningful nature experience* and *connectedness with nature* are of value in improving the effectiveness of both formal tertiary-based conservation ecology curricula and community-based field activities as part of an *education for sustainability* for transforming conscisousness.

The following questions guide this research:

i) What is *connectedness with nature* in a contemporary context?

- What are the theoretical and practical definitions and perspectives in the literature?

[Chapter 2 (Section 2.2)]

ii) What constitutes *meaningful nature experience*?

- How (and how frequently) are they encountered by individuals?
- What types and forms are there and are these defined by specific, common characteristics and components that can be identified?
- What are the significant themes, structures, relationships and essences?
- What conditions and/or contexts inspire MNEs?

[Chapter 2 (Sections 2.3, 2.4) and Chapter 4]

iii) What is the relationship between *meaningful nature experience* and *connectedness with nature*?

- Does *meaningful nature experience* form a component of *connectedness with nature*?
- Is *connectedness with nature* a prerequisite for having *meaningful nature experience*?
- What is the perceived impact of both on an individual's attitudes and behaviour?

[Chapter 5 (Sections 5.1 and 5.2)]

iv) What is the relationship between *meaningful nature experience* and *invasive alien species* and?

- How are *invasive alien species* perceived to affect *meaningful nature experiences*?
- What is the relationship between *invasive alien species* and *connectedness with nature*?
- What are the key elements which influence perception and experience in this context?

[Chapter 5 (Section 5.3)]

v) What are the implications and applications of *meaningful nature experience* and *connectedness with nature* in *education for sustainability*?

- What is the potential value of *connectedness with nature* for education?
- What is the potential value of *meaningful nature experience* for education?
- How should we approach and design education on *invasive alien species* in this context?
- How can the above be practically integrated and applied within an educational context?

[Chapter 5 (Section 5.4, 5.5) and Chapter 6]

2 Literature review

2.1 Introduction

Despite assertions in literature that the field of conservation is "synthetic, eclectic and multi-disciplinary", few studies can claim to be truly cross-disciplinary (Fazey et al. 2005: 63). This research aims to address such deficiencies from the outset by compiling literature reviews which demonstrate interdisciplinarity and, further, transdisciplinarity by drawing on grey or popular literature as an expression of societal perceptions and experiences. Literature reviews conducted for this dissertation can be grouped into three categories:

i) Background reading, philosophical positioning and interdisciplinary orientation (Chapter 3);
ii) Research methodology, methods and phenomenology as a guiding approach (Chapter 3);
iii) Existing research and/or scholarly literature used as basis for introducing research themes / concepts and used to subsequently support, compare, discuss and/or critique results - (Chapters 2, 4, 5 and 6).

This chapter falls under this third category in reviewing the literature which support the primary themes and concepts comprising this research (as follows this dissertation's conceptual framework, see Figure 8)

As outlined in further detail below (Section 2.2.2), this chapter uses three largely synergistic methods to guide the retrieval and analysis of literature in all of its sub-sections:

i) *Systematic:* Keyword searches of bibliographic e-databases;
ii) *Snowballing:* Using citations from exisiting literature as way to identify further literature; and
iii) *Synchronicity:* Giving consideration to literature coincidentally encountered which resonated with key questions at the time and thus precipitated insight and a leap in my understanding.

Concept such as *connectedness with nature* (CWN), *meaningful nature experience* (MNE) and *synchronicity* are not always prevalent in formal scientific literature or, if they are, do not necessarily address all angles which might be needed to enrich understanding of the topic. However, these concepts are often to be found in informally published scholarly literature, autobiographical narratives, nature writing and/or cross-cultural accounts. Therefore, all literature reviews were broadened to include scholarship which complemented and augmented scientific peer-reviewed literature (Mouton 2001). Of the methods outlined above, steps ii) and iii) were particularly helpful in identifying this informally published literature. Finally, as in line with the aims of this dissertation, the reviews are grounded in – and primarily focused on – Western worldview and therefore is subject to inherent bias which may preclude results from being applicable to other contexts.

Box 1: Reflection on systematic and synchronistic processes as part of the literature review process

The systematic approach used for literature reviews comprising this study were, as expected, demanding, time-consuming and led to the retrieval of a vast body of interdisciplinary literature. Whilst essential and valuable, it sporadically led to 'analysis paralysis' as I attempted to navigate my way down a 'rabbit hole' to distil relevant information. In contrast, I often found myself - particularly at the outset of my research – buoyed by synchronistic and serendipitous processes which led me to literature which seemed to be what I needed to read at that point in time. This apparent tension was captured by an in-depth interviewee who, at about two-thirds of the way through the research process, reflected on the difference between systematic online searches and synchronistic discovery:

> *I believe there is a different way we access information when employing an electronic search as opposed to the synchronicity of walking down an aisle were a book lands on the floor that isn't even on the subject you are researching, but has exactly what you need to trigger the next step in your thought process.* [Galeo]

Personal experiences have urged me to consider both systematic and synchronistic processes as important in identifying relevant literature. However, the question is whether these processes act in synergy or in discord. A systematic approach is clearly a logical, rational process of demonstrating to peers that the literature identified is a reliable representation of what knowledge currently exists in the scientific domain. On the other hand, literature revealed through synchronicity may be perceived as being a result of any or all of the following:

i) selective attention (intentionality) ripe to perceive that which one is (sub/un)consciously looking for;
ii) projection of the un/subconscious mind which has a tendency to direct attention to 'see' that which the researcher needs to integrate as part of their process toward psychological development/wholeness;
iii) guidance from the unconscious mind (or other 'forces') which feels like 'invisible hands' putting one "on a kind of track that has been there all the while, waiting for you…" (Joseph Campbell in Jaworski 1996: 135).

Clearly, these interpretations of a synchronicity - which may be more concerned with self-discovery - can conflict with a systematic process which, in supporting scientific discovery, is prioritized in research. However, in the context of this study which draws on phenomenological and heuristic inquiry (Section 0) the distinction is neither clear nor straightforward. Nevertheless, there is fertile ground for exploring ways in which these distinct approaches may be synergistically combined as a form of (mixed) method. The extent to which a synchronistic approach is accepted is largely dependent on whether emphasis is purely placed on the production of knowledge as a robust and reliable contribution to science or, alternatively, in upholding the ideals of transdisciplinarity (Section 3.1.3) draws on different (e.g. intuitive) 'ways of knowing'. If combined, which one holds the balance of power?

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1 November 2011: I storm back into the cottage, yearning to get this damned data analysis underway. Opening methodology texts again, I scan the same highlighted sections I had read multiple times: *aagh, how do I begin*? Glaring at the clock, I feel sickened to my stomach's pit to have let five hours lapse without committing a word to paper. *No! You cannot afford to waste this week*. I berate myself and lament that these are my final days in the solitude of this wilderness cottage. *How can I overcome this paralyzing state of inertia?* I crave inspiration to break the impasse as I stare into the abyss of failure. I glance to my left and sigh at the books that I had wanted to summarize this week. On top of the pile is *Ecological Intelligence* by Ian McCallum (2005). *Another book I have never gotten around to reading*. Puffing my cheeks, I allow the creases in my forehead to consolidate their growing furrow. Then, in initiating another dire form of procrastination, I recklessly snatch at the book and allow its pages to feebly flop open.

"Synchronicity"

Impossible. I blink and frown in bemusement at the sub-heading on page 145: "*Synchronicity*". Unnerved, I ponder the odds of opening directly at this page and gaze out the window with a mix of wonder and yearning for the message begging to be decrypted. I was unaware that McCallum broached this topic; yet here he is stressing the significance of synchronicity in people's lives and extending that by discussing its ecological implications. Renewed and absorbed in digesting the text, I wonder how I had not known of this earlier. McCallum talks about the ability of synchronicity to make a crack in even the most rational educated left-brained façade. Triggering an epiphany, he argues that the patterning of information only becomes meaningful when it is emotionally bonded. McCallum expands the idea of *intentionality* and how it precipitates our relations with nature. Standing up and feeling lighter, I recall the events of the past hour: intense frustration had impelled me outside and, lost in thought over methodology, I had suddenly found myself face-to-face with a herd of eland, gazing intently. It was another in a string of recent encounters with this herd and buoyed me until returning to my desk. Then, as emotions again piqued, this unexpected opening of a book had both shattered and evolved thinking on how to proceed: I needed to write about these synchronicities.
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2.2 Connectedness as core conservation concern [13]

2.2.1 The call to reconnect with nature

"Reconnect with nature" has become the mantra for addressing humanity's severance from the natural world. This perceived separation is widely viewed as the main driver behind the global environmental crisis (Scull 1999; Pyle 2003; Maller et al. 2008; Nisbet et al. 2009; TEEB 2010; Swaisgood & Sheppard 2011; Tam 2013a). In identifying future challenges for conservation biology, Balmford and Cowling (2006: 694) see:

> …a great need for interdisciplinary efforts to tackle perhaps the most pervasive underlying threat of all by reconnecting people and nature…even if all the other building blocks of effective conservation are in place, we will not succeed unless the general public cares, and they are unlikely to care enough if they no longer experience nature directly.

This call echoes the views of ecologists, environmental educators and nature writers who have long stressed the importance of individuals' *connectedness with nature* (CWN) in fostering an ethic that motivates people to become more engaged citizens who practice *environmentally responsible behaviour* (ERB) (Leopold 1949; Chawla 1999; Kollmuss & Agyeman 2002; Schultz et al. 2004; Maller et al. 2008; Nisbet et al. 2009; Mayer & Frantz 2004). This call also finds support in many natural history or bio-philosophical treatises (Pyle 2003; Reser 2003; Naess 2008; Tam 2013a).

However, despite the case for CWN being replete across literature from, e.g. ecophilosophy, public health, environmental education, nature-based tourism, outdoor adventure and multiple psychology sub-disciplines, global society has made little progress in achieving aspirations toward CWN or behaviours which sustain biodiversity and healthy ecosystems (Zelezny 1999; Schultz et al. 2004 Balmford & Cowling 2006). There is also an apparent lack of appreciation in government, business and the general populace about the significance of CWN and its relevance to societal problems (Pyle 2003; Maller et al. 2008). Notwithstanding the mounting empirical evidence and calls for society to 'reconnect with nature', a critical mass of decision-makers and opinion-leaders in governance, science and education circles have failed to grasp the significance of CWN in theory and practice in terms of achieving desired social and ecological outcomes. Of particular concern, is that a serious and sustained focus on CWN continues to evade the majority of conservation practitioners and researchers. This 'knowing-doing' gap (e.g. Knight et al. 2008) between the widespread recognition of the need to reconnect with nature (as a prerequisite for biodiversity conservation) Is the task of reconnecting people with nature fundamental to - and compatible with - practices that deliver conservation outcomes? Is so, is there sufficient understanding of CWN in conservation and education for sustainability in terms of how it can be defined, practiced and evaluated in order to foster long-term ERB?

In introducing conservation psychology, Saunders (2003) outlines possible ways of organizing research areas within the field. This review follows that format and explores theoretical, applied and evaluative dimensions of CWN at the *individual* level (primarily) and the *collective* or *group* level. The section therefore synthesizes

[13] Section 2.2 has been modified for a scientific journal and is currently under editorial review (as of February 2014).

a large cross-section of interdisciplinary literature to: i) review definitions, conceptualizations and measures of CWN (*theoretical*); ii) cover activities and practices commonly associated with CWN (*applied*); iii) discuss possible ways to measure the success of strategies promoting CWN (*evaluative*); iv) highlight the benefits of CWN to human well-being and ERB; and v) emphasize the relevance of CWN to conservation by proposing avenues for its inclusion in common discourse and education so as to effect action.

2.2.2 Methods

As outlined above, three synergistic methods have been used to guide the literature search:

i) *Systematic:* Keyword searches of bibliographic e-databases, e.g. American Association for the Advancement of Science (CrossRef), American Psychological Association (APA), Google Scholar, Life Sciences (JSTOR), MEDLINE (NLM), Nature Publishing Group (CrossRef), OneFile (GALE), SAGE Journals Online, ScienceDirect, Scopus and Web of Science. A three-step process was used: a) using the words 'nature' with the root 'connect*' in the title, abstract or keywords; b) searching for terms encompassing CWN: 'nature relatedness', 'environmental identity', 'ecological self', 'place attachment' and 'human-nature relationship'; and c) screening search results according to relevance to e.g. conservation, psychology, education disciplines and CWN theory, application and evaluation.

ii) *Snowballing:* An iterative process of using citations from literature returned during the systematic search as an avenue for identifying further pertinent literature;

iii) *Synchronicity* (cf. Jung 1960; Main 2007)*:* Giving due consideration to literature which was coincidentally encountered (through e.g. peer recommendation, serendipitous discovery) at the 'right time' and which found intuitive and meaningful resonance with salient questions for the researcher such that it unlocked key understandings needed at that stage in the review process. Given the multitude of ways in which human connections with nature can be addressed, this additional subjective filter helped prioritize an extensive list of search results.

Notions of CWN are also replete in informally published scholarly literature and stories of individuals' kinship with nature are common in many cultural accounts (Schultz 2000) as well as in the writings of those who have spent prolonged reflective time encountering the natural world (Reser 2003). Therefore, the literature review was broadened to include scholarship which augmented scientific peer-reviewed literature (Mouton 2001). Steps ii) and iii) were particularly helpful in identifying this informally published literature.

There is a general bias in literature toward Western conceptualizations of CWN, noting however that "Western" is an imprecise term which can be variously defined according to context (Footnote 8). This review therefore primarily focuses on CWN as relevant to persons socialized to middle-class Western values and on the basis that it is widely accepted that Westernized cultures are responsible for fuelling and exacerbating humanity's separation from nature (Table 1). As Western culture has been exported through colonization and globalization, Western worldviews are no longer geographically confined to Europe and its former colonies. In this regard, implications of this review are cross-culturally relevant, particularly since contemporary CWN also draws much inspiration from non-Western (e.g. Eastern, Indigenous) traditions.

2.2.3 Terminology

'Nature' is largely a social-cultural construction and its conceptualization will vary across - and inevitably be influenced by - context, including disciplinary epistemologies (Atram & Medin 2008). 'Nature' is used here to refer to any element of the biophysical system which includes flora, fauna and geological landforms occurring across a range of scales and degrees of human presence (Bratman et al. 2012). 'Nature' may be conceived as the biophysical environment as it exists without human beings; however, this distinction remains problematic (Vining 2003) since it perpetuates the conceptual and perceptual human / nature divide. Despite this limitation, it is considered a necessary pragmatic demarcation for this review.

A peron's ecologically desirable actions are described using a range of terms including: "pro-environmental behaviour" (e.g. e.g. Wilhelm-Rechmann & Cowling 2008), "environmentally responsible behaviour" (e.g. Nisbet et al. 2009); "conservation behaviour" (e.g. Saunders 2003); "ecological behaviour" (e.g. Mayer & Frantz 2004); and "sustainable behaviour" (e.g. McKenzie-Mohr & Smith 1999). Here, the term 'environmentally responsible behaviour' (ERB) is used to capture these various terminologies. However, it is noted that "conservation behavior" is not necessarily synonymous with strict definitions of ERB.

The Oxford Dictionary (ODO 2012a) defines the verb 'connect' [1. in relation to an object] as: "to bring together or into contact so that a real or notional link is established; join together to provide access or communication", and [2. with no object] as: "to form a relationship or feel affinity with someone" (ODO 2012a). "Connect" originated from late Middle English (i.e. 18th century onward) to mean "be united physically" from the Latin *connectere* – from *con* (together) and *nectere* (bind). The definition for "reconnect" [1.to an object] is: "connect back together"; and [2. with no object] to: "re-establish a bond of communication or emotion" (ODO 2012a). This etymology informs understandings of CWN and points toward a communicative relationship involving a process of physical contact and/or emotional bonding.

'Reconnect', like other terms in the conservation lexicon (e.g. restore, rehabilitate, regenerate, reforest), implies a perceived loss and a quest to return to a more desirable, but often difficult-to-define, state. Whilst some of these terms relate purely to ecological systems, 'reconnect' (and 'restore') may equally apply to the human-nature relationship. 'Reconnect with nature' serves well as a generic call for behaviour change; however, in contrast to the measurable 'state' of CWN, it is action- and process–oriented and therefore of limited use as scientific nomenclature. Notions of 'connect' in conservation literature usually refer to 'ecological connectivity' (Hannah 2011; Hellman & Pfrender 2011; Nepstad et al. 2011) and is concerned with protecting, restoring and improving ecological processes to build resilience in the face of external stressors (McCay & Jones 2011). In bridging disciplinary terminology and seeking shared understandings, CWN could also be conceived as restoring and improving *physiological* and *psychological* resilience in response to stressors associated with, e.g. urban life or being a conservationist in times of ecological crisis.[14]

[14] From an ecological perspective, Hannah (2011: 1140) observes that "Multiple concepts of connectivity are used, often without definition. Connectivity for different purposes and at different scales is sometimes confounded." This observation is mirrored in the social domain where generalized notions of CWN are often employed haphazardly.

Scholars may refer to "connectedness to nature" (e.g. Mayer & Frantz 2004), "connectivity with nature" (e.g. Dutcher et al. 2007), "connection to nature" (e.g. Luck et al. 2011), "nature connection" (e.g. Young et al. 2010) or "nature relatedness" (e.g. Nisbet et al. 2009). We prefer 'connectedness *with* nature' (CWN) instead of "connectedness *to* nature" because it evokes the subtle yet important idea that i) humans are already an intimate part of nature; and ii) that the state imbues a sense of reciprocity and mutualism. 'Disconnect' is used to broadly refer to the *physical* and *psychological* separation from nature (Table 1).

2.2.4 Compelled to connect?

Calls to 'reconnect with nature' are grounded in the realization that humanity's evolution is inextricably tied to the natural environment. Throughout most of history, humans have had an intimate relationship with nature by living in wild and rural areas and subsisting through hunting and gathering, herding and, more recently, producing with agriculture (Rogers & Bragg 2012; Keniger et al. 2013).

The *biophilia* hypothesis contends that humans are biologically and psychologically predisposed to affiliate with the natural world (Wilson 1984; Kellert & Wilson 1993; Maller et al. 2008; Simaika & Samways 2010; Tam 2013a). Wilson (1984) uses *biophilia* to describe the connections that humans instinctively seek with the rest of life as an innate love or affection, although *biophilia* may be alternatively conceived as a learned responsibility for nature (Simaika & Samways 2010). It appears that these traits are neither strictly innate nor acquired, nor are they fixed nor universal (Hull 2002). Research shows that dimensions of human *biophilia* are shared with living nonhuman primates (Verbeek & de Waal 2002). Nonhuman primates are keenly attuned to their natural habitat, experts at deriving value from it and "display a propensity for emotional learning and kinship" (Verbeek & de Waal 2002: 16). It is clear that the evolutionary experience of humans involves nature and "we are therefore predisposed to resonate with these surroundings, consciously or not" (Bratman et al. 2012: 121).

Psychology research equally demonstrates peoples' basic need to 'belong' as a valued member of a community: group membership (e.g. with family, friends, neighbours, social networks, special interest communities) provides a sense of purpose and can facilitate connection to place (Baumeister & Leary 1995; Mayer & Frantz 2004; Cacioppo & Patrick 2008; Bratman et al. 2012; Rogers & Bragg 2012). Modern society's burgeoning engagement with social media represents one way through which this connection and belonging is sought (Aitkenhead 2010). However, an over-reliance on technology-mediated processes may change the social and interpersonal fabric such that it leads to more disconnected relationships (Young 2011). This thirst for new forms of social connection is perhaps a subconscious attempt to fill a psychological emptiness resulting from a growing separation from nature (Maiteny 2002).

Table 1: Types and drivers of the human (Eurocentric / Western) disconnect from nature

	Physical	*Psychological (perceptual)*
Initial historical drivers (severance / separation)	Early civilization (abandoning 'the wild', use of tools) [1] Domestication of plants and animals [2] Shift from horticulture to plow-based agriculture [3] Totalitarian agriculture, land tenure and ownership [4] Roman system of divide and conquer rule [5] Colonialism (and a logic of domination) [6] Industrial revolution [7] Migration from rural to urban centres [8] Alienation from food sources (esp. meat) [9] Non-reliance / dependency on consumptive uses of nature [10] Adversarial nature, e.g. disease, fires, plagues, earthquakes and extreme climatic events [11]	Advent of language: (Greek phonetic) written word and subject-verb-object grammar structure, literacy [22] Emergence and adoption of select interpretations of the Judaism and Christianity [23] Ancient Greek philosophies (i.e. rationalism) [24] Cartesian-Newtonian paradigm (i.e. dualism, deductive reasoning and a mechanistic worldview) [25] Enlightenment ideals of the educated mind [26] Scientific and industrial control over nature [27] Modernism and the disinterested sciences [28] Doctrine of 'progress' (as per Fontenelle) [29] Loss of respect, humility and empathy with nature [30] General disenchantment of the universe [31] Valorization of individual endeavour [32]
Continual present-day drivers (perpetuation)	Alienation from rural and wild environments [12] Scale (size and speed) of urbanization [13] Poor design / development of the built environment [14] Physiological needs easily met (i.e. little concept of the lower orders of '*Maslow's Hierarchy of Needs*') [15] Exploitation of - and distancing from - animals [16] Indoor sedentary entertainment documentaries [17] Television- and online-based environmentalism and broadcasted (exaggerated nature) [18] Extinction of experience (with nature) [19] Explosive population growth [20] Globalization and multinational corporatism [21]	Stronger, sharper ego "I" structure (than non-Western), individual-referenced identity, limited 'self'-concept [33] Arrested development as a juvenile-like psychosis [34] Embrace of mechanistic achievements ("Light") as human triumphs over wild nature ("Dark") [35] Epistemic scientific divides (subject-object dualisms) [36] Rejection of non-Western ways of knowing [37] Repression of the ecological unconscious [38] Technology mediated lifestyles [39] Modern modes of perception [40] Information and sensory overload [41] "Environmental numbness" through insulation from environmental stimuli - sensory shutdowns [42] Environmental generational/collective amnesia [43] "Shifting baselines" (in memory, perception) [44] Consumerism and capitalist-driven culture [45]

Key: [n] in Table 1 above corresponds with the equivalent [n] listing of cited literature below:
[1] (Shepard 1973, 1982; Katcher & Beck 1987; Bookchin 2005) ; [2] (Katcher & Beck 1987; Scull 1999); [3] (Esbjörn-Hargens & Zimmerman 2009) [4] (Quinn 1992; Scull 1999); [5] (Young 2011); [6] (Plumwood 1991; Scull 1999; Griffin 2001); [7] (Suzuki 1999; Morse 2011; Keniger et al. 2013); [8] (Higgins 1996a; Cock 2007); [9] (Cronon 1991; Vining 2003); [10] (Keniger et al. 2013); [11] (Diamond 2005; Tidball 2012); [12] (Barlett 2008; Maller et al. 2008; Rogers & Bragg 2012; Tam 2013a); [13] (Kellert 2005); [14] (Kellert 2005); [15] Maslow 1970a; Higgins 1996b; [16] (Myers Jnr. 1998; Vining 2003); [17] (Balmford & Cowling 2006); [18] (Csikszentmihalyi 2003; Cock 2007); [19] (Miller 2005; Samways 2007); [20] (Ehrlich 1968); [21] (Esbjörn-Hargens & Zimmerman 2009); [22] (Bohm 1980; Abram 1996; Cohen 1997); [23] (White 1967; McFague 1997; Schultz et al. 2000; Gardner & Stern 2002; Vining 2003); [24](Cohen 1997; Griffin 2001; Kohák 2003); [25] (Plumwood 1991; Metzner 1995; Griffin 2001; Bradshaw & Bekoff 2001; Riley-Taylor 2002; Baille 2003; Kohák 2003; Tam 2013a); [26] (Riley-Taylor 2002; Barlett 2008); [27] (Orr 2004; Davis 2013); [28](Oelschlaeger 1991; Brown & Toadvine 2003; Morse 2011); [29] (Berry 1988; Davis 2013) [30] (Metzner 1995); [31] (Metzner 1995; Scull 1999; Bernard 2007; Morse 2011); [32] (Plumwood 1991; Morse 2011); [33] (Silberbauer 1981; Taylor 2010); [34] (Shepard 1982; Metzner 1995); [35](Oelschlaeger 1991; Plumwood 1991; Schroeder 1991; Hay 2002; Morse 2011); [36] (McFague 1997; Griffin 2001; Bernard 2007; van Breda 2008); [37](Kimmerer 2002; Lopez 2003); [38] (Roszak 1995); [39] (Baille 2003; Schultz 2011); [40] (Sewall 1995); [41] (Kaplan & Kaplan 1989; Kaplan 1995; McDonald et al. 2009); [42](Gifford 1976; Davies & Cohen 1995; Stilgoe 2001); [43](Kahn 2002; Miller 2005) ; [44] (Pauly 1995); [45] (Elgin 1993; Pyle 2003; De Lange et al. 2010).

2.2.5 The disconnect from nature

The drivers of humanity's disconnect from nature have been extensively debated and documented (White 1967; Katcher & Beck 1987; Plumwood 1991; Mathews 1991; Axelrod & Suedfeld 1995; Higgins 1996a; Scull 1999; Palmer 2001; Griffin 2001; Vining 2003; Baille 2003; Bernard 2007; van Breda 2008; Maller et al. 2008; Esbjörn-Hargens & Zimmerman 2009; Ashwell 2010). Four categories of drivers can be identified: i) *physical severance;* ii) *psychological severance* (i.e. events / trends that initiated the disconnect); iii) *physical perpetuation*; and iv) *psychological perpetuation* (i.e. events / trends exacerbating the disconnect) (Table 1). All drivers are likely to have been influenced by - or are a result of - cultural norms or discourses (Baille 2003). The drivers may fit within more than one type, as one driver may function to cause disconnection in multiple ways, e.g. technology-mediated lifestyles could fall into all four types, depending on context and how broadly 'technology' is defined. Similarly, the physical driver's may stem from prevailing psychological mindsets, e.g. colonialism as a result of a "logic of domination" (Griffin 2001) and historical drivers still persist today (e.g. legacies of Ancient Greek, Cartesian, Enlightenment and Modernist thinking). Therefore, the drivers have been pragmatically classified according to common associations in literature (Table 1).

The call to reconnect seeks to overcome peoples' general perception as being separate from, and typically outside and above, nature and ecology, e.g. food-webs (Griffin 2001; Bernard 2007; Plumwood 2008; Schultz 2011). This 'blind spot' – i.e. an inability to see oneself as dependent upon and part of nature - is recognized as a key contributor to environmental destruction (Cohen 1997; Griffin 2001; Vining 2003; Naess 2008; Nisbet et al. 2009). More fundamentally, the human / nature "hyperseparation" embedded in the Western discourse is linked to pervasive cognitive assumptions which split reality into gendered dualisms, e.g. mind / body, reason / emotion, civilized / primitive, light / dark – all of which tend to privilege the dominant former (masculine) over the latter (feminine) (Griffin 2001; Hattingh 2005; Greenway 2011). Similar schisms are found within religion (as a 'separation theology' with a masculine 'God' removed from His creation (a feminine Earth)) and science (as a Cartesian-inspired 'separation ontology', where nature (feminine) is an object for detached human rational observation (masculine) (Barlett 2008; Tam 2013a)).

The excessive subject / object partitioning of the world impedes people's ability to see or imagine connections between their thinking, doing and being (van Breda 2008) – a split that Spinoza was already questioning in the 17th century (MacDonald 2001). So whilst mechanistic thinking was of measurable benefit to the biophysical sciences emerging during this period, it was devastating to the human sense of belonging, mutualism and connection with nature, earth and the cosmos as a whole (Combs & Holland 1996; Sheldrake 2012; Keniger et al. 2013). The pitfalls of industrialization, scientific rationalization and materialism on the human-nature relationship were already recognized as early by the Romantic Movement in the 18th and 19th centuries (Morse 2011). This resistance gradually gave way to Realism and was further displaced by burgeoning post-World War II consumerism, urbanization, resource exploitation and technology-reliant lifestyles fuelled by an increasingly sterile and disenchanted capitalist-driven culture (Oelschlaeger 1991; Metzner 1995; Scull 1999; Pyle 2003; Hamilton 2010; Keniger et al. 2013).

As people de-sensitize and / or adapt to these social and environmental changes, the (acceptable) reference point for measuring the extent of the human / nature disconnect is lowered with each generation (Miller 2005). The cumulative result is the "extinction of experience": a devolution towards a largely unnoticed loss of regular, direct and meaningful contact with nature (Pyle 2003; Saunders 2003; Miller 2005).[15] This enlarges the 'blind spot' concerning humanity's dependency on nature, can invoke fear and intolerance of certain species and has profound implications for ecologies, societies, economies and human well-being (Maller et al. 2008; TEEB 2010; Lemelin 2013). This represents a debilitating *convergence of crises* (or "polycrisis" (Morin 1999)) driven by the perpetual disconnect from nature. Reference to perception alerts us to a problem intimately tied to consciousness (Cohen 1997; Scull 1999). Understanding the disconnect from nature as a problem in consciousnesses may yield valuable insight toward reconnecting with it.

Changing consciousness

Despite scientific advances, consciousness itself, as a real phenomenon with a rational biological explanation, remains elusive, perplexing and mysterious (Chalmers 1996; Searle 1997; Schneider & Velmans 2007; Sheldrake 2012). The term 'consciousness' is ambiguous since it is used across multiple contexts and with reference to multiple phenomena, e.g. "awakeness", "to be conscious of something", "to know about something" or to refer to cognitive or attention capacity (Chalmers 1996: 6). For the purposes of this review, the following traits of consciousness are of specific relevance:

i) *Experience and perception:* Consciousness is a product of an individual's accumulated diverse experiences - being conscious of the world allows one to survive in it, experience it and endow it with meaning (van Manen 1990; Chalmers 1996; Searle 1997; Jacobs 2006; Morse 2011). Experience, as it relates to consciousness and CWN, involves a personal encounter or event that is perceived and lived through; the senses organizing and interpreting stimuli (phenomena) in the external world (Maund 2003; Jacobs 2006; Morse 2011). Perception is a mode of experience as well as a prerequisite for other forms of experience (e.g. bodily, imaginative) which form consciousness (Searle 1997; Jacobs 2006). Perception consists of: a) conceptual non-sensory components, i.e. pre-existing cognitive concepts frame and compare new stimuli and experiences (i.e. mental model building); and b) non-conceptual sensory components, i.e. stimuli are sensed but not conceptualized within existing mental models (Maund 2003; Jacobs 2006; Biggs et al. 2011).

ii) *Attention:* Consciousness is always directed toward something. This self-willed intentionality – or directed attention – is the effortful, conscious process of utilizing cognitive resources to focus on perception on selected stimuli, while filtering, diluting or avoiding distraction from unrelated, irrelevant or competing stimuli (James 1892; Kaplan & Kaplan 1989; Bratman et al. 2012). This determines what, how and for how long a person gives something attention, whereby choices feedback and determine the content of everyday consciousness, i.e. experiences (Morse 2011). Neuroscience demonstrates that an individual's focus of

[15] Note that developments such as urbanization and technology do not preclude all meaningful contact with nature. For example, in certain cases urbanization or urban-based activities / events have facilitated an increased interest in insects (Lemelin 2013a). Similarly, some 'smart' technologies (e.g. species ID apps) may prompt contact with nature.

attention determines the strength of brain synapses and the size of cortex areas (Stefan et al. 2004; Heron et al. 2010). The capacity for humans to direct attention in this way appears to serve as: i) a coping mechanism to avoid the senses becoming overwhelmed and fatigued by all the stimuli (noise) in perceptual experience (Huxley 1954; Kaplan 1995; McCallum 2005; Jacobs 2006); and ii) an evolutionary tool allowing humans to pay attention to phenomena that may impact upon survival or involve problem solving but which requires effort to sustain attention, e.g. listening for sounds of predators (Morse 2011). In both cases, (mental) effort is required to resist distractions from more potent stimuli (Kaplan & Kaplan 1989).

Box 2: Distinguishing primary and secondary perception in inform understandings of CWN

In the definitions above and to follow, 'perception' is problematic because it can be understood as either primary sensory perception (the *experiencing self* (Kahneman 2010) in the present) or secondary reflective perception (*remembering self* (Kahneman 2010) in the past). Both types of perception are conventionally classified as cognitive functions since mental models or cognitive concepts are used to organize and interpret incoming information and form a complex feedback loop with consciousness (Figure 34). However, primary and secondary of perception may have different but complementary applications for CWN, with primary perception mostly using embodied sensory awareness and secondary perception mostly employing conceptualized memory recall. In terms of CWN, it may therefore be more illuminating to make the distinction in consciousness as either (cf.Chalmers 1996, Appendix 9.3):
i) *phenomenal*: primary sensory perception in immediate experience,
as mediated by the physical body (e.g. affect, instinct, intuition); and
ii) *psychological*: secondary reflective perception of past, as mediated by conceptual processes of the mind (e.g. mental models, recall).

Despite being entwined, both forms of perception should be considered when attempting to understand the human disconnect from nature and ways in which these forms perception might be influenced to cultivate a consciousness conducive to CWN.

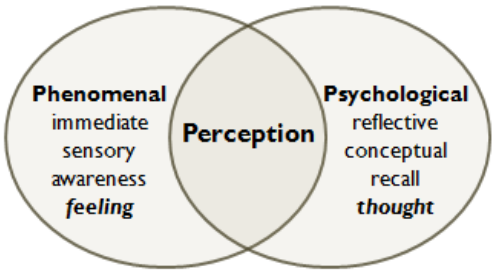

Figure 1: Defining perception

Modern urban society is filled with potent stimuli, e.g. electronic media and advertising, which, in addition to creating an illusion of distance from nature (TEEB 2010), places constant demands on attention and the sensory field within consciousness (Kaplan 1995; McDonald et al. 2009; De Lange et al. 2010). I contend that individuals increasingly suffer from *inattention nature blindness* as ecological phenomena are edited from conscious awareness in favour of this artificial 'super stimuli' (cf. McRaney 2011) which contains more immediate compelling sensory and emotional content. *Inattention nature blindness* reinforces peoples' perception as being separate from nature, since ecological phenomena no longer form a part of the experiences which shape consciousness. Westerners are more vulnerable to inattention blindness as they tend to fixate on focal objects, ignoring background and contextual information (Chua et al. 2005; Masuda et al. 2008; McRaney 2011). The implications are profound as this challenges assumptions about the universality of nature experience as well as the desired objectivity of scientific observation (Starbuck 2006). If we perceive what we look for, remaining blind to what else is present (Simons & Chabris 1999), then this directed attention away from nature may be central to the "crisis of perception" which, in turn, fuels the more fundamental *crisis in consciousness* (Capra 1996).

Contemporary human consciousness is therefore being distracted to the extent that many persons remain entrapped in the mundane, unable to perceive the full spectrum of phenomena arising in nature (Sewall 1995; Cohen 1997; Scull 1999; Morse 2011). This intimately ties back to the 'extinction of experience': without the direct experience of nature needed to form an ecological consciousness, we cannot expect an ecological conscience which motivates care and action (Cohen 1997). Reconnecting with nature therefore requires more than cultural reprogramming: it requires cultivating a consciousness attuned to the natural processes that have shaped human evolution over millennia.

2.2.6 Definitions and theoretical conceptualizations of CWN

Multiple efforts have been made to describe or define CWN (Kals et al. 1999; Schultz 2002; Baille 2003; Saunders 2003; Mayer & Frantz 2004; Schultz et al. 2004; Dutcher et al. 2007; Nisbet et al. 2009; Raymond et al. 2010; Cervinka et al. 2012; Tam 2013a, 2013b). Descriptions of CWN vary according to the emphasis placed on the relative importance of *cognition* (e.g. perceptions, beliefs, knowledge about nature and self) *affect* (e.g. feelings and emotions toward) and *behaviour* (e.g. actions and experiences with/in nature). Each of these dimension interrelate and influence the other in complex ways (Figure 2).

Numerous descriptions of CWN are grounded in the fundamental cognitive notion of an expanded self-construct which encompasses (and reciprocates with) all life-forms (Bragg 1996; Tam 2013a). For example, Schultz (2000; 2002) sees CWN as the degree to which an individual includes (a knowledge structure of) 'nature' within their identiy or cognitive representation of 'self' (Tam 2013a). This closely aligns with concepts such as 'environmental identity' (Clayton 2003) and 'ecological self' which refers to the essence of oneself with which one readily identifies (Bragg 1996; Baille 2003; Schultz et al. 2004; Naess 2008).

The affective dimensions of CWN are given greater attention by other authors (e.g. Kals et al. 1999; Mayer & Frantz 2004; Howell et al. 2011). For example, Mayer and Frantz (2004) describe CWN in terms of Leopold's (1949) land ethic and focus on affective dimensions, such as an individual's trait level of feeling emotionally connected and belonging to the natural community (Cervinka et al. 2012). Kals et al. (1999) refer to emotional inclinations such as love, respect and oneness with nature (Tam 2013a). Although this involves cognitively expanding one's sense of self to include nature, it appears inseparable from affect and direct bodily experience (Roszak 1995; Mayer & Frantz 2004).

Nisbet et al. (2009) move beyond these largely uni-dimensional conceptualizations to the multi-dimensional concept of nature relatedness (NR) which, in drawing on deep ecology's notion of 'ecological self' (Mathews 1991; Bragg 1996; Baille 2003; Naess 2008) blends cognitive, affective and experiential connections with nature (Nisbet et al. 2009; Zelenski & Nisbet 2012). NR comprises internal feelings and thoughts about CWN (including an appreciative understanding of the interconnectedness of life) as well as external behaviours and experiences exhibiting action and agency (e.g. physical interaction, comfort level and familiarity with nature as well as an active commitment and personal responsibility for impacts on the

environment) (Nisbet n.d.). Schultz's (2002) inclusion with nature model also recognizes the cognitive, affective and behavioural aspects of CWN: the cognitive component consists of a sense of connection; the affective as a caring response; and the behavioural as a commitment to action (Vining 2003).

The experience of CWN may be most insightful, since it can involve the "dissolution of boundaries and a sense of a shared or common essence between the self, nature, and others" (Dutcher et al. 2007: 274). Some persons may encounter this as a spiritual phenomenon (Frederickson & Anderson 1999; Ashley 2007; Dutcher et al. 2007; de Pater et al. 2008; Snell & Simmonds 2012). In this regard, Beringer (2003) points out that reducing our relationship to nature as only conforming to the classical A-B-C (affect-behaviour-cognition) alone does not sufficiently encompass the richness and ineffability of our lived experience which interpenetrates the rational and physical world. It is therefore argued that these soulful and spiritual aspects need to be identified, understood and reconciled with conservation (science) as part of a necessary moral and ethical sensibility for confronting the convergent social and ecological crises driven by the disconnect from nature (Schroeder 1991; Higgins 1996a; Beringer 2003). Yet in terms of defining CWN, ontological and epistemic contestations limit the extent that spirituality can be regarded as being distinct from (i.e. other than an emergent property of) the accepted A-B-C dimensions of an individual's consciousness.

Attempts to produce a definitive definition of CWN may border on arrogance and idealism (Ashley 2007), particularly since a sense of CWN is very personal. However, in synthesizing the literature, the following definition for CWN is proposed:

> ***CWN is a stable state of consciousness comprising symbiotic cognitive, affective and experiential traits that reflect, through consisitent attitudes and behaviours, a sustained awareness of the interrelatedness between one's self and the rest of nature.***

CWN is more than simple contact or the superficial enjoyment of nature: it is an enduring appreciation, empathy and mindfulness of the intrinsic value[16] and shared essence of all life - including non-(aesthetically) appealing and non-(apparently) useful elements to humans, i.e. it transcends hedonism, speciesism and functional utilitarianism. CWN manifests as a commitment to action, i.e. a resolve to respect and take responsibility for nature) (Nisbet n.d.; Nisbet et al. 2009; Bruni et al. 2012; Zelenski & Nisbet 2012).

CWN may be conceptualized as consisting of: *information about nature*; *experience in nature*; *connectedness with nature*; and *committed connectedness with nature* (Figure 2; Young 2013). *Information about nature* is that which is usually attained though standard formal education, internet and media, field guides and may satisfy a curiosity or a cognitive urge 'to know more'; *Experience in nature* may range from outdoor sports and recreation to facilitated eco-adventure and is often sought after 'to feel better' (Young 2011) or, through field excursions, may facilitate understanding of information learned about nature; *CWN* may unintentionally arise out of such physical-based activities, although it is evident that the experiential dimensions of CWN

[16] The term 'intrinsic value' is contentious (see Justus et al. 2009a, 2009b and Section 2.3.8 for further discussion).

may have a different quality and be characterized by being relatively unstructured, creative, playful and sensory-aware (in)activity that cultivate stillness in the mind and body (e.g. 'individual level', Table 4). *Committed* (or *'deep'*) *CWN* refers to the willed embodiment of cognitive, affective, experiential and spiritual connections as part of a behavior set which aims to "give back" (or "pay it forward") through leadership in service of social-ecological communities (Young 2011; 2013). According to Young (2013), an individual may only be able to achieve this *committed* (or *'deep'*) *CWN* through an intentional process of being strategically mentored as part of a culturally embedded (community-based) process (Young 2013) (e.g. 'collective /group level', Table 4). Literature comprising this review generally does not delineate between *CWN* and *committed CWN*. Whilst it may be implied, it is however an important distinction to make as ultimately personal well-being and the motivation for ERB will depend on a sustained sense of CWN that balances faculties of mind, body and spirit with will, i.e. using the head, heart, hands and hard work for healing self and helping others.

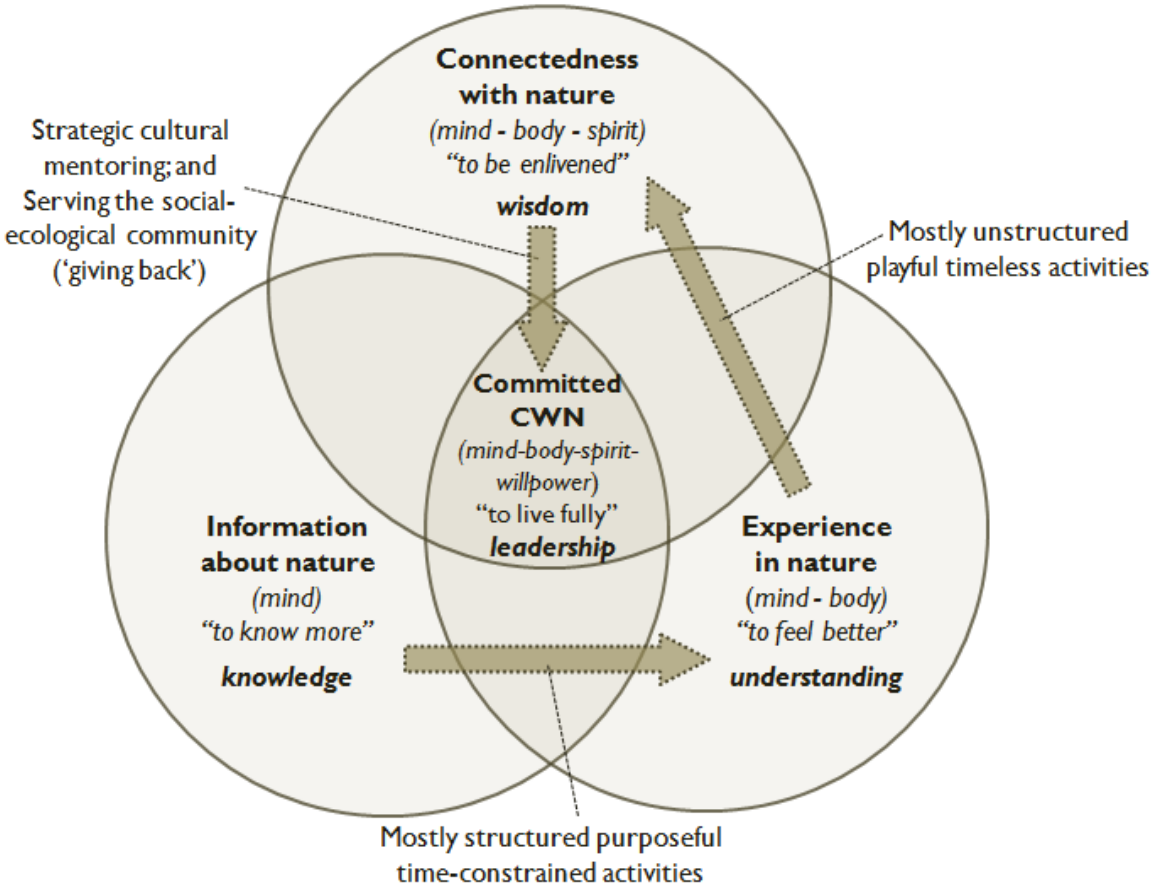

Figure 2: Conceptual framework of the key components comprising CWN (based on Young 2011; 2013)

2.2.7 Measuring and quantifying CWN

Since the 1970s, psychological research has been investigating relationships between various predictor variables and measures of environmental concern, attitudes and behaviour (Kollmuss & Agyeman 2002; Perrin & Benassi 2009). Despite CWN's long-standing theoretical presence in philosophical and environmentalist literature, attempts to empirically distil, isolate and refine the CWN construct for the purposes of psychological testing has only gained momentum since the turn of the millennium (Dutcher et

al. 2007). This newfound focus has been coupled with the growing realization that: i) environmental attitudes, concerns, beliefs and behaviours alone are insufficient in explaining individuals' relationships with nature and their motivation behind ERB (Nisbet et al. 2009); ii) whilst efforts to understand individuals' ERB have tended to focus on personality, knowledge and skills as predictors (Hines et al. 1987; Nisbet et al. 2009), it is motivation (as a complex blend of implicit and explicit attitudes, beliefs, intent, values, norms, locus of control, personality traits and knowledge influenced by internal and external factors (Kollmuss & Agyeman 2002; Schultz et al. 2004; De Lange et al. 2010; Fishbein & Ajzen 2010) which drives individual behavioural choices (Hines et al. 1987; Kollmuss & Agyeman 2002; Schultz 2011); and iii) CWN can influence motivation and be a core motivation in itself. For example, CWN has been found to be a primary motivation for conservation volunteers to engage with projects – which, in turn, sustains their contact with nature (Guiney & Oberhauser 2009). CWN was the core motivation for inspiring Dutch forest managers to carry out their work (de Pater et al. 2008). In this case, personal and professional actions were embedded in a CWN which transcended the individual and represented an "ultimate concern" for wanting to manage forests effectively (de Pater et al. 2008). Altogether, the prospect that CWN may help foster ERB has motivated environmental psychologists to develop corresponding measures (Tam 2013a).

The human relationship with the natural world is deeply entwined with the conscious and subconscious mind and is therefore difficult to access for scientific analysis (Maller et al. 2008). Similarly, assessing CWN is challenging, since an individual's worldview may not be well-developed and their sense of CWN is not always given conscious consideration or is readily available for retrieval (Schultz et al. 2004). However, in recent years various instruments have been developed which aim to measure CWN or a suitable proxy (Table 2). The more frequently cited instruments in literature include: Emotional Affinity toward Nature (EAN) (Kals et al. 1999); Inclusion of Nature in Self (INS) (Schultz 2001); Environmental Identity Scale (EIS) (Clayton 2003); Connectedness to Nature Scale (CNS) (Mayer & Frantz 2004); and the Nature Relatedness Scale (NRS) (Nisbet et al. 2009) (Tam 2013a). The CNS and NRS are expanded upon below.

Table 2: Recent evolution of common instruments used for measuring connectedness with nature

Instrument	*Reference (Author, Year)*
Emotional Affinity toward Nature (EAN)	Kals et al. 1999
New Environmental Paradigm (NEP) (revised)	Dunlap et al. 2000
Inclusion of Nature in Self (INS)	Schultz 2001
Environmental Identity Scale (EIS)	Clayton 2003
Implicit Associations Test (IAT) (modified)	Schultz 2004
Connectedness to Nature Scale (CNS)	Mayer & Frantz 2004
Connectivity with Nature Scale (CwNS)	Dutcher et al. 2007
Nature Relatedness Scale (NRS)	Nisbet et al. 2009
Love and Care for Nature (LCN)	Perkins 2010
Connection to Nature Index (CNI)	Cheng & Monroe 2010
Disposition to Connect with Nature (DCN)	Brügger et al. 2011
Dispositional Empathy with Nature Scale (DENS)	Tam 2013b

The CNS is a 14-statement scale measuring an individual's conscious, stated level of affective relatedness and kinship with nature (Bratman et al. 2012). The CNS seeks to operationalize Leopold's land ethic - i.e. a perceived belonging to the natural community - and a cognitive representation of 'self' that includes the natural world, such that harm to nature is experienced as harm to self (Leopold 1949; Roszak 1995). The CNS is designed to overcome shortcomings identified with earlier CWN measures (Table 2) as well as providing an avenue for bringing less research-oriented discussions of CWN into the more research-oriented realm of psychology (Mayer & Frantz 2004). The CNS has been shown to be a reliable predictor for ERB (including identifying oneself as an environmentalist) and subjective well-being (including improved life satisfaction, overall happiness, perspective-taking abilities and resolution abilities for interpersonal problems and moral dilemmas) (Mayer & Frantz 2004; Mayer et al. 2009; Tam 2013a). Whilst primarily a trait measure, the CNS has also been adapted to measure 'state' as a response to situational factors, such as exposure to different external environments (Mayer et al. 2009). Shortcomings have been identified, including CNS' inability to measure affective and experiential dimensions of CWN as intended (Nisbet et al. 2009; Perrin & Benassi 2009). The CNS, like the INS, appears more a measure of an individual's cognitive interests in nature and beliefs about their CWN but which still taps into some affective aspects (Nisbet et al. 2009; Perrin & Benassi 2009). However, the CNS's test-retest consistency and correlation to other CWN or attitudinal instruments (Table 2) supports its reliability and validity (Mayer & Frantz 2004).

The NRS is a 21-item 'trait-like' measure claimed to be a more complete construct, overcoming limitations of the CNS and measuring more than environmentalism, activism, cognitive beliefs and superficially pleasing facets of nature (Nisbet t al. 2009). The NRS was found to be valid and internally consistent, temporally stable and correlated with time spent outdoors, in nature, and with measures of environmental attitudes and behaviours (Nisbet et al. 2009). The NRS significantly predicts subjective hedonic well-being as well as eudaimonic well-being (i.e. meaning of life, positive functioning as related to e.g. personal growth, purpose in life and positive relations with others) (Nisbet et al. 2011; Tam 2013a). People scoring higher on the NRS are usually more open to experience, agreeable and conscientious (Nisbet et al. 2009).

Despite various authors (e.g. Mayer & Frantz 2004; Nisbet et al. 2009) investigating intercorrelations between different CWN measures as a way to support the reliability and validity of their own constructs, the potential convergence (e.g. overlap in labels, scale items) or divergence (e.g. whether different aspects of CWN captured) of CWN constructs (Table 2) has only been recently examined empirically (Tam 2013a). Tam (2013a) finds that the convergence of multiple CWN measures (Table 2) allows for CWN to be considered as a broad latent construct in itself, whereby findings can be discussed within one integrated CWN framework (as opposed to only focusing on separate associations with specific measures). In trying to select the appropriate CWN measure, researchers can be reassured that correlations with variables will be of similar direction and magnitude across all measures (Tam 2013a). However, the divergence found between measures shows that they are not identical and, specifically, highlights that measures which are multi-dimensional (e.g. EIS, NRS) and which can tap into cognitive and affective dimensions of CWN (e.g.

NRS, LCN and possibly the INS and CNS) will perform better (Tam 2013a). These findings highlight that whilst CWN may have many unique meanings and traits (i.e. multidimensional), it shares a common foundation (Tam 2013a). CWN measures could possibly be improved by including dimensions of collective identity (as conceived in social psychology and sociology literature) (Ashmore et al. 2004; Tam 2013a).

In applying CWN measures, researchers need to remain aware of three potential limitations. Firstly, like all self-report measures, there is inherent uncertainty in the validity of the results produced. For example, participants may need to have an explicit belief about their relationships with nature readily available for retrieval and report without bias (Stone et al. 2000; Schultz et al. 2004). Secondly, in noting the tendency for many CWN studies to draw on sample populations from undergraduate (often psychology) student populations (Hartig et al. 2001; Mayer & Frantz 2004; Frantz et al. 2005; Nisbet et al. 2009; Bruni & Schultz 2010; Howell et al. 2011; Tam 2013a), it is possible that this may constitute a non-representative sample group with specific dispositions toward CWN (Schultz et al. 2004; Atran & Medin 2008). Thirdly, the validity and transferability of CWN measures is limited by the geography of research in this field, which is primarily focussed on North America. The possibility that both the conceptual and empirical basis of the CWN construct may not be as applicable to other cultural groups is rarely made explicit, despite research highlighting cross-cultural differences (Schultz & Zelezny 1998, 1999; Gosling & Williams 2010; Wilhelm-Rechmann 2011). The way people experience and connect with nature is influenced by demographics (e.g. transferability of middle-class U.S. values and lifestyle choices (Gough 1999)), geographies (e.g. varying opportunities for contact with nature (Tam 2013a)), culture and language (differing cognitive constructs and ways of expressing the human-nature relationship (Abram 1996; Maffi 2001)). People from different cultures will also vary in how they understand, interpret and express themselves when responding to surveys (Tam 2013a). Therefore, Western-developed scales tested on Western-socialized individuals cannot assume compatibility with non-Western groups - language and comprehension differences aside.

In addition to recommending increased community and cross-cultural testing, it is suggested that these quantitative CWN measures be complemented with qualitative techniques as part of a mixed methods approach (Johnson & Onwuegbuzie 2004) for broadening and deepening the understanding of CWN. Qualitative meaning always forms the context for the quantitative and may help give insight into how knowledge, perceptions or emotions toward nature is transformed into action (Maiteny 2004; Chawla 2006). Incorporating phenomenological explorations alongside natural and social science methods may capture the experience and essence of CWN as it is meaningfully lived (van Manen 1990; DeMares & Krycka 1998; Morse 2011; Smith et al. 2011; Snell & Simmonds 2012). However, an individual's ability to convey what a sense of CWN feels like or means to their life may be constrained by the limitations of language and their ability to describe it (Abram 1996; Ashley 2007; Naess 2008; Morse 2011). Therefore, understandings and measures of CWN will continue to evolve. In distilling current knowledge across interdisciplinary literature, it is recommended that refining and applying CWN measures be oriented by an appreciation that:

CWN is the extent to which an individual's thoughts (e.g. reflective perceptions, conscious or implicit attitudes or cognitive beliefs) and actions (e.g. instinctive, reflexive, reasoned or cultural practices) embody the relatedness between themselves and nature and reflect a sense of personal responsibility, respect and reverence for all life over spatial and temporal scales and contexts.

2.2.8 Attributes of CWN

Eleven core attributes of CWN have been distilled from literature and defined in the context of CWN: *inclusiveness; relatedness; belonging; interconnectedness; wholeness; inquisitiveness; aliveness; thankfulness; interaction; happiness;* and *continuity* (Table 5). The attributes contain cognitive, affective and experiential qualities: i.e. CWN is the extent to which individuals can *perceive, feel*, *experience* or *enact* these attributes. Attributes are conceived as being spatially and temporally stable traits of an individual's consciousness. Whilst a context-specific experience may trigger emotional and behavioural responses which give rise to other attributes, such attributes are usually more unique to the transient experience (e.g. DeMares & Krycka 1998) and not necessarily as an attribute of CWN shared by other persons under alternative or more enduring circumstances. Individuals with high and consistent levels of CWN are likely to possess a majority of these attributes with relative strength and conviction in everyday life (Table 5). With increasing empirical evidence, these core attributes of CWN (Table 5) may require future revision.

The core attributes (Table 5) may represent a continuum: a perception of inclusiveness with nature may generate feelings of relatedness that, in turn, creates a sense of belonging, and so on. However, these attributes are not mutually exclusive: individuals may equally encounter a non-linear or symbiotic process whereby certain attributes are experienced more frequently or deeply than others (e.g. 'belonging' as a part of a sense of place (Rogers & Bragg 2012). 'Wholeness' or 'interconnectedness' may be encountered through powerful atypical experiences and may urge an individual to cognitively reassess their beliefs and perceptions to the extent that such notions gradually become integral to their worldview and evolving CWN (Maslow 1964; Kaplan & Talbot 1983; Taylor 2010; Smith et al. 2011).

The attribute of 'wholeness' is perhaps the most ambiguous since the depth and range of its understandings are rarely explored in literature. Articulated by Smuts (1926) and expanded through developments in *complexity theory* (e.g. Cilliers 2000a; 2001; Allen 2001; Morin 2007), Gaia hypothesis (Lovelock 1987); deep ecology (Naess 2008); and quantum theory (Planck 1944; Capra 1976; Bohm 1980) as well as being foundational to many Eastern and Indigenous worldviews (Capra 1976; Suzuki & Knudtson 1992; Laszlo 2004; Maller et al. 2008), there remains resistance in Western science to embrace tenets of 'wholeness' despite - or because of - its far-reaching implications for conservation and the sciences more generally.

Table 3: Core attributes for connectedness with nature (as identified in literature)

Attribute	*Description*	*Key*
Inclusiveness	The extent to which an individual includes nature within a cognitive representation of an 'ecological self', such that a perceived and intuited sense of 'sameness' is felt with human and non-human 'other'.	[1]
Relatedness	Perceiving or feeling the natural world as being community, family or kin within which one is embedded and shares a sense of welfare. Embodies *biophilic* traits of empathy and compassion and consists of a deeper knowing rather than only cognitive expressions. Engenders emotions such as reverence, respect and possibly love.	[2]
Belonging	The feeling of inclusiveness within a community strengthens sense of identity with nature. This is furthered through place attachment, such that bonding with a specific location and its biodiversity comes to define one's self and 'home'.	[3]
Inter-connectedness	'Interconnectedness' expands the fundamental premise of ecology to feeling personally embedded within the intricate web of life and interdependent with all living systems and processes, such that caring for nature is doing the 'right thing' for oneself and for nature.	[4]
Wholeness	A sense of unity or oneness with all life coupled with a 'knowing' of an implicate order, shared essence, intelligent mind or life force which pervades all things in the universe. Furthers understandings of inclusiveness and interconnectedness and may be differentiated by evoking spiritual interpretations or associations.	[5]
Inquisitiveness	Increased sense of intellectual interest, curiosity, focus, attention and enthusiasm to learn more about ecological systems, biodiversity and natural phenomena. May manifest as 'naturalist intelligence'.	[6]
Aliveness	Includes enhanced sensory awareness, enjoyment, optimism, vitality and regular 'awakened' states of consciousness and being 'in touch' with one's source of inspiration (e.g. ranging from self and family to transpersonal, spiritual or religious dimensions).	[7]
Thankfulness	Existence of other attributes engenders feelings of gratitude toward nature and the benefits derived. May manifest as service to nature or human communities or as public or private ceremonial / thanksgiving activities.	[8]
Interaction / Participation	An experiential attribute: regular forms of physical interaction and sensory involvement with nature cultivates other attributes and a sense of CWN. Regular interaction with nature may also pre-empt or be motivated by embodying other attributes. Feedback loops between other attributes would be expected.	[9]
Happiness	CWN appears to be a unique and distinct significant predictor for happiness indicators. A bi-directional or synergistic relationship may also be possible in that background happiness could enhance CWN.	[10]
Continuity	CWN is malleable in that it remains omnipresent when transferred to alternate contexts. All CWN attributes should remain stable and resilient over varying temporal and spatial contexts: any variations in CWN should exhibit a stronger (or upward) trend over time.	[11]

Key: [n] in Table 3 above corresponds with the equivalent [n] listing of cited literature below:

[1] (Mathews 1991; Roszak 1995; Bragg 1996; Schultz 2001, 2002; Dutcher et al. 2007; Nisbet et al. 2009); [2] (Leopold 1949; Kellert & Wilson 1993; Mayer & Frantz 2004; Louv 2005; Dutcher et al. 2007; Nisbet et al. 2009; Young et al. 2010; Morse 2013); [3] (Clayton 2003; Maiteny 2004; Dutcher et al. 2007; Nisbet et al. 2009; Raymond et al. 2010; Young et al. 2010; Bratman et al. 2012; Rogers & Bragg 2012); [4] (Darwin 1859; Mathews 1991; Capra 1996; Booth 1999; Schultz 2000; Cock 2007; De Wet 2007; Hoot & Friedman 2011); [5] (Planck 1944; Bohm 1980; Cohen 1994; Bortroft 1996; Capra 1996; Dutcher et al. 2007); [6] (Gardner 1999; Kals et al. 1999; Hayes 2009; Young et al. 2010); [7](Cohen 1997; Scharmer 2009a; Young et al. 2010); [8] (Berry 1988; Arrien 1993, 2011; Shaw 2003; Young et al. 2010); [9] (Higgins 1996b; Chawla 1999; Kals et al. 1999; Kahn & Kellert 2002; Nisbet et al. 2009; Mayer et al. 2009; Young et al. 2010); [10] (Nisbet et al. 2011; Zelenski & Nisbet 2012); [11] (Schultz et al. 2004; Nisbet et al. 2009).

'Wholeness' is inseparable from 'interconnectedness' although the two may be conceived differently. Notions of interconnectedness are not new to science and the *Origin of Species* (Darwin 1859) inextricably tied humans to nature through biology and genetics, presenting a new perspective of an interconnected world (Morse 2011). However, Darwin's version is rooted in physical, and usually perceivable, biological reality whereas alternative interpretations of 'interconnectedness' may see it as a result of the totality of existence (e.g.. the 'implicate order') enfolded and infused within each fragment of space, time and matter as part of a quantum reality (Bohm 1980; see also the ethics of Spinoza (MacDonald 2001). Everything in the universe is therefore seen as connected with everything else because they are all part of the same unbroken whole (Jaworski 1996). Such views are more likely to invoke the transcendental dimensions that are associated with this more far-reaching holistic interpretation or expression of CWN.

'Spirituality' is not singled out as a core attribute. Whilst spirituality may form an integral part of many persons CWN and can contain nature-based transcendental components (see Ashley 2007), spirituality is not necessarily a core prerequisite for establishing some level of CWN. This assertion is made largely on the basis that, in Western discourse, the term 'spirituality' is confounded by a multitude of layered meanings and individuals may not consider their CWN as having a spiritual component even though they may express their relationship to nature in a way that suggests otherwise. Given that spirituality is often understood as denoting an 'other-worldliness' defying scientific or rational explanation (Hay 2004), spirituality tends to be either dismissed as a serious topic for discussion or avoided because common definitions of spirituality do not align with personal interpretations or experiences. To bypass such barriers, it is suggested that 'spirituality' is essentially that which serves as an individual's source of inspiration (Scharmer 2009a)[17]. On this basis, it is included as part of the attribute of 'aliveness' (Table 5) in the sense that one is in touch with - and inspired by - this source (whether nature, divinity or something else).

The attribute of 'continuity' implies that CWN is omnipresent when transferable between contexts. It is therefore more than only an aesthetic appreciation of nature tied to a favourable context. For example, to tease out such tendencies, the NRS explicitly contains statements such as: "*I enjoy being outdoors, even in unpleasant weather*"; "*The thought of being deep in the woods, away from civilization, is frightening*"; and "*Even in the middle of the city, I notice nature around me."* These statements differentiate between: persons exhibiting CWN; those who are more prone to *biophobia* (Ulrich 1993); those inclined to only seek out aesthetically pleasing (e.g. pristine) nature; and/or those who prefer certain (charismatic) species which are (consciously or subconscisouly) considered to be 'most like me' (as a form of anthropomorphism) (Lemelin 2013b). Finally, 'continuity' also implies that CWN is resilient to external 'shocks', stressors or unpleasant situations (e.g. natural disasters) over varying temporal and spatial scales.

[17] The etymology of 'spirituality' is related to the Latin *spiritus* meaning "soul, courage, vigor, breath" and *spirare* "to breathe" (http://www.etymonline.com, *Retrieved 17 October 2013*). 'Inspiration' is therefore the act of 'breathing in', to be animated by something e.g. God or a god. In terms of CWN and spirituality, it is also important to distinguish between: spiritual ethos / beliefs (primarily cognitive); *spiritual experience* (primarily affective); and *spiritual practice* (primarily experiential and behavioural) as symbiotic components of one's 'spirituality' (Box 4, Section 2.3.3.9).

2.2.9 Benefits of CWN

Numerous studies and reviews illustrate that contact with natural environments is beneficial as measured by multiple variables pertaining to physiological, emotional, mental, social and spiritual health and well-being (Maller et al. 2008; Brymer et al. 2010; De Lange et al. 2010; Atchley et al. 2012; Bratman et al. 2012; Snell & Simmonds 2012; Zelenski & Nisbet 2012; Keniger et al. 2013). In their typology of the benefits from interaction with nature, Keniger et al. (2013) illustrate the vast diversity and range of benefits, e.g. from individuals factors such as improved cognitive, cardiovascular and immune functioning (Maller et al. 2008; Bratman et al. 2012) to collective benefits such as reduced crime, aggression and antisocial behaviour (Maller et al. 2008; Zelenski & Nisbet 2012). These effects, especially the therapeutic and restorative effects of nature on humans (Kaplan 1995; Maller et al. 2008; Bratman et al. 2012; Snell & Simmonds 2012; White et al. 2013) are often linked back to the *biophilia* hypothesis (Howell et al. 2011; Zelenski & Nisbet 2012).

Researchers have found that green outdoor settings reduce symptoms of attention-deficit / hyperactivity disorder (ADHD) in children significantly more than activities conducted in built outdoor or indoor settings (Faber Taylor et al. 2001; Kuo & Faber Taylor 2004). Green space settings have been found to positively influence (inner city) children's level of creative play (Faber Taylor et al. 1998) and the naturalness of views of nature from home predict self-discipline (e.g. children's performance on tests of concentration, impulse inhibition and delay of gratification) (Faber Taylor et al. 2002). In these latter studies, vegetation cover and 'naturalness' of the view could be used as predictors for outcomes. This may have implications for CWN.

Nature exposure does not necessarily translate to CWN (see Figure 2); however studies show CWN constructs to be positively correlated to similar variables pertaining to physical and psychological well-being (e.g. mindfulness, meaningfulness, self-actualization, happiness and vitality) (Feral 1998; Mayer & Frantz 2004; Hinds & Sparks 2008; Mayer et al. 2009; Howell et al. 2011; White 2012; Cervinka et al. 2012; Zelenski & Nisbet 2012). Under certain conditions, CWN acts as a trigger for spiritual, self-transcendence and unifying experiences (Maslow 1964; DeMares & Krycka 1998; Vining 2003; Louv 2005; McDonald et al. 2009; Smith et al. 2011). CWN is considered causal in generating psychological benefits because of the "power of the feelings associated with belonging to a community or something 'greater than oneself' " (Bratman et al. 2012: 129). CWN seems to offer a "distinct happiness benefit" in that it remains a unique and independent predictor when controlling for other powerful subjective connections (e.g. social bonds) and predictors of happiness (Zelenski & Nisbet 2012: 9). Overall, CWN appears to make our lives happier and more purposeful, fulfilling and meaningful (Nisbet et al. 2009; Cervinka et al. 2012).

Whilst these well-being benefits are sufficient motivation in themselves to encourage individual engagement with nature, the litmus test for CWN's relevance to conservation is the extent to which it can foster ERB, as a prerequisite for influencing social norms and inspiring collective action (Schultz 2011). A number of studies suggest that affective experiences in nature can predict ERB (Kals et al. 1999; Hartig et al. 2001; Dutcher et al. 2007; Hinds & Sparks 2008; Hoot & Friedman 2011; Snell & Simmonds 2012). The direct

experience of engaging with nature facilitates emotional bonding and stronger behavioural consistency toward the object (Fazio & Zanna 1981; De Lange et al. 2010). As a positive emotional experience, CWN can initiate changes in cognitive or perceptual processes and, when embedded in feelings of relatedness beyond 'self' (i.e. an 'ecological self' which broadens identity formation to include nature and associated biospheric value concerns (Manzo 2003; De Lange et al. 2010), CWN presents a platform for ERB as part of a sense of personal obligation to bring such feelings into everyday life practice (Schultz 2000; Mayer & Frantz 2004; Schultz et al. 2004; de Pater et al. 2008; De Lange et al. 2010) These affective connections have been shown to be an independent predictor of intentions to engage with nature (Kals et al. 1999; Hinds & Sparks 2008), including children's intention to participate in nature-based activities in the future (Cheng & Monroe 2010). Whilst it is possible that ERB promotes CWN (or mutually reinforce each other), empirical research demonstrates CWN to be a strong predictor for sustainable attitudes, concerns, motivations, actions and lifestyles even when controlling for other attitude measures which do not include a sense of connectedness (Mayer & Frantz 2004; Nisbet et al. 2009; Schultz 2011; Zelenski & Nisbet 2012; Rogers & Bragg 2012; Tam 2013a). ERB is more likely when a person's "heart is in it" (Maiteny 2002: 299) - and the heart engages through direct sensorial experience. Wilson (in Saunders 2003) advises that we would be wise to listen to the heart - and to then act with rational intention.

According to the conceptualizations of CWN as outlined in this review, there appear to be few detriments of CWN as identified in literature (for Western individuals). Whilst persons can have psychologically and genetically predisposed fears toward certain elements of nature as part of human's entwined evolutionary history with the natural world (Ulrich 1993), it would be erroneous to confuse this *biophobia* as a negative aspect of CWN. Whilst one may still (innately) fear certain phenomena in nature, CWN gives context and perspective to *biophobic* reactions in accordance with understandings implicit in the core attributes (e.g. inclusiveness, relatedness, Table 5) and the associated respect and reverence held for all life.

Perhaps the greatest scope for adverse affects associated with CWN is in witnessing the desecration of nature and experiencing the trauma, grief and despair associated with that, e.g. when a place of profound childhood significance is destroyed or when one is forcibly removed from areas to which they had an emotional and/or spiritual attachment (Thomashow 1995; Hull 2014). However, in reviewing literature on how afflicted children cope in the face of conflict and disasters, Chawla (2014) finds substantial evidence to support the buffering, therapeutic and healing effects of nature and that memories of a deep connection with nature during childhood were a "fund of calm" which could be drawn upon later in life to help (re)discover self and (re)imagine new futures (e.g. Chawla 1990; Hinton 2000; Boyden & Man 2005; Chatterjee 2007). Such benefits are also concomitant to the adaptive processes (across multiple levels, e.g. physical, psychological, social-cultural and institutional functioning) which are necessary to form and sustain resilient systems (Chawla 2014).

2.2.10 Practicing CWN

> *Modern man says, 'Something is wrong with the world. How do we fix it?'*
>
> *Indigenous people say, 'Something is right with the world. How do we connect with it?'*
>
> ~ Michael Beckwith (in Davies & Cohen 1995)

As proposed by Saunders (2003), the second type of research in conservation psychology is the applied component of identifying effective strategies; in this case, fostering CWN. Despite the drivers of the human disconnect from nature (Table 1) and the benefits of CWN becoming increasingly clear, little empirical attention in scientific literature has been given to context-specific strategies, practices and actions which may be effective in helping individuals or groups cultivate CWN. In outlining conservation psychology, Saunders (2003) suggests that, in addition to creating better conceptual models (about, e.g. the relationship between CWN and ERB), more applied research is needed to identify strategies which cultivate care and concern for nature. Such progress has been made with research on, e.g. significant life experiences (Tanner 1980; Chawla 2006; Bögeholz 2006), restorative qualities of nature (Kaplan 1995; Hartig et al. 2001; McDonald et al. 2009; White et al. 2013) environmental identity and place attachment (Clayton 2003; Hinds & Sparks 2008; Ashwell 2010; Gosling & Williams 2010; Raymond et al. 2011; Rogers & Bragg 2012) and wilderness journeys (Kaplan & Talbot 1983; Frederickson & Anderson 1999; Russell et al. 1999; De Wet 2007; McDonald et al. 2009; Morse 2013). Keniger et al.'s (2013) recent interdisciplinary review is a helpful addition with their typology of the indirect, incidental and intentional interactions between people and nature. The authors note that the intent behind the interaction is pivotal in whether or how ERB is realized (Hartig et al. 2001; Kollmuss & Agyeman 2002; Keniger et al. 2013). Few of these studies focus on the types and qualities of activities which may be replicated over time and space in order to foster CWN. However, a substantial body of literature related to the practice of CWN (although not always termed as such) may be found across diverse disciplines and in both scientific and informal scholarly literature. Disciplines such as ecopsychology and outdoor education have made particular advances in this applied field.

Since CWN comprises cognitive, affective and experiential and aspects, an effective suite of practices should target each of these fields of human consciousness. It is difficult to partition or classify activities according to these areas since a given activity may appeal to multiple faculties, depending on personal and situational contexts. In this respect, Saunder's (2003) typology is again followed and summarizes CWN activities as they relate to caring / valuing nature at both the individual and collective (group) level (Table 4).

Table 4: Selected individual and collective practices and competences in cultivating CWN

Locus	*Competences*	*Practices for cultivating attributes*	*Literature*
Individual (personal routines)	Quiet mind	'Still' for extended introspection/sits in nature;	Cohen (1994)
	Awareness	Engage and expand natural survival senses;	McFague (1997)
	Attentiveness	Focus on nature's signs: tracks, calls, phenology;	Macy & Young Brown (1998)
	Interaction	Touch nature to foster subject-subject view;	
	Sense of place	Know your area: map, wander, sit, explore;	Shaw (2003)
	Curiosity	Practice inquisitive questioning, reflection;	Vining (2003)
	Appreciation	Cultivate awe, wonder, gratitude for nature;	Louv (2005)
	Creativity	Do art, poetry, story, music, imagination, play;	Young & Morgan (2007)
	Problem-Solving	Experiment and improvise for self sufficiency;	Cornell (2009)
	Care	Foster care for the world by caring for animals	Young et al. (2010)
	Holistic perspective	See reality as interconnected, reciprocated;	White (2012)
	Attunement	Awaken to earth's language and wisdom;	
Collective (Group) (social-cultural fabric / systems of governance)	"Invisible school" & Social networks	Recreate a supportive community-based cultural fabric for ecological learning, e.g. mentorship, nature-based schools, outdoor education and family centred activities;	Louv (2005) Chawla & Cushing (2007) Young et al. (2010)
	Citizen science / NGO participation	Promote civic engagement with field-based ecological research, with a secondary aim to cultivate naturalist intelligence and inquiry;	Chawla & Cushing (2007) Schultz (2011)
	Service to the community	Endorse selfless actions which, in showing appreciation of ecology and the web of life, acknowledge that individuals have autonomy in developing a sense of identity in order to play their role or function in their 'niche' in serving the community at large;	Roszak (1995) Pyle (2003) Louv (2005) Chawla & Cushing (2007); Naess (2008) Young et al. (2010)
	Eco-literacy and environmental education / action	Formulate education programs which fuse human and natural histories, and blend arts and sciences toward nature appreciation;	Pyle (2003) Chawla & Cushing (2007)
	Land ethic	For on issues of social and ecological importance, centre public dialogue on a Leopoldian land ethic;	Leopold (1949) Pyle (2003);
	Community justice / equality	Empower responsible systems which place human rights, and community-based equity at their core;	Pyle (2003)
	Local focus	Encourage place-based environmental decision-making to be locally informed and monitored in partnership with a central (governmental) agency;	Pyle (2003)
	Consensus decision-making, environmental dialogues	Work toward a system of consensus decision-making, whereby consensus is the gradual process of building both understanding and commitment, which has been achieved through dialogue that has satisfactorily ensured all perspectives were considered;	Pyle (2003) Sveiby & Skuthorpe (2006)
	Ecological restoration / reconciliation	Repair and rehabilitate areas of natural value, for reasons ecological, economic and cultural. Reinstate ecosystem resilience;	Pyle (2003) Miller (2005)
	Collective action (Social discourse)	Employ social marketing tools (e.g. goals, prompts, incentives, motivational messages) which shape the prevailing social norms such that they align with CWN and promote ERB.	McKenzie-Mohr & Smith (1999); Wilhelm-Rechmann & Cowling (2008); Schultz (2011)

At the *individual level*, CWN practices are often encountered as part of (semi-)structured workshops and/or reflective retreat settings. These events, usually nature-based, are possibly inspired by deep ecology (including, e.g. depth psychology, emotional releasing, eco-spirituality) Eastern-style relaxation and mindfulness (e.g. yoga, meditation, breath-work), Indigenous worldviews, rites and traditions (e.g. vision quests, shamanism)[18] and/or any ('neo-paganesque') combination of these (Baille 2003; Bragg & Reser 2012). Specifically, CWN practices (i.e. semi-structured) or opportunities (i.e. unstructured, spontaneous activity) may form part of: wilderness journeys; outdoor adventure activities; ecotourism; environmental / sustainability education and interpretation; nature-guided therapy; spiritual / cultural / religious gatherings or celebrations and related ritual / prayer / ceremony; community seasonal or environmental festivals (and including creative arts such as drawing, dance, music, drama, play); environmental activism; green care; community gardening and voluntary simplicity / eco-lifestyle movements (Baille 2003; Bragg & Reser 2012). In many of these contexts, nature is used as the teacher, healer or inspiration, while the outdoor educator, guide or facilitator is tasked to enable, cocoon or help manifest learner's experiences (Shaw 2003).

Shaw (2003) provides an overview of a typical CWN process with key practices (e.g. Table 4). Many begin with simple 'loosening-up' exercises to relax and bring awareness to the breath and body, followed by further exploration and awareness of the human senses as part of directing perceptual focus and attention back to one's self and the natural world (Cohen 1994, 1997; Young et al. 2010; Bragg & Reser 2012; White 2012). These practices may be followed by sitting silently, recording observations (often creatively or artistically) and reflecting on the experience (Shaw 2003). Participants may be encouraged to interact or commune with elements of nature or wildlife as part of a search for personal symbolism, messages and meaning (Shaw 2003). Personal rituals or expressions of thanks to nature may be performed and, finally, participants' might be encouraged to share their stories and insights with their fellow learners (Shaw 2003). Many of these activities draw participants out of their comfort zones or engage faculties of their being (usually the phenomenal aspects of consciousness (Figure 34, Box 2) which are under-utilized in daily life. Activities may foster intense personal introspection or close bonding with peers – i.e. connections with self, nature, people and, for some, 'spirit' (as their source of personal inspiration).

CWN may also be (often less intentionally) achieved through more conventional means. Hands-on involvement in ecological restoration can be particularly beneficial in fostering CWN since it involves an attentiveness of nature in an active embodied way, engaging body and mind and absorbing the wisdom inherent in the restoration process (Kaplan 1995; Miller 2005; De Lange et al. 2010; Rogers & Bragg 2012). Similarly, experiential citizen science may serve as a vehicle for promoting CWN and increasing the

[18] Esbjörn-Hargens & Zimmerman (2009) outline 12 considerations to avoid romanticizing, distorting or generalizing about Indigenous or premodern peoples. Of particular relevance here is to: i) be specific as to which culture is being referred to in terms of, e.g. cosmology, law, cultural practices and gender relations; ii) clarify whether the practices being referred to are from premodern or contemporary Indigenous groups (to avoid a static view of culture); iii) distinguish between the average and highest mode of consciousness within a particular group, i.e. not everyone was a shaman / spiritual leader; iv) be aware of cultural appropriation; and v) recognize that practices may have been embedded in fear / dependence rather than in love / admiration for nature (Esbjörn-Hargens & Zimmerman 2009).

likelihood people will engage in ERB (Schultz 2011). The rise of social media is supporting a proliferation of 'apps' which may enhance eco-literacy by encouraging people to identify, record and report their nature sightings. As part of a balanced 'screen diet' (Cook 2013), nature-focused apps may serve as an important initial step in turning people's attention toward the nature around them. Cultivating conventional naturalist skills such as bird-watching, plant drawing and identification, ecological mapping (including sounds), animal tracking and acute, silent observation can all be highly beneficial activities for finding CWN (Young & Morgan 2007; Young et al. 2010). These exercises can bring people into closer contact with wildlife, which has also been shown to help foster CWN (Vining 2003; Smith 2007).

At the *collective level*, Pyle (2003) addresses CWN by offering a blueprint for governance through a six-point "nature matrix". The nature matrix is primarily embedded in a Leopoldian and *biophilia* ethic and, whilst an explicit statement on the desired outcomes is lacking, reference is made to broad-scale, community-based restoration efforts, mass campaigns for promoting ecological literacy and a cultural shift beyond capitalism's obsession with perpetual growth (Pyle 2003). Pyle (2003) sees these basic tenets, alongside nature-based people's desirable way of being, as necessary for a 'radical reconnection'. The nature matrix is a call-to-arms for policy-makers, although few will likely have the courage, knowledge or political wherewithal to initiate such bold changes (Pyle 2003). Pyle admits that the nature matrix may be utopian but that it is nevertheless "a model for essential, incremental change, a dream whose eventual adoption may enhance chances for reconnection and for ecological survival itself" (Pyle 2003: 206). If humans are 'wired' for connection, then it follows that the design of appropriate social-cultural fabric should enable a process of CWN to unfold automatically (Young 2011). However, this incremental process requires engagement across all sectors (Saunders 2003). Intermediaries (e.g. schools, universities, NGOs, families) need to play a prominent role in bridging individual and group progress toward CWN (Young et al. 2010) (Table 4).

Practices outlined here are neither exhaustive nor static – for example, Naess (2008: 140) lists 25 other ways (as a behavior set) that "supporters of the deep ecology movement can joyfully adapt their lifestyle to the movement" with many of these orientations clearly aligned with (outcomes of a) deepening CWN. Therefore, the above section serves to introduce common themes aimed at fostering authentic CWN and which may help to balance, mitigate and make sense of undesirable events, patterns and changes in one's life. Ideally, CWN practices help persons awaken to a deeper appreciation, care, compassion and empathy with nature - realizations of such connections are at the essence of true systems thinking (Roszak 1995).

2.2.11 Evaluating CWN

As Saunders (2003) conceived it, the third research area for conservation psychology is evaluative, i.e. measuring success. This is also where the scientific literature seems to fall short. Given that there is little evidence for implementation of CWN in practice (in either conservation or formal education), it follows that there is little information on their effectiveness in the instances where CWN strategies may have been systematically applied. Whilst valuable evaluative research on the effect of (semi-)structured experiences in

nature exists (Higgins 1996b; Feral 1998; Frederickson & Anderson 1999; Russell et al. 1999; Teisl & Brien 2003; Bögeholz 2006; De Wet 2007; McDonald et al. 2009; Blythe & Harré 2012; White 2012; Williams 2012; Harper et al. 2012; Morse 2013), there appears to be a paucity of literature which i) specifically targets the CWN construct as part of an intervention or implementation strategy; ii) has clearly defined *a-priori* indicators on what constitutes 'success'; iii) has sufficient evidence as to whether CWN programs are achieving results (Baille 2003)'; iv) identifies CWN threshold levels for precipitating desired levels of ERB; and/or v) is based on longitudinal analysis. In each case, forms of evidence-based criteria are required.

Research is needed to address these current shortfalls. However, initial questions to negotiate are: How can we know when individuals have 'reconnected with nature'; what depth of CWN precipitates ERB in an individual; and how deep is 'deep enough'? Perhaps CWN can be conceived as Naess (1973) did with ecology, i.e. 'shallow' and 'deep', where shallow CWN leads to shallow solutions (Pyle 2003) and deep CWN sees humans as one inseparable strand in the web of life (Capra 1996). Pyle (2003: 209) believes that "Reconnecting with nature is not a matter of reversing the fall, getting back to Eden, or approximating the peaceable kingdom. These states never occurred." Clearly, a romantic return to pre-scientific animism is not possible given our state of knowledge (De Lange et al. 2010). Evidence-based criteria for realizing contemporary CWN needs to be found to support the design and implementation of related strategies.

Evaluative indicators for CWN may be extracted from existing quantitative measures (Table 2). The 21 statements in the NRS reference a range of cognitive, affective and experiential traits which provide useful points of reference. For example, after engaging with CWN activities over time, do persons: go outdoors more often (even in unpleasant weather); take more notice of nature; feel more comfortable in wilderness area; feel more aware about environmental issues; and give more consideration to how their actions affect the environment? Similarly, the INS, which uses overlapping circles to depict one's cognitive representation of self in relation to nature, may provide reliable feedback on how a persons' perception of their inclusiveness with nature has changed over time (e.g. in response to CWN practices). The potential of existing CWN scales to measure progress in CWN is largely beyond dispute – many were developed with this goal in mind. However, for the purposes of effective evaluation, the content / statements comprising these measures needs to be made explicit, along with the identified 'weak spots' (i.e. low scores) in participants' responses so activities can be adapted to improve the effectiveness of the CWN strategy.

Evaluative indicators may need to be qualitative, particularly as they relate to learning outcomes. If CWN is recognized as being fluid, holistic and personal, then it follows that the means of assessing 'success' must be equally so. To this end, Young et al. (2010: 258) propose indicators ("natural, vibrant, vital, and sustainable criteria") which whilst not comprising a strictly quantitative assessment, instead act as radical beacons for orienting and assessing successful education outcomes which serve to inform three core fields of learning: awakening sensory awareness; cultivating knowledge of place; and restoring the human bond with nature (Young et al. 2010). These all contribute to fostering a 'naturalist intelligence' (Gardner 1999; Hayes 2009).

Evaluative indicators may also be aligned with the associated well-being benefits of CWN described. Heightened CWN may be recognized in persons displaying traits of personal growth, health and holistic well-being, e.g. inner happiness and peace-of-mind, presence-of-being, heightened attention and awareness, love and forgiveness, aliveness and vitality, physical and mental resilience, generosity, empathy and feelings of relatedness, belonging and oneness (DeMares & Krycka 1998; Young 2013; Tam 2013b).

Actions and behaviour will need to comprise any evaluative indicator set, although CWN may not always be reflected in an individual's everyday actions (Mayer & Frantz 2004; Nisbet et al. 2009). Fundamentally, behaviours should move beyond transient instrumental actions which might be motivated by tangible (e.g. economic incentives) or egoist concerns (e.g. social status / image). It is expected that salient qualities of CWN would encourage individuals to embrace 'voluntary simplicity' in reducing their ecological footprint (e.g. consumption levels) (De Lange et al. 2010). This lifestyle choice has long been advocated as a necessary step toward ecological sustainability and human well-being (Elgin 1993). Conversely, fulfilling commitments and incremental actions consistent with CWN may become operationalized as a regular behaviour (i.e. habit) which, in turn, reinforces the cognitive and affective associations with CWN and further shapes an ecological consciousness (Fishbein & Manfredo 1992; Kollmuss & Agyeman 2002; Vining 2003). Ultimately, at the collective level, a community of enlivened appreciative individuals living with social-ecological sensitivity and purpose may indicate an emerging culture of connectedness.

CWN is not a prescribed formula, blueprint or roadmap. Neither is it a seamless unidirectional onward and upward path toward a utopian being: fluxes, cycles and regressions are intrinsic to life itself. As a deeply personal and a uniquely experiential endeavour, CWN is necessarily nuanced by time, space and contextual variables. The process may be characterized by sustained practice which can result in sudden progressive 'shifts' or, alternatively, prolonged periods of 'relapse' but which may nevertheless be valuable as "regressions in service of future expansion and integration" (Greenway 2011: 163). In all cases, there is much scope for investigating the reliability, validity and applicability of potential indicators as contextual understandings of CWN and its relevance to conservation and education evolve.

2.2.12 Integrating CWN in conservation

Knowing the value of CWN is insufficient in its utility for conservation – it must be applied for 'doing' (Whitten et al. 2001; Balmford & Cowling 2006; Knight et al. 2008; Biotropica 2009). Francis Bacon (*1561-1626*) and Neo-Confucian philosopher Wang Yang-Ming (*1472-1528*) imagined the same when suggesting that "good knowledge" is that which combines knowledge with action (Durant 1926; Yamauchi 2001). If one knows they should implement an action, and does not do so, then their knowledge is incomplete and they do not truly know: "Knowing is the beginning of action, and doing is the completion of knowledge" (Yamauchi 2001: 29). Despite what we know, the action of CWN receives little attention in literature. Insights available from fields ranging from ecopsychology to outdoor learning rarely find their way into the conservation mainstream. This may be partly because conservation has struggled to effectively integrate and

prioritize social processes for research and practice (Mascia et al. 2003; Cowling 2005; Fazey et al. 2005; Schultz 2011), in curricula at universities (Muir & Schwartz 2009) and/or because of the handicaps imposed by the "boundaries of our disciplinary homes and frameworks" (Saunders 2003: 137). Using the concept of CWN to implement more effective conservation actions underscores the need for interdisciplinary thinking, collaboration and transdisciplinary approaches which, in bridging science and society, inform the conservation practice and education (Saunders 2003; Tanner 2003; Max-Neef 2005; Jahn 2008; Swan 2010).

Conservation psychology was conceived with the aim to "create stronger connections between the natural and social sciences, between research and practice, and between psychology and the other social sciences" (Saunders 2003: 137). This emergent field is envisaged to consist of two interlinking and mutually reinforcing research streams aimed at understanding: i) How humans behave towards nature with the goal of ERB; and ii) How humans care about / value nature with the aim of creating harmonious relationships and an environmental ethic (Saunders 2003). In this conceptualization, "Personal connections to animals, places, ecosystems etc" is placed as central to the stream of "caring / valuing nature" and involves research aimed at encouraging individuals to bond with elements of nature through understanding, e.g. experiential and emotional connections, environmental identity, values and ethics (Saunders 2003: 141). At the collective / group-level, this research stream seeks to establish a rich and compelling human-nature language which is capable of changing social-cultural norms and discourses (Saunders 2003). Clearly, CWN finds a home here. CWN may help move conservation beyond paradigms which constrain its effectiveness, in both theory and practice. The following paragraphs identify four areas of opportunity:

i) *CWN may answer a call for more compelling language in conservation* (Reser 2003; Saunders 2003). Conservation efforts aimed at fostering ERB have largely focused on information-rich campaigns which are often poorly conceived and targeted, given that knowledge about an issue alone is unlikely to change behaviour (McKenzie-Mohr & Smith 1999; Kollmuss & Agyeman 2002; Fishbein & Ajzen 2010; Schultz 2011). Conservation has generally excelled in articulating ecological crises (Fazey et al. 2005; Kareiva et al. 2012a). Whilst this knowledge and awareness is necessary, an overemphasis on biodiversity loss ('gloom and doom' campaigns[19]) and other crisis-inpsired scenarios is failing to improve the effectiveness of conservation initiatives or motivate an indifferent public (Kaplan 2000; Gruenewald 2003; Redford & Sanjayan 2003; Miller 2005; Mayer et al. 2009; Karieva et al. 2012a). Individuals may respond to negative messages invoking guilt and fear but the eventual outcome may be denial, frustration and disempowerment (Miller 2005). In fact, crisis can make people more conservative and change-resistant (Esbjörn-Hargens & Zimmerman 2009). People may be more motivated to conserve nature when presented with insights of how CWN contributes to health and well-being (Zelenski & Nisbet 2012). Because CWN benefits are available to all persons, such language can be more effective in engaging the public, and might counter 'environmentalism' being perceived as only a 'special interest' (cf. Shellenberger & Nordhaus 2004).

[19] Some note that the environmental crisis narrative resembles the Christian narrative, i.e. foretelling of an imminent Apocalypse which, after a historical 'fall' from peaceable relations with pristine Earth and due to our ecological sins, requires humanity to repent and mend their ways before it is too late (Esbjörn-Hargens & Zimmerman 2009).

ii) *CWN may build hope and resilience.* The crisis addiction mentality pervading sectors of the conservationist community resembles "post traumatic embitterment disorder" – a violation of basic beliefs resulting in feelings of bitterness, unfairness and hopelessness and a conviction that the world, not them, must change (Linden 2003; Swan 2011). This process of 'conservation grief' has been facetiously compared with the five stages of death and dying (Kübler-Ross 1969; Hobbs 2011). Since a desire to protect nature without CWN may hinder well-being, the benefits of CWN may buffer the distress accompanying an awareness of environmental crises or serve as a reserve of inspiration to be drawn upon in times of hardship (Zelenski & Nisbet 2012). Thomashow (1995) believes that the combination of intimate experiences with nature and deep self-reflection is necessary to the 'wisdom training' needed to liberate the anger and despair often associated with environmental neglect. Yet many environmentalists are unwilling to confront such emotions because they are unaware of how to do so (Thomashow 1995). In providing such an avenue, CWN can cultivate more positive feelings for how we practice conservation and, in bettering ourselves, inspire change in others. There is always a need to balance hope with realism (Lidicker 2011); however alongside the promotion of 'know-how' and behaviour alternatives, CWN (as part of placed-based education) remains critical in ensuring success in conservation (Gruenewald 2003; Harré 2011; Swaisgood & Sheppard 2011).

iii) *CWN may constitute a more enduring and far-reaching motivation for ERB.* CWN promotes more than instrumental actions aimed at fostering ERB. This is important because it cannot be assumed that perceived ERB in one area of a person's life is driven by motivations which will be transferred to other lifestyle choices and thus fail to reproduce similar ERB outcomes or capture an overall 'net-gain'. This is particularly relevant in the face of transient economic incentives or other short-term benefits. Rather than educators or decision-makers being forced to choose between instrumental (behaviour change) and emancipatory (human development) strategies (Wals et al. 2008), promoting a CWN rooted in affective experience is likely to motivate and empower environmental awareness and ERB 'across the board' (Higgins 1996b; Shallcross 1996; Maiteny 2002; De Lange et al. 2010). Given these prospects, along with the other potentials outlined here, CWN presents itself as more than just a "conservation fad" (Redford et al. 2013).

iv) *CWN may provide an accepted avenue for tackling 'the big fuzzies'.* A survey of scientists' opinions revealed a concerning dichotomy: whilst understanding human interactions with nature was ranked as the highest priority for conservation planning, the role of spiritual, cultural and utilitarian values as reasons to conserve biodiversity were ranked poorly (Rudd 2011). This is precarious, because it disconnects science from value-laden practice. Conservationists seem to avoid the "big fuzzy concepts", i.e. issues where values and ethics are tricky to define, access and measure (Sommer & Sommer 2002; Sommer 2003). Eventually, discussions surrounding CWN will broach issues not usually discussed in mainstream conservation, e.g. religion, sacred connections with land, the spirit of place, the role of ritual in nourishing earth and ourselves, and how our sometimes vicarious childhood experiences opens paths toward CWN in adulthood (Shaw et al. 2003; Bragg & Reser 2012). Whilst such topics sit uneasily at the fringe of the natural sciences, CWN may

provide the needed framework and language through which diverse perceptions, emotions and experiences of nature may be scientifically legitimized, accounted for and harnessed for effective conservation practice.

2.2.13 Educating for CWN: a radical but relevant prerequisite for ERB

The rationale for endorsing CWN in (conservation) education follows logical argumentation:

i) Fundamental to conservation biology is conservation practice (Salafsky et al. 2002; Schultz 2011);

ii) Conservation practice understands and positively influences human behaviour (Mascia et al. 2003; Saunders 2003; Schultz 2011);

iii) Behaviour is determined by a complex blend of internal and external factors (Kollmuss & Agyeman 2002; De Lange et al. 2010; Fishbein & Ajzen 2010; Schultz 2011);

iv) Internal factors are driven by motivations within which environmental values and beliefs, i.e. those correlating with specific environmental attitudes or biospheric and intergenerational concerns, are key (Schultz et al. 2004; Dutcher et al. 2007; Justus et al. 2009);

v) Environmental values and biospheric concerns are associated with the degree to which individuals perceive and feel themselves as being interconnected with all life (Schultz & Zelezny 1999; Schultz 2000; Dutcher et al. 2007);

vi) Individuals who possess these values and believe themselves to harbour CWN are more likely to find motivations for adopting ERB and conservation action (Mayer & Frantz 2004; Dutcher et al. 2007; Guiney & Oberhauser 2009; Schultz 2011);

vii) Promoting and educating for CWN can therefore foster effective conservation practice.

Accepting this logic is to equally accept that CWN is a core concern of conservation biology, psychology and education for sustainability. It represents a truly interdisciplinary process and endeavour.

Some may consider the theory and practice of CWN as resembling a return to pre-scientific animism and an idealization of our hunter-gatherer roots. This is confrontational to formal education systems that have consistently rejected non-Western ways of knowing (Lopez 2003; Shava 2013). However, it is understood that we cannot reverse technological advancement, restore ecological integrity or recreate the social bonds that supported old formulas that were more pertinent when the world was very different to now (Guattari 2001; Le Grange 2011a). Similarly, CWN may appear to reinvent a Romanticism which, whilst emphasizing strong personal relationships with nature, may have instead contributed to a distancing of human-nature relations (Morse 2011). Whilst contemporary views seek to reassert the corporeality and earthliness of life (rather than the ethereal) (Hay 2002), such associations remain threatening to belief systems that might view CWN as an "ersatz religion" (Louv 2005). White (1967) pursued a similar aim decades ago: rather than seeking to eject Christianity, he sought a viable equivalent to animism which carried a message of stewardship, humility and care for creation (Palmer 2001). Ultimately, this is not a question of exchanging one way of life for another but instead invites opening up to the potentiality which can be harnessed from established points of reference (e.g. *'ubuntu'*, cf. Le Grange 2011a).

In the context of education, it appears that "The only reconnection that will be truly significant must also be radical" (Pyle 2003: 210). 'Radical' is relative and therefore ambiguous but it is evident that humans need to rediscover a 'consciousness of place' that recognizes a living interconnected earth, yet retains scientific credibility (Gruenewald 2003; De Lange et al. 2010). This might be conceived as "quantum consciousness": a directly intuited, felt connection to the world which inspires empathy with people and nature and enables an experience of oneness and belonging (Laszlo 2010).

A scientifically validated avenue toward embarking on this radical process might best begin with consciously shifting perception, attitudes and behaviour to align with statements contained within CWN measures, e.g. CNS, NRS. This may instigate a cognitive shift in perceiving relatedness, interdependence and, eventually, intuiting or feeling a part of the web of life. However, we can no longer rest in the hope that CWN may be realized through intellect. At a minimum, experiential education for CWN should encompass sensory awareness and emotional bonding through nature- and place-based immersion; indeed this may be the only way in which perceptions can be transformed (Gruenewald 2003, 2005; De Lange et al. 2010). CWN could be viewed as a "natural sensory science" which, as a transdiscipline, integrates behavioral and perceptual development with education, ecology and psychology as part of a conservation renaissance (Cohen 1994).

A thirst for knowledge and empirical evidence should not stifle progress: we know enough to act with fervour. Waterhouse (2011: 1090) recommends: "Find a place in the natural outdoor world and just be there for an hour" and "find your spot to watch and listen to nature, in solitude, and reconnect." Environmental education has long sought to promote ERB but has only achieved limited success (Zelezny 1999); CWN promises more effective and enduring outcomes (Shallcross 1996; Kals et al. 1999; Schultz et al. 2004; Morse 2011). However, expertise from conservation science and psychology may be critical in providing the practical 'know-how' (e.g. training) to support and translate CWN into action (Cohen 1994, 1997; Harré 2011) In all cases, CWN appears an essential vehicle for implementing effective stewardship measures now and into the future (Balmford & Cowling 2006). As Swaisgood and Sheppard (2011: 95) ask:

> If people don't connect with nature, where will our next generation of environmental stewards come from?

This review has emphasized the need to prioritize CWN in conservation discourse. It invites reflection on the cognitive, affective and experiential dimensions of CWN when designing education strategies and curricula (Higgins 1996b; Chawla & Cushing 2007; Hayes 2009). It urges dialogue on CWN conceptualizations, activities and indicators to guide effective implementation. It encourages exploration on the types of experiences that are capable of grounding CWN in childhood and throughout adulthood. It presents itself as a radical but necessary call for conservation and education professionals to promote the theory (knowing) and embody the practice (doing) of CWN as a precursor for both ERB and enhanced well-being. Doing so should enable these persons to become role models and sources of inspiration for sustainability: after all, if conservationists cannot commit to CWN, who will (Swaisgood & Sheppard 2011)? Ultimately, the call to reconnect with nature invites a response in individual and collective consciousness: an intentional and experiential process aimed at revitalizing the human-nature relationship.

Summary and key messages for Section 2.2

Calls to 'reconnect with nature' are commonplace in conservation literature and popular environmental discourse but the expression is often used haphazardly without definition or clarity of what: the process involves; the benefits are; practical outcomes desired; and/or relevance to conservation. This interdisciplinary review finds that:

- The human disconnect from nature is at the heart of the environmental crisis;
- Historical drivers of the Western disconnect from nature can be classified as a combination of physical and psychological drivers with the latter primarily a problem in human consciousness;
- Important links exist between disconnectedness from nature and consciousness including the role of sensory and reflective perception; 'inattention nature blindness'; and the resulting impact on experience.
- *Connectedness with nature (CWN) is a stable state of consciousness comprising symbiotic cognitive, affective and experiential traits that reflect a sustained awareness of the interrelatedness between one's self and all of nature;*
- CWN exists on a continuum preceded by 'information about nature', 'experience in nature' and preceding 'committed CWN' which serves the social-ecological community as part of transformative leadership;
- There are at least ten different instruments capable of measuring aspects of CWN with the INS, EIS, CNS, NRS the most common and likely to reliably measure the dimensions of CWN relevant to this study – however, the cross-cultural transferability of these scales to (e.g. non-Western contexts) remains unclear;
- In refining and applying CWN measures, it is recommended that they be oriented by an appreciation that: *CWN is the extent to which thoughts (e.g. reflective perceptions, conscious or implicit attitudes or cognitive beliefs) and actions (e.g. instinctive, reflexive, reasoned or cultural practices) embody the relatedness between humans and nature and reflect a stable sense of responsibility, respect and reverence for all life over temporal and spatial scales.*
- Eleven common core attributes of CWN can be identified: *inclusiveness; relatedness; belonging; interconnectedness; wholeness; inquisitiveness; aliveness; thankfulness; interaction; happiness;* and *continuity.*
- There are multiple benefits of CWN linked to physical and psychological well-being and CWN seems to make our lives happier and more purposeful, fulfilling and meaningful;
- CWN is a reliable predictor for sustainable attitudes, concerns, motivation for ERB;
- In bridging the knowing-doing divide, CWN can be practiced at the individual and collective level through a suite of practices (drawn from diverse disciplines, philosophies and cultural systems) which address the cognitive, affective, experiential (and sometimes spiritual) dimensions of consciousness;
- The ability to effectively evaluate CWN has not been well explored; however, potential indicators can be extrapolated from various sources and quantitatively and qualitatively evaluated, albeit with limitations.
- CWN may benefit the conservation community by: answering a call for more compelling language in conservation; building hope in the face of crisis addiction; constitute a more enduring motivation for ERB; provide an accepted avenue for tackling 'fuzzy' issues often avoided in conservation research and practice.
- CWN in conservation and sustainability education appears as a radical but necessary prerequisite;
- Whilst sufficient knowledge already exists in order to begin enacting CWN in education, interdisciplinary collaborations between conservation, sociology and psychology can help translate CWN into action;
- Since CWN targets the underlying crisis of consciousness affecting contemporary society, the results of this review offer a 'radical' but necessary call for CWN to become a core conservation concern.

Acknowledgements: *Thanks to Melissa Hatty, anonymous reviewers and the handling editor for valuable critiques on earlier drafts and to the Wildlands Studies 2012 class (esp. Guido Chiappa and Ilana Copel) for fruitful discussion / input on CWN.*

2.3 Foundations of meaningful nature experience

The universe is a communion of subjects, not a collection of objects. ~ Thomas Berry

The previous section (2.2) touched on the role of consciousness in establishing *connectedness with nature* (CWN) and, in particular how intentionality (selective attention) determine the qualities of subjective experiences which, in turn, feedback and determine qualities of consciousness. It was shown that if ethics, values and attitudes follow from how we experience the world (Cooper 2001), then direct experience of nature appears instrumental in supporting *environmentally responsible behaviour* (ERB). More directly, (repeated) changes in experience will precipitate changes in consciousness. In building upon these foundational concepts and relationships, this section introduces *meaningful nature experience* (MNE) by means of a detailed literature review.

States of human consciousness have been at the centre of much thought and writing throughout human history (Smith 2007). Eastern sages and mystics (e.g. Gautama the Buddha, Krishnamurti) Greek philosophers (e.g. Aristotle, Plato), philosophical luminaries (e.g. Descartes, Kant, Locke) psychologists (e.g. James, Maslow, Jung); contemporary philosophers (e.g. Chalmers, LeShan) and modern (neuro-)scientists (e.g. Damasio, Edelman, Koch) have all occupied themselves with understanding states of consciousness. Since consciousness is comprised of anything we are aware of in a given moment (Schneider & Velmans 2007), states of consciousness are arguably "available to all people and always have been" (Smith 2007: 17).

Yet consciousness is both the most familiar yet most mysterious aspect of our lives (Schneider & Velmans 2007; Section 2.2.2). The question of how brain processes translate to consciousness remains "one of the greatest unresolved questions of science" and a satisfactory explanation of how subjective experience is created remains scientifically elusive (Koch & Greenfield 2007; Sheldrake 2012; Pruett 2013). Studies of consciousness are also fallible in the sense that the instrument of research is itself the 'object' of investigation (Pruett 2013). This recognition leads us to the persistent problem of perception whereby, as Kant saw it, "the thing itself" (e.g. consciousness, experience) will always be elusive since it "lies beyond the grasp of perception because our senses and mental structures filter and invariably distort what is sensed" (Pruett 2013). Concrete definitions of consciousness may ultimately prove futile since it appears to be, as William James concluded, a "name of a non-entity" which is not 'a thing' but "a relationship between things" (Pruett 2013). Rather than settling on a single definition, for the purposes of this dissertation, the aim here is to clarify that central to consciousness (and its composition) is the subjective quality of *experience*.

2.3.1 Experience

Experience, like consciousness, is ever-present in human life yet is a concept which is equally problematic and obscure (Gadamer 1975; Morse 2011). Experience is intimately married to consciousness: therefore it is liable to the same 'easy' and 'hard' problems which Chalmers (1996) identifies in exploring consciousness. It is easy to report and reflect on selected experiences and, increasingly, describe the psychological and neurological processes involved (Morse 2011). Yet even though experiencing something implies being consciously aware of it (e.g. perceiving natural phenomena in the 'outer' world), it is hard to explain why some experiences as a certain combination of factors make us feel certain ways (Jacobs 2006; Morse 2011).

Experience is a continuous and fluid process of interacting with the world through our bodily senses and perceptual concepts (Morse 2011). Part of its elusiveness therefore rests on the fact that since every moment of experience is subjective, unique and unrepeatable, it is impossible to describe, dissect, reduce and express the complex individual qualities of an experience as we are having it (Jacobs 2006). Some dimensions will always remain ineffable and unknowable - out of reach of conscious awareness and our conceptual and linguistic ability to describe them. Whilst words in verbal language have a pre-determined meaning to facilitate communication (and potentially influence thought, cf. Pinker (2007)) , 'experiences', in contrast, are always unique in their details (Jacobs 2006). This presents questions which we cannot fully answer and suggests there may be more intuitive qualities to 'an experience' than that solely obtainable through conscious reflection within our privately knowable reality (Morse 2011).

Consciousness supplies patterns of intelligence and significance to our experiences and being conscious of the world allows us to endow our life with meaning (Bohm 1980; van Manen 1990; Combs & Holland 1996; Jacobs 2006; Morse 2011). This is part of the *intentionality* which is central to consciousness: in other words, our conscious experience is that which we direct our attention to, creating an active interaction between ourselves and the phenomena (e.g. object, thought, emotion) receiving our attention (Morse 2011). Over time, selective attention and perceptual processes form concepts in our mind which give structure and order to our experiences (Maund 2003; Jacobs 2006). At its simplest, the interaction which forms experience may be understood as a cognitive construct capable of eliciting affective responses.

The cognitive component consists of: i) perception organizing and interpreting incoming stimuli according to pre-existing mental concepts, models or representations (Jacobs 2006) and; ii) knowing the world through thought processes shaped by conditioning: knowledge, beliefs, memory and conscious reflection. Perception is one mode of human experience and is a prerequisite for most other forms of experience (e.g. bodily, imaginative) which form consciousness (Chalmers 1996; Searle 1997; Jacobs 2006). Human perception is a process of model construction whereby pre-existing cognitive concepts are largely formed through accumulated past experience, with new stimuli and experiences being distinguished from and compared to existing concepts (Jacobs 2006; Biggs et al. 2011). Philosophers, psychologists and neuroscientists argue that without mental models or concepts, there can be no experience (Maund 2003;

Jacobs 2006). Therefore, we do not experience the world as it is, but rather as sensory stimuli filtered and processed by our nervous system, mental constructs and representations (Jacobs 2006; Pruett 2013).

The affective component of experience refers to how we encounter and understand the world through personal feelings and emotions. In the human brain, the perceptual system is separate to, but interactive with, the emotional system which comprises emotional stimuli, emotional bodily reactions and emotional experiences (e.g. feelings) (Jacobs 2009). Therefore, we require understandings of affective (*phenomenal*) concepts alongside cognitive (*psychological*) concepts (Chalmers 1996; Section 2.2). The former includes sensory and affective experience; the latter is usually associated with attention, reflection, learning and memory (Chalmers 1996). In physiological and psychological reality, distinction between cognitive and affective components is difficult to make and largely serves as only a conceptual distinction (Appendix 9.3). Further, such distinctions may lead to an erroneous assumption that consciousness is a stream of experience encased within and only produced by the brain (akin to a radio producing the music it broadcasts) (Laszlo 2010; Sheldrake 2012). As increasingly argued by some scholars, this is misleading since *res extensa* (physical substance) and *res cogitans* (psyche - mind or soul) cannot be separated (Bohm 1980; Laszlo 2010; LeShan 2012; Sheldrake 2012; Pruett 2013): experience is instead the result of how consciousness participates and patterns *within* the world.

When does an experience begin and end? Part of the enigma of experience is in understanding its temporal and spatial dimensions. Experience blends past, present and future: it is only with thought and reflexive awareness that one may grasp its depth and the way in which it belongs to oneself (Dilthey 1985; Van Manen 1990; Curtin 2006). Experiences gather (hermeneutic) significance as we remember, reflect and give them memory (Curtin 2006). In a nature context, Smith (2007: 11) defines "total experience" as:

> …starting at the moment a person considers undertaking a wildlife experience, through the commitment to the experience and the actual experience, and continues until the time when it has been completely erased from the memory of the person.

Defined this way, experiences "extend well beyond the parameters of the on-site phase" and it is possible that they "may never be erased and recollection of the experience may go on indefinitely and may be subjectively enhanced over time" (Smith 2007: 11). Morse's (2011), listing of salient characteristics of experience is helpful in gaining a better understanding of the contexts under which experience occurs:

- *Personal:* experience is personal; two people can experience the same thing differently;
- *Mediated:* experience is influenced by social and cultural norms and worldviews;
- *Interactive:* experience is an interaction between oneself and the object of attention;
- *Lived through:* streams of experiences are grouped/ordered to form 'an experience';
- *Qualitative:* experience has a defining quality which makes it that which it is; and
- *Meaningful:* experience may be sufficiently profound / moving to be deemed meaningful.

All these characteristics of experiences are important in the context of this dissertation, since all may be influential contributors to what ultimately comprises *meaningful experience*.

Box 3: Modes of landscape experience: *matterscape*, *powerscape* and *mindscape*

Jacobs (2006) conceptualizes landscape reality as being composed of three modes: *matterscape* (outer physical reality), *powerscape* (social-cultural reality) and *mindscape* (inner mental reality) - whereby landscape appears as a different phenomenon in and across each. Throughout this dissertation, these modes are often referred to as a way of assisting conceptualization of the types of perceptions which preface various experiences.

Matterscape is considered as the material landscape as it appears independent of human intent and awareness - it is the primary object of study for the natural sciences (Jacobs 2006). *Powerscape* is the inter-subjective social reality consisting of rules and behavioural norms governed by human systems, e.g. culture and traditions. The rules are constituted by, and are expressions of, power - without power; rules are meaningless (Jacobs 2006). *Powerscape* is the focus of study for the social sciences. *Mindscape* is comprised of our states of mind and is a product of our consciousness; it is the inner subjective reality for an individual (Jacobs 2006):

> Mindscape is the landscape as people experience it and can be very personal in meaning. It is the landscape produced by experiences and meaning-giving processes. Mindscape is a system of essentially individual values, judgements, feelings, and meanings that are related to landscape (Jacobs 2006: 9).

What we experience in *mindscape* is our unique subjective mental state. Therefore, the same stimuli may be interpreted differently between individuals and even within the same individual at different times.

These heterogeneous experiences are crafted as responses to the complex interaction of biophysical phenomena present in the *matterscape*, the pre-existing norms of the *powerscape* and the meaning of that landscape to people in the *mindscape*. The cognitive and affective components of *mindscape* are reflected in our experience of nature. *Mindscape* is primarily studied by the human and experience sciences (e.g. phenomenology), focusing on the truths of the inner-self and the content of an individual's consciousness (Jacobs 2006). Their answers, together with that of social scientists, are derived from people, not landscapes. Both social and human scientists are therefore concerned with uncovering truths about *powerscapes* (that apply to groups of people) or *mindscapes* (that apply to individuals) respectively (Jacobs 2006). Each of the '-scapes' tend to be governed by their own laws such that:

> …statements about one of the three landscape phenomena (e.g. powerscape) can never be deduced in a logical way from knowledge about another landscape phenomenon (e.g. matterscape)… For example, the law of gravity is valid in matterscape, but it is meaningless in powerscape and mindscape (Jacobs 2006: 13).

Given the assertions about consciousness and the proposed unity of *psyche* (mind) - *physis* (matter) as already outlined in this dissertation, the statement that a material landscape (i.e. *matterscape*) exists independent of human intent and awareness is tricky. Common sense might tell us that it must, but the statement can never really be verified without some element of human intent, awareness and perception entering the equation. This accords with the views of French philosopher Pierre Teilhard de Chardin (in Pruett 2013):

> There is neither spirit nor matter in the world; the stuff of the universe is spirit-matter.

In the same vein, could a fourth 'scape' i.e. *spiritscape* exist? This is the scientifically contentious idea that spiritual phenomena are not just makings of the mind but exist independently of individuals' thoughts. In addition to explorations in parapsychology, Palaeolithic art and psychoactive plant use, such views are also found in traditional cultures where shamans (e.g. some Xhosa and Zulu *sangomas*) experience a *spiritscape* to be a real and independent phenomenon outside of – or embedded within - *mindscape*, *powerscape* and *matterscape* (e.g. ancestral spirit realms) (Larsen 1976; Tucker 2001; Mutwa 2003; Hancock 2007) . Jacobs (2006) does not allude to such possibilities and given that notions of *spiritscape* extend beyond accepted scientific understanding, *spiritscape* - in this dissertation - will be considered only as phenomena appearing in *mindscape*.

Finally, it is notable that Wilber's (1995) Integral Theory, and specifically his *All Quadrants All Levels (AQAL) model,* aligns closely with Jacobs' (2006) landscape realities. The *AQAL model* recognizes four irreducible perspectives or dimensions of reality, i.e. subjective, intersubjective, objective, and interobjective (Appendix 9.1) whereby the *subjective* ('I') quadrant consists of first-person perspectives (experiential phenomena), the *intersubjective* ('We') consists of second-person moral perspectives (cultural phenomena); the *objective* ('It') consists of third-person scientific and natural perspectives (behavioural phenomena); and the *interobjective* ('Its') consists of third-person scientific and natural systems perspectives (social phenomena). Clearly, an individual's *mindscape* equates with the *subjective*; society's and culture's *powerscape* with the *intersubjective* and dimensions/perspectives of the *interobjective;* and *matterscape* may be seen as synonymous with the *objective* and dimensions/perspectives of the *interobjective.*

2.3.2 Meaningful experience

> *The human heart, as history proves, I believe, can endure anything except a state of meaninglessness. Without meaning it dies like a fish without water on the sands of a wasteland beach.* ~ Laurens van der Post (1978)

Humans come to know and interact with the world through the meaning made from experiences (Morse 2011). This interaction is central to the process of 'meaning-making' and seems integral to the never-ending human quest of filling the "existential vacuum" (Elkins et al. 1988: 11; McDonald et al. 2009: 382). However, there is little empirical knowledge to inform the process of 'meaning-making' and why and how people have particular experiences which may be described as 'meaningful' (Morse 2011). The way in which individuals assign or derive meaning to/from various landscapes is just as complex – if not more – than the way in which people react and interpret natural stimuli (Fredrickson & Anderson 1999).

We might assume meaning is constructed through perceptual processes used to make sense of stimuli and phenomena arising in the external world. However, unlike other physiological and neurological processes (e.g. pain, vision, memory recall), it is impossible to pinpoint an area of the brain which produces meaning (Morse 2011). The construction of meaning itself is therefore likely to be built from many components, which broadly draw from personal life histories (e.g. past experiences, existing mental models, knowledge, motivations, socio-cultural background) and an individual's state of consciousness at the time (e.g. sensory awareness, emotional state, expectations and the salience of values and beliefs as a perceptual filter).

Meaning-making is therefore closely aligned with consciousness which, as outlined, therefore throws up similar problems in terms of pinpointing how the brain 'produces' meaning. It would appear that meaning, like the accepted (though still possibly erroneous) consensus concerning consciousness, is that it is an *emergent property* produced by the body as a whole - and therefore includes perception, attention, awareness, thoughts and feelings (Taylor 2010). The two are entwined since, as Morse (2011: 26) notes:

> …to be conscious of the world is to experience the world, to pay attention to the world, and to endow it with meaning.

To 'endow' might make it seem that 'meaning' is simply and consciously cognitively assigned to a given experience at a fixed point but the process is evidently much more complicated than that. Meaning seems to relate to not only the experience itself and the emotions aroused but also the subsequent impact it has on a person's life. Since experiences live on as memories (Kahneman 2010), it is suggested that the profundity, i.e. meaning, relates both to the experience itself and the impact it causes: some degree of impact is necessary in order for an experience to be deemed be meaningful (Smith 2007). This degree of impact and meaningfulness may be linked to extent that an experience evokes emotion, finds resonance or dissonance with existing cognitive concepts and is an involved experiential endeavour (Maiteny 2002).

2.3.3 Types of meaningful experience

At least during the past century, Western scholars have explored types of non-ordinary experiences which can be classified as particularly meaningful. Identifying these experiences and their characteristics is needed to further understandings on what makes some meaningful. Categorization of such personal experiences (Table 5) is inherently difficult; diverse interpretations imply that definitions are unlikely to satisfy everyone (Ashley 2007) and the types of experiences identified are not mutually exclusive. However, despite commonalities and overlap, some of the constructs are distinguishable in their own right (Smith 2007).

Table 5: Types of meaningful experience (non-exhaustive)

Type of Experience	*Key References*
Awakening Experience	Taylor (2010)
Ecstasy	Laski (1961)
Exceptional Human Experience	White (1994, 1996); Swan (2010)
Flow State	Csikszentmihalyi (1975; 1990)
Mystical Experience	James (1902; 1929)
Numinous Experience	Otto (1959)
Peak Experience	Maslow (1964; 1967; 1968; 1994); DeMares & Krycka (1998); DeMares (2000)
Significant Life Experience	Tanner (1980; 1998a; 1998b); Gough (1999); Payne (1999); Chawla (2006);
Synchronicity	Jung (1960); Bolen (1979); Peat (1995); Combs & Holland (1996); Main (2007)
Spiritual	Grof (1972); Schroeder (1991); Frederickson & Anderson (1999); Ashley (2007)
Transcendent	Maslow (1970b); Hoffman (1992); Williams & Harvey (2001)

Note: *This study excludes experiences which are a direct result of ingesting physical substances (e.g. drugs) into the body.*

2.3.3.1 Awakening experience

Taylor (2010: xvii) refers to an *awakening experience* as:

> a state of consciousness, or a state of being, in which our vision of the world, and our relationship to it are transformed, an experience of clarity, revelation and joy in which we become aware of a deeper (or higher) levels of reality, perceive, a sense of harmony and meaning, and transcends our normal sense of separateness from the world.

Taylor (2010) emphasizes a preference for 'awakening experience' over 'spiritual experience', which he sees as confusing given the array of diverse interpretations of the word 'spiritual' and, similarly, avoids 'higher state of consciousness' which, whilst synonymous with 'awakening experience' is a more clinical and unwieldy phrase. Awakening experiences are of varying intensities and may be differentiated from religious experience, with the latter including a variety of states which may not necessarily be 'awakening' (Taylor 2010). Furthermore, a religious experience is an interpretation based on pre-existing concepts (Taylor 2010). Central to 'an awakening' is that it gives individuals

> …a glimpse of the world of beauty, meaning and unity that lies beyond the normal human world of separation and suffering… (Taylor 2010: xix).

2.3.3.2 Ecstasy

Ecstasy is often used interchangeably with *peak experience* (Section 2.3.3.6) and Laski's (1961) concept was formulated around the same time as Maslow's notion of peak experience (Smith 2007). However, whilst Maslow explored a peak experience in terms of self-actualization, health and psychological well-being, Laski

was primarily interested in positive ecstasies (Smith 2007). An additional contrast is that Maslow (1968) viewed peak experience as accessible to all, whilst Laski (1961) found that "different ecstatic experiences were found to be more likely to occur for certain people" (Smith 2007: 38). Laski (1961) also explored various triggers which might lead to feelings of ecstasy (Section 2.3.6)

2.3.3.3 Flow

The theory of *flow* (Czikszentmihalyi 1990) refers to a state of focus and intense mental concentration which can be induced by motivated individuals fully immersed in a given activity (Smith 2007; Trafford & Leshem 2008; Morse 2011). The physical or mental demands of the activity are met by the skill of the participant, such that it blurs distinctions between oneself and the environment, stimulus and response, action and awareness, and past, present and future (Csikszentmihalyi 1975; 1990; Smith 2007; Morse 2011). A *flow state* relieves extremes of boredom or anxiety, which might otherwise be overwhelming and destructive (Trafford & Leshem 2008). Flow states may therefore induce mild euphoria, well-being and other intrinsic rewards, such that an individual desires to repeatedly return to the activity (Trafford & Leshem 2008; Morse 2011). The process may be ultimately more satisfying than the goal (Morse 2011). Flow states may distort the participants' usual perception of time (Smith 2007; Morse 2011).

Flow is closely linked with understandings of consciousness and an individual's interactions with the environment (Morse 2011). A key component of consciousness is its intentionality and the way individuals selectively direct attention toward - or away from competing - sources (Section 2.2). A flow state illustrates a prolonged and intense directing of consciousness and may allow persons to experience an awareness of surrounds and oneself within (focused) consciousness (Smith 2007; Morse 2011). It is this whole-of-body involvement and the collapsing of distance and boundaries between who we are and what we are doing that invites flow experiences and quite possibly, a peak experience within that flow (Banks et al. 2010).[20]

2.3.3.4 Mystical experience

James (1902; 1929) characterized *mystical experience* according to the following 'marks':

- *Ineffability*: defies description, difficult to convey, is 'felt' rather than 'thought';
- *Noetic quality:* authoritative 'knowing' delivering insights or truths of significance;
- *Transiency:* temporary, short lived but can recur and develop in importance;
- *Passivity:* sense of suspending or surrendering one's will to a greater power.

(Smith 2007; Morse 2011)

The ineffable and noetic qualities alone are sufficient for the experience to be deemed mystical; however, transiency and passivity are frequently encountered (Smith 2007). James considered numerous types of

[20] For an insightful extended narration of the nature of flow experience and its implications for connectedness and consciousness, view *Without Thought* by Banks et al. (2010), narrated by Dr. Richard Moss: http://vimeo.com/17904201

experiences and triggers as being potentially mystical e.g. revelation and deep appreciation or immersion in music and/or natural landscapes (Smith 2007).

Mystical experience may be more than emotional response, consisting of both the sensation (perceiving) followed by conceptual interpretation (conceiving) (Morse 2011). Therefore, whilst mystical experience is characterized by the 'marks' identified, the interpretation may be influenced by culture (i.e. *powerscape*), as well as individuals' interpretation (i.e. *mindscape*) (Morse 2011). Nevertheless, James (1929: 375) observed that those who perceive such experiences are capable of "deeper plunges into mystical consciousness" (Smith 2007). Further, James' (1929: 378 in Smith 2007: 19) study of mystical experience found:

> …one conclusion was forced upon my mind at that time, and my impression of its truth has ever since remained unshaken. It is that our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens there lie potential forms of consciousness entirely different. We may go through life without suspecting their existence; but apply the requisite stimulus and at a touch they are there in all their completeness, definite types of mentality which probably somewhere have their field of application and adoption.

2.3.3.5 Numinous experience

Otto (1959) termed 'numinous' from the Latin *numen*, meaning 'God'. *Numinous experience* is therefore perceived to be a holy or religious experience, which consists of "a nod or beckoning from the Gods" (Smith 2007: 20). In contrast to mystical and peak experience, Otto focuses on commonalities of religious beliefs (Smith 2007). Interestingly, Otto found that one of the primary feelings associated with a numinous experience is that of dread, but distinguished it as being different from fear (Smith 2007). It is suggested that it is more compatible with emotional disturbance (e.g. terror) spawned by something totally unknown to us: an uncanny or awe-inspiring mystery (Smith 2007). Other qualities of numinous experiences include: contrasting emotions of fascination and that which is daunting; an inability for those who did not have the experience to comprehend the emotions involved; and a sense of 'creature-feeling' in being diminished and overwhelmed by one's own nothingness in comparison with that which is supreme above all (Smith 2007). Numinous experiences may be distinguished from mystical experiences by their greater focus on religiosity.

2.3.3.6 Peak experience

A *peak experience* is a transient moment of self-actualization (Maslow 1964). Maslow (1964) introduced the concept to refer to extraordinary moments which consist of immense awe and happiness (i.e. euphoria, ecstasy), and may involve a mystical, transcendent or unity awareness of being harmoniously connected with a 'higher' reality or truth. Maslow (1964 in Keltner & Haidt 2003: 302) notes that one may feel

> …disorientation in space and time, ego transcendence, and self-forgetfulness: a perception that the world is good, beautiful, and desirable: feeling passive, receptive, and humble: a sense that polarities and dichotomies have been transcended or resolved: and feelings of being lucky, fortunate, or graced.

A flow state is also sometimes described as a less intense form of a peak experience (De Mares 2000; Smith 2007; Banks et al. 2010) and shares characteristics such as: a merging of action and awareness; offering a stark contrast to everyday experiences; narrowing focus of attention on stimuli; altering time; and losing a reflective self-consciousness (Smith 2007; Banks et al. 2010; Morse 2011). Flow and peak experiences may differ on the dimension of "transpersonal quality": peak experiences and ecstasies are spontaneously triggered, whereas flow experiences generally include structured and planned activities (Smith 2007: 28). Coupled with peak experience, is the notion of *plateau experience* which is less (emotionally) intense, more serene and contains a noetic quality (i.e. a more cognitive sense of 'knowing') (Smith 2007; Morse 2011).

Maslow sought to de-emphasize the religious interpretations of peak experience (Smith 2007); however, underlying mystical, spiritual or religious content is apparent (Morse 2011). Vining (2003) uses the term 'magic' to refer to peak experiences and the sense of wonder, specialness, curiosity and recognition that something powerful has occurred. Since peak experience is interpreted according to context (personal, geographical or social), such transcendent meaning is not necessarily inherent, and implies that peak experience may be obtainable by anyone (Smith 2007; Morse 2011). Whilst a transient experience, Maslow considered peak and other transcendental experiences as being necessary to an individual's well-being and motivation for behaving more altruistically and may in fact be part of a process which is sometimes understood as self-actualization (Maslow 1970b; Morse 2011; Section 6.2.2).

2.3.3.7 Significant life experience

Significant life experience (SLE) was coined by Tanner (1980) and is linked with the field of environmental education (research). SLE refers to notable formative experiences which committed conservationists claim have had a lasting influence on their lives (Swan 2010). In this sense, they could include one, or an accumulation of any, of the experiences outlined above, but do not necessarily need to be as dramatic. They may refer to childhood and adolescent experiences (often with family) which have nurtured a love and appreciation of nature in individuals, and have been decisive in orienting activism towards environmental concerns (Bögeholz 2006; Swan 2010). Alternatively, they may be moments of awe in nature which somehow ignite a love for nature – a sense of *biophilia* (Wilson 1984; Swan 2010).

SLE research has largely focused on: experiences conservationists or activists believe have shaped their environmental attitudes and actions (Chawla 2006); the role of experience (Payne 1999); and discussion on appropriate research methods, e.g. how to choose research subjects (Tanner 1998b; Gough 1999; Chawla 2006). Research (e.g. Tanner 1980, Chawla 1999, 2006; Bögeholz 2006; Wells & Lekies 2006) finds that SLE is key to developing a love for nature as "a taproot of becoming a lifelong conservationist" (Swan 2010: 10). SLE research also finds commonalities with studies on peak experience and their role in self-actualization: as people self-actualize they increasingly find nourishment and inspiration from nature (Swan 2010).

2.3.3.8 Synchronicity

Jung (1960) is credited as introducing the concept of *synchronicity* to scholarship through his detailed psychological exploration of the phenomenon. Jung (1960: 25) defines synchronicity as the:

> …simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state-and, in certain cases, vice versa.

Jung (1960) s links one's inner mental state with the experience of paralleling external phenomena. Whilst this is probably the most common way synchronicity is experienced, the occurrence of a specific psychic state may not need be a precondition (Main 2007). Synchronicity is reviewed in-depth in Section 2.4.

2.3.3.9 Spiritual experience

All meaningful experiences (Table 5) may imbue broader religious and spiritual connotations which border on the ineffable (Grof 2006; Maller et al. 2008; Morse 2011). *Spiritual experience* - like spirituality - therefore has myriad connotations, nuances and can mean different things to different people (Schroeder 1991). It is also tied up and sometimes confounded with spirituality, spiritual practice and spiritual ethos (Box 4).

In literature, 'spiritual' and 'transcendent' are often coupled; e.g. Fox (1999) suggests that spiritual experience may be associated with moments of transcendence and spiritual enchantment; however, Ashley (2007: 57) notes that this link "may not apply to more grounded, nature-sourced notions of spirituality". The consideration of both spiritual and transcendent experience requires a focus on perceptual qualities rather than conceptual interpretations (Morse 2011). Searching for commonalities within the original ineffable elements of these experiences is primarily an exploration in the perceptual realm (Morse 2011).

Defining spiritual experience is paradoxical: it is often deemed indescribable, yet understanding it appears best achieved by describing traits commonly felt and associated with the experience, despite there being little consensus on what a spiritual experience actually is (Maslow 1970b; Havik 2011). Spiritual experience may be coupled with cognitive processes (e.g. active contemplation) and affective dimensions (e.g. feelings of compassion, peace, unity, relatedness, reverence, inspiration, transcendence, euphoria, ecstasy, deep flow, heightened awareness, attention to detail of immediate surrounds and feelings of connection with all existence, including something higher or greater than oneself) (Schroeder 1991; Stringer & McAvoy 1992; Williams & Harvey 2001; Ashley 2007; Maller et al. 2008; de Pater et al. 2008; Havik 2011; de Pater 2012).

Evidently, significant changes in the cognitive and affective realms implicate consciousness. Fox (1999) therefore equates spiritual experience with altered states of consciousness with common characteristics including dimensions of ineffability, intangibility, centring (life) force, heightened sensory awareness and limitlessness, with corresponding emotions including empowerment, hopefulness, groundedness and security, wonder, awe, humility (Frederickson & Anderson 1999). In their research of two female groups experiencing a wilderness journey, Frederickson & Anderson (1999: 37) also found participants to have experienced something involving changed states of consciousness:

> …a sudden illumination of individual consciousness, where the experience itself is somewhat fleeting or momentary and lacks specific content, yet leaves the individual with an overwhelming feeling of having made contact with a power much greater than the self.

Spiritual experience involves deeply connecting with something other than one's normal intellectual self. It is through this transcendent connection that profound and affective meaning is derived. Fox (1999: 455) contends that spiritual growth itself may be a "delayed awareness arising from spiritual experience". It is clear that many meaningful experiences (Table 5) contain elements common to spiritual experience and may therefore be contributors to spiritual growth, which may in turn be vital to self-actualization.

2.3.3.10 Transcendent experience

Williams & Harvey (2001) suggest that *transcendent experience* characterizes a range of positive experiences such mysticism, ecstasy, peak experience, states of flow and spiritual experience. These phenomena share several key characteristics and include feelings of:

i) Strong positive affect;
ii) Surpassing limits of everyday life;
iii) Unity with the environment, universe or some other force, power or entity;
iv) Absorption in and profound significance of the moment; and
v) Timelessness (Williams & Harvey 2001: 249).

Whilst these feelings could characterize a number of meaningful experiences (Table 5), on their own they are insufficient to account for all meaningful experiences, e.g. numinous experiences were shown to not always having a strong positive affect and may (like other meaningful experiences) evoke fear or foreboding.

2.3.3.11 Exceptional human experience

White (1994: 138) proposes Exceptional Human Experience (EHE) as "an umbrella term for many types of experiences generally considered to be psychic, mystical or encounter-type" and includes:

> …transformative experiences, mystical or unitive experiences, psychic experiences, peak experiences, certain forms of non-ordinary consciousness, unusual death-related experiences, encounter experiences (synchronicities), and exceptional "normal" experiences, such as inspiration, empathy, exceptional performance, and vivid or lucid dreams. (Swan 2010: 10)

Exceptional experiences include those that induce both positive and negative affect and, based on the above description, is largely synonymous with meaningful experience. White (1999) devoted much work to exploring the anomalous features of EHE and their triggers, qualities, concomitants (physiological, physical, psychological, and spiritual) and subsequent impacts. White (1999) concludes:

> …many types of exceptional experience are very similar even though their modus operandi may differ. The feature that was most common to all types was their transformative aspect; it became apparent that this was a characteristic that had to be included in any full definition of an EHE. It also became apparent, when taking into consideration the content and impact of these experiences, that they themselves were outlining a new conception of who we are and why we are here on the planet Earth in the late 20th century.

Box 4: Spirituality: Differentiating spiritual experience, spiritual ethos and spiritual practice

When speaking of *spirituality*, it is helpful to delineate *spiritual experience*, *spiritual ethos* and *spiritual practice*. Firstly, it should be noted that spirituality lacks a definitive definition but it is clear that it concerns that (e.g. a feeling, philosophy, quest) which involves the human spirit, soul or other non-material elements which have a sacred dimension. Malinski (2004 in Maller et al. 2008: 28) see the hallmarks of spirituality as:

> Experiencing wholeness and unity with all living beings and the natural environment, finding meaning and purpose in living and dying, transforming, and transcending…

In this regard, it would seem that spirituality is inseparable from experience. Similarly, Schroeder (1991:1) proposes that 'spiritual' refers to:

> … the experience of being related to or in touch with an "other" that transcends one's individual sense of self and gives meaning to one's life at a deeper than intellectual level.

Spiritual experience (Section 2.3.3.9) seemingly constitutes the critical *affective* component of 'spirituality' as a whole. It is difficult to imagine speaking of 'having a spirituality' removed from such experience and, specifically, the dimensions highlighted by Malinski (2004) and Schroeder (1991). What this further demonstrates is that 'spirituality' may be understood along similar lines as was conceived with CWN (Section 2.2.): i.e. the cognitive, affective and experiential (e.g. behaviours, actions) dimensions (and nuanced with context and scale).

Spiritual ethos is thus grounded in the *cognitive* side of one's consciousness. It tends to manifest as a guiding belief system or set of principles which may be drawn from one's own previous spiritual experience or which were acquired intellectually but resonate at a deeper 'soul' level. Given the apparent centrality of spiritual experience to spirituality, cultivating a spiritual ethos is largely a process of integrating all that is experienced as 'spiritual' into a conscious mode of thinking and being. A spiritual ethos may motivate spiritual practice and/or be better integrated into one's everyday consciousness through spiritual practice. A spiritual ethos defines a way of living that embodies an inner search for deeper values, meaning and one's (soul) essence, coupled with an active desire to connect with that which is experienced as 'other' – nature, people and community, divinity and other intangible realms - in the pursuit and realization of wholeness. Spiritual ethos is embedded in a unitive worldview that sees reality as being greater yet all inclusive of one's physical and non-physical being.

Spiritual practice employs *experiential* attributes. It is invariably linked with personal (spiritual) growth but in relation with something greater or 'other' than one's cognitive sense of (ego) self. Shaw (2003) sees this relationship as being with something held sacred and interacted with respectfully and reverentially on a daily basis. Spiritual practice may encompass psychological (e.g. meditation, contemplation of, e.g. sacred texts) and physiological practices (e.g. fasting) and/or social-cultural practices (e.g. community service). Whilst all are seemingly concerned with diminishing ego-oriented impulses (e.g. selfishness), they are also often concerned with disciplining, focusing purifying one's perception (e.g. sensory awareness), thought (e.g. attention and concentration) and being (e.g. mindfulness and stillness). Spiritual practice is sometimes associated with Eastern techniques such as meditation, yoga and tai-chi and Qi-gong which, in addition, in bringing awareness from the mind into the body, often involve breath-work. In this sense, it is noteworthy that the etymology of 'spiritual' is derived from the Latin *spiritus*, meaning 'breath'. [21] Therefore, spiritual practice may legitimately extend to other activities such as (extreme) sports or artistic endeavour which involves bodily focus or breath utilization. The defining quality may be that the long-term aim of spiritual practice is to refine an experiential awareness of the subtle aspects of existence, which reveal a profound sense of interconnectedness and a cognitive and affective appreciation of the interrelationship between human and non-human life forms (Ashley 2007). Over time, spiritual practice may build one's spiritual ethos; manifest unexpectedly as spiritual experience (McDonald et al. 1989); and/or support increased frequency of spiritual experience (Havik 2011).

Spirituality may therefore be best conceived as a Venn diagram consisting of spiritual experience (*affective*); spiritual ethos (*cognitive*) and spiritual practice (*experiential*) whereby 'spirituality' itself encircles all three.

[21] Similarly, the word "psychology" is derived from the ancient Greek word *psychê,* which did not only signify 'soul' or 'mind', but also 'breath' or 'gust of wind' (Abram 1996).

2.3.4 Nature and meaningful experience

All influential scholars of transcendent experience - e.g. James, Laski, Underhill and Maslow - noted their close association with nature (Williams & Harvey 2001). James (1902: 385-386) considered nature and its landscapes as having "…a peculiar power of awakening such mystical moods. Most of the striking cases which I have collected have occurred out of doors" (in Morse 2011: 32). Laski (1961) found nature was "the most common trigger of ecstasy among nonbelievers and the third most common trigger among Christians" (Williams & Harvey 1961: 249-250). The prophets for the world's major religions (i.e. Moses, Jesus, Muhammad and Gautama the Buddha) obtained profound insights after spending prolonged periods in wilder nature. Shamans of Indigenous cultures have practices that are inseparable from intimate understandings of nature and pilgrimages to sacred natural sites is an ancient universal spiritual tradition (Versluis 1994; Tucker 2001; Mutwa 2003; Sveiby & Skuthorpe 2006; Swan 2010; Verschuuren et al. 2010).

Underhill (1911: 282) observed that direct nature experience provides an ability to "attain a radiant consciousness of the 'otherness of natural things…" (in Morse 2011: 32). Maslow (1968) found that the fascinating physical elements in wilder nature "allow perception to become more passive and receptive, object centred instead of ego-centred, providing an external focus that acts as a trigger for peak experiences" (McDonald et al. 2009: 381). Morse (2011) notes in the numerous taxonomies developed to describe various types of mystical or transcendent experience (see Morse 2011 for further references), 'nature mysticism' is often singled out as a distinct experience in itself.

Substantial cross-cultural evidence suggests that such experiences have a close association with nature (Williams & Harvey 2001). Researchers have also found that many relatively common leisure and aesthetic experiences in nature are characterized by the use of language inherently mystical or transcendent (Chenowith & Gobster 1990; Williams & Harvey 2001). In their detailed review, Maller et al. (2008: 30) find "that nature can evoke powerful responses in people, and can sometimes be responsible for life-changing experiences". In comparing literature which has investigated the variety of triggers for profound nature experience (Table 6). Smith (2007: 34) concludes that "based on the weight of evidence, it can be stated that nature is a well-accepted trigger for profound experiences" (see also de Pater 2012).

2.3.5 Meaningful nature experience (MNE)

To be considered as meaningful *nature* experience, a phenomenon in (wild) nature must form the significant content of the various types of meaningful experiences outlined (Table 5). Similarly, the experience may be triggered through a physical encounter with wildlife or more symbolic interactions with landscape elements (e.g. signs or patterns) with/in nature. *Meaningful nature experience* (MNE) may therefore be understood as:

> ***Non-ordinary experiences with/in nature*** [22] ***that are particularly profound, significant, affective and difficult to wholly describe*** (Swan 2010; Morse 2011).

[22] See footnote on the following page for a definition of 'nature' as understood in this context.

Table 6: Triggers for meaningful experience (adapted from Smith 2007: 34)

Construct	*Setting triggers*	*Author / Reference*
Mystical / Religious	Nature; religion; nitrous oxide and anaesthetics.	James (1929)
Ecstasy	Natural scenery and objects; sexual love; childbirth; exercise, movement; religion; art; scientific or exact knowledge; poetic knowledge; creative work; recollection, introspection; and beauty.	Laski (1961)
Peak	Aesthetic; sexual; creative; and music.	Maslow (1968; 1994)
Flow	Play and games; creativity and research at the frontier; transcendental, peak or religious experiences; collective ritual; Zen, yoga and other meditative states.	Csikszentmihalyi (1975; 1990)
Ecstasy	Listening to music; prayer; observing nature; quiet reflection; and attending church.	Greeley (1974)
Religious	Nature	Rosegrant (1976)
Mystical	Nature	Hood (1977)
Absorption	Stories; drugs; other people; sexual; art; sport; and meditation.	Quarrick (1989)
Spiritual	Prayer; meditation; church; nature; and social grouping.	MacDonald and Schreyer (1991)
Peak	Academic; social; artistic; athletic; nature; altruistic; sexual; psychotechnologic; and political.	Whittaker (1998)
Wonder-joy tears	Experiencing nature's beauty is noted in both personal and subject recollections as being a source of profound emotion at various times.	Braud (2001)
Awakening	Disordering the senses and disrupting biological and physiological homoeostasis (equilibrium) in the human body through, e.g. fasting, sleep deprivation, asceticism, drugs, breathing techniques, chanting, extremes of temperature, illness, music, dance, sex, meditation, mindfulness and other such activities aimed at quietening the mind and stilling life energy through focused attention.	Taylor (2010)
Transcendent (during childhood)	Nature; heartfelt prayer; more formalized religious moments - resulting in visionary episodes, dream experiences, or ordinary moments in daily life that suddenly became an entry point to bliss. Most transcendent childhood experiences happen in nature.	Hoffman (1992)

'Nature' is conceived here as any element of the biophysical system and which may include plants, wild animals, geological landforms or celestial bodies (e.g. sun, moon) (based on Bratman et al. 2012). "In nature" is understood as the biophysical environment as it exists without humans. MNEs may therefore occur "with nature" across a range of scales and management types ranging from indoors to pristine wilderness defined areas (Bratman et al. 2012). Given that MNE can occur (though rarely) without being physically in the landscape, this requires somewhat of a different interpretation to how Bratman et al. (2012: 122) define 'nature experience':

> Time spent being physically present within, or viewing from afar, landscapes (or images of these landscapes) that contain elements from the above category. The distinction between physical and visual contact with nature may be important.

It is also recognized that the MNE definition may create / perpetuate the perceptual division between human-nature, but as is the intent of classifications, it allows for conceptualizing complex phenomena existing within a connected social-ecological system. It is also recognized that interaction with animal pets may evoke a MNE; however, MNEs involving domesticated animals (i.e. which would not exist without human activity) are excluded from this study.

MNE may be an awakened or heightened state of consciousness involving sensory arousal, emotional intensity, and temporary or extended shifts in perception. An intimate sense of connection may be felt between oneself and 'the something other' arising in nature (e.g. plant, animal, landscape, celestial body), and a form of emotional bonding may result. Any meaningful experience (Table 5), such as synchronicity or mystical experience falls within the realm of MNE when a physical or symbolic element of nature prominently features in the event or encounter.

Authors recognize "the difficulties inherent in defining nature-based spiritual experiences to everyone's satisfaction" (Ashley 2007: 57). Given the commonalities between spiritual experience and meaningful experience, the same difficulties may be encountered in trying to precisely define MNE. It is therefore preferred to leave the definition of MNE open and broad so as not to presuppose or bias descriptions of what people may find meaningful (Morse 2011). Individuals inevitably must make their own subjective judgement on whether the experience was profound and meaningful to them (Smith 2007). Should a more detailed description be sought then Driver et al. (1996: 5) provide a broad point of reference in their attempt to outline what constitutes nature-based spiritual experiences:[23]

> Introspection and reflection on deep personal values; the elements of human devotion, reverence, respect, wonder, awe, mystery or lack of total understanding; inspiration; interaction with and relationship to something other and greater than oneself; sense of humility; and sense of timelessness, integration, continuity, connectedness, and community.

At what point does a person ascribe meaningfulness to an experience? Smith (2007) found that this can only occur after the onset of the (wildlife) encounter (i.e. the moment a person becomes aware of nature's phenomena, e.g. an animal, in their presence). The length of time and ways in which profundity is recognized varies between individuals: some persons know immediately that their experience was special; for others, it requires a period of reflection (Smith 2007). Ballantyne et al. (2011) suggest that giving time and space after a potentially important wildlife experience ensures that recorded memories are enduring and allows opportunity for persons to reflect on its meaning (Figure 3). Doing so may also increase the cumulative effect of 'mini-MNEs' such that over time its leads to enhanced feelings of love and appreciation for nature and forms a more sustained disposition – or an enduring MNE (M. Samways pers. comm.).

There may be profound qualities inherent in experiences which are available prior to or alongside conscious reflection and memory alone. Can a person be deeply affected by an experience without realizing it or without recognizing what instigated the impact (Smith 2007)? Morse (2011: 27) speculates:

> Experience may have a pre-reflective component that occurs before we categorize or conceptualize it, and that profoundly influences us. While this element of experience must, by definition, remain in one sense a mystery to us, the search for those qualities remains worthwhile because they are so significant in bringing meaning to our world. Are we able to describe these pre-reflective building blocks of meaningful experience in a way that will enable us to better understand and facilitate worthwhile experiences?

[23] See Ashley (2007: 58) for detailed examples of definitions of nature-based spirituality and the associated term 'transcendence'. Ashley (2007: 62) also provides a table with meanings of the spiritual value of wilderness.

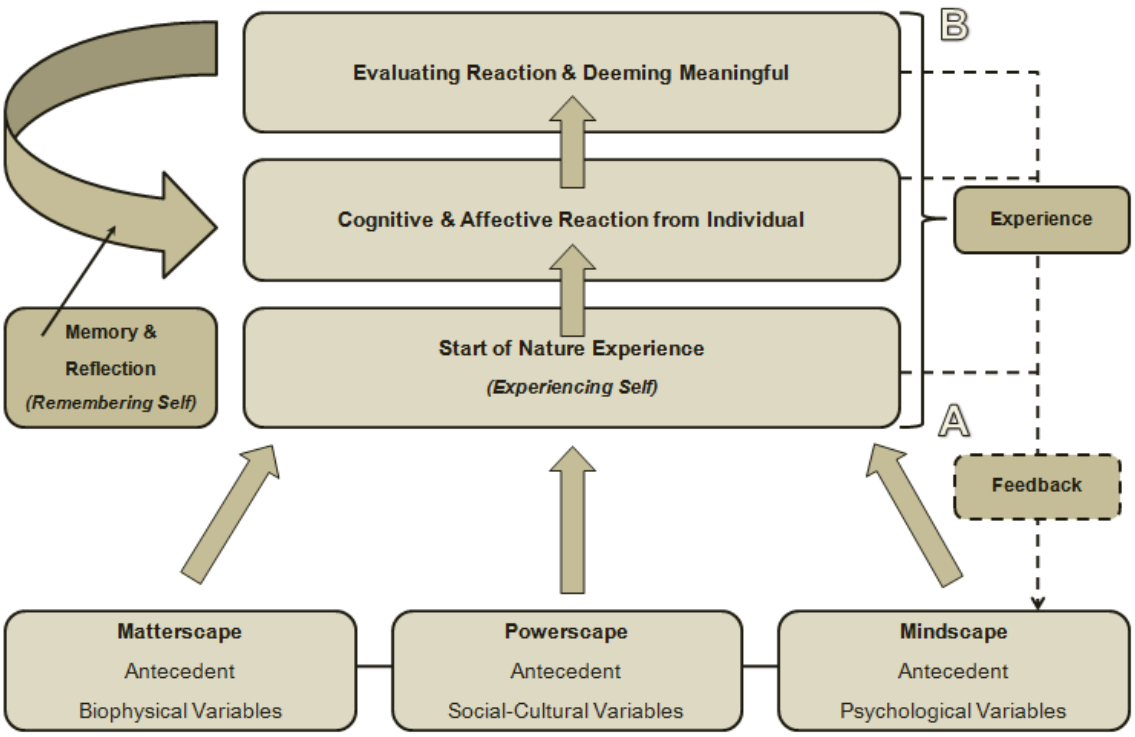

Figure 3: Conceptual framework for understanding MNE. The experience starts at A and may finish at any point before B (adapted from Smith 2007; with the *experiencing self* and *remembering self* from Kahneman 2010).

2.3.6 Triggers for MNE

Whilst nature is recognized as a common catalyst for meaningful experience (Table 6), it is less clear what characteristics of nature itself trigger meaningful *nature* experience (McDonald et al. 2009; Havik 2011). This dissertation builds on recent studies (Smith 2007; McDonald et al. 2009; Morse 2011) by exploring the physical, social and psychological variables (i.e. comprising *matterscape*, *powerscape* and *mindscape*) which trigger MNE. It seems that nature arouses humans not only because of a perceived mystery or purity, but also because it offers a veritable mix of physical traits and ambience and social-cultural forces, constructions and symbolism which suggestively interplay with an individual's psychology (e.g. knowledge, beliefs, personality) (Williams & Harvey 2001; Fine 2003; Havik 2011). In this sense, there is little way of separating the complex and continuous fusion of *matterscape*, *powerscape* and *mindscape* (cf. Jacobs 2006; Figure 3). The person-place interaction is a dynamic phenomenon and, in many instances, the social-cultural and psychological dimensions surpass the landscape's biophysical characteristics in determining the meaningfulness of the experience (Fredrickson & Anderson 1999). Transcendent moments may also be attributed to archetypal[24] or rich symbolic structures of the unconscious mind (Jung 1959; Schroeder 1991; Higgins 1996a; Williams & Harvey 2001) which may be hidden or outside of a person's conscious awareness. Such meaning structures and other emotional responses - including a greater appreciation of nature - may have an evolutionary basis in that they are intimately tied to the natural survivalist strategies human's formed during pre-historical times (M Samways pers. comm.; Ulrich 1993).

[24] Archetypes were conceived by psychologist Carl Jung as patterns of instinctual behaviour which strike a common chord because of their universal yet largely un/subconscious appeal (Bolen 1979).

The power of nature in the *mindscape* to trigger meaningful and restorative experience is in large part due to its conduciveness to fascination, novelty and compatibility (i.e. sense of ease, effortless attention) (Kaplan & Kaplan 1995; Williams & Harvey 2001; Smith 2007). For example, in a phenomenological description of a wilderness river journey, Morse (2011) found that the geology, forests, waterfalls, eddies, and the river itself in forming unique views and 'naturalness' were essential physical ingredients to the value of the experience. MNE has also often found to be the result of an intense physical and/or emotional challenge (e.g. Morse 2011); "however, relatively little is known as to how much of an influence the natural environment itself has on the individual's experience" (Frederickson and Anderson 1999:22). Therefore, the presence of these triggers does not guarantee MNE (Smith 2007). In this sense, it may be the general and symbolic meaning of the certain environments that evokes deep emotional response rather than the unique characteristics of a given physical place (Williams and Harvey 2001). From both social (e.g. human health, education) and ecological (e.g. conservation) perspectives, it is imperative to understand the qualities of the natural environment which are capable of triggering MNE and possibly altered states of consciousness (Morse 2011). Research comprising this dissertation explores such dimensions; however, firstly it is helpful to introduce some of the more common and accepted triggers of MNE in literature.

2.3.6.1 Wilderness

> *Prophets do not come from cities speaking of clothes and riches. No, they come from wild places speaking of animals running free and a different kind of treasure.* (Based on a quote by Andrew Little and used in a speech by Ian Player)

The role of wilderness as being central to what Henry Thoreau called "the preservation of the world" has long been recognized. The founders of major religions and notable mystics, shamans, philosophers, Romantics and natural history writers spent prolonged (solo) periods in remote natural areas. The rites of passage and initiations ceremonies found in Indigenous cultures are also linked with extended periods in wilder places. This is unsurprising given humans' evolutionary need to understand and coexist with nature.

Box 5: What is wrong with 'wilderness'?

The concept of 'wilderness' has been debated extensively and attacked from a variety of angles. 'Wilderness' has been dismissed on the basis of it: being a [recent] social construction; promoting a false sense of dualism; and not existing in its envisaged 'pristine' form due to humanity's far-reaching influence and impacts on the natural environment (Evernden 1985; Cronon 1995; Morse 2011; Kareiva et al. 2012a). The concept has also been viewed as an affront to Indigenous peoples who have, over millennia, maintained an intimate and, until recently, continuous connection with - and possibly cultivation of – land described as wilderness (Bird Rose 1996; Kareiva et al. 2012a). This debate will not be entered into here but serves to acknowledge that reference to 'wilderness' should be done with an appreciation of its history and contested nature. Further, it is essential to realize that conceptualizations of wilderness are constantly coloured by changing human perception:

> This is the paradox, that even as we attempt a view of nature as having value in and of itself [e.g. intrinsic value], we are only able to make the attempt through modern human eyes (Morse 2011: 19).

The psychological benefits of wilderness have been well documented in specific contexts (e.g. Kellert & Derr 1998; Frederickson & Anderson 1999; Williams & Harvey 2001; Morse 2011; Atchley et al. 2012) and more generally (e.g. Maller et al. 2008). However, more elusive are the qualities of wilderness which serve to trigger MNE. It appears that expanses in wilderness and the sense of being immersed within it reminds individuals of the vastness of the universe and one's evolutionary place within it (Frederickson & Anderson 1999). For example, a participant on a trail with the Wilderness Leadership School reflected as follows:

> Something happens on a wilderness trail. I go back to try and find what it was...What happens, is what each person experiences seems impossible to describe. All I can say is the atmosphere, beauty and feeling of the bush is extremely powerful and seeped into me until I felt part of, and at one with my environment...A change occurred that cannot be pinpointed. Inside was a stillness and I suddenly found I was quite content to be me. It was as if I had to get rid of a weight of rubbish that I had been carrying around which I had thought very necessary. My batteries were recharged. Occasionally one can see down a corridor of sliding doors, but they rarely open all the time so that one can catch a glimpse all the way through (M. Wilson in Junkin 1987: 34-35)

It appears that landscape elements such as the aesthetics, viewscapes and respective diversity of wilderness areas deliver the visual delight, fascination and enchantment capable of promoting transcendent states and a "sense of wonder, humility, and connectedness to nature" (Fox 1999: 456 in Ashley 2007: 60). Wilderness landscape attributes identified as contributing to a spiritual experience include:

> proximity to wildlife or opportunities to view and contemplate wildlife; auditory protection from man-made (e.g. mechanical) sounds; outstanding aesthetic opportunities; either open and expansive or closed-in and protected natural areas; high places; water resources; environmental quality and integrity (McDonald et al. 1989: 204 in Ashley 2007: 60).

Morse's (2011) phenomenological investigation of a wilderness journey on the Franklin River, Tasmania, explores how peculiarities of such an environment may be conducive to MNE (even if understood as not being essential to the generation of such experiences). Many contributing factors on such a journey may be identified: silence, simplicity, naturalness, vulnerability, intensity, views, constant connection with landscape, risk, adventure, loss of control (comfort zone), length of journey, geology, vegetation, landscape forms, observation of ecological processes and wildlife interactions (Morse 2011). These all reinforce the notion that central to the nature of (tourist) experience is 'the gaze' (Urry 2002; Lemelin 2006). Critically – and in terms of the effects on consciousness - the combination of these factors on wilderness journeys provides an environment which focuses the gaze by minimizing distraction and the wandering of attention.

Similarly, McDonald et al. (2009) found that the most common elements in triggering the participant's peak experiences were the aesthetic qualities of the wilderness setting and the opportunity to escape the pressures, people, distractions and concerns of the human-made world, such that a unique combination of aesthetic pleasure and renewal triggers peak experience. The findings of both McDonald et al. (2009) and Morse (2011) align with Kaplan and Kaplan's (1989) Attention Restoration Theory (Section 2.3.7.1) as well as Kaplan and Talbot's (1983) key environmental qualities that combine to contribute to such experiences. The authors identified 'being away', 'extent', 'fascination', and 'compatibility' which are often related to the human need to 'explore' (being away and extent) and to 'operate effectively' (fascination and compatibility) (Morse 2011). Johnson (2002 in Ashley 2007) recognizes the six spiritual benefits of wilderness as:

- *Enduring*: coming face to face with ancient things and timeless cycles;
- *Sublime*: humbling of humankind by the awesomeness of the wilderness landscape;
- *Beauty*: sensing of the aesthetic;
- *Competence*: experiencing physical trials and challenges;
- *Experience of peace*: opportunities for mental calm; and
- *Self-forgetting*: loss of identification with the ego.

Whilst these are recognized as benefits of wilderness, they may equally be triggers for MNE – the distinction is blurred. Studies such as Morse's (2011) phenomenological exploration of a river rafting wilderness journey and Frederickson & Anderson's (1999) study of wilderness experience support the idea that any extended wilderness sojourn may be in itself – i.e. in its entirety - a MNE comprised of any number of other briefer MNEs of varying intensity.

The value of wilderness may, in part, be due to the type of activities which take place there. Wilderness is not always encountered solo and usually individuals experience it as a participant on a facilitated or guided journey. Therefore it cannot be assumed that the aforementioned triggers exist independently of any social context. Whilst wild nature has propensity to act as a trigger during solo experience, the potential added (social) value of guided or group experiences cannot be ignored. In fact, some of the listed triggers related to wilderness such as intensity, vulnerability, challenge and risk may specifically require a guide to facilitate or simulate the related activity. Yet, in one way or another, wilderness serves as a "vehicle for personal mystical experience" (Timmerman 2000: 362 in Ashley 2007: 55) and is thus a key trigger for MNE. In his study on perceptions of a guided wilderness trail, Raimondo (1985: 74) identified seven factors as most important to contributing to successful wilderness trails:

i) *Guide:* Knowledgeable guide who is sensitive to the trailists' needs and has the ability to interpret the environment;

ii) *Archetypes:* An experience of archetypal situations such as: sitting around a campfire; being alone in a wilderness area; crossing a dangerous river; or facing wild animals;

iii) *Remoteness:* Trailists should feel remote from their normal way of life: in time, distance and mode of shelter, travel and survival;

iv) *Challenge:* Trailists should be exposed to some form of stress, both physically in the form of hiking and emotionally when confronted with unfamiliar situations requiring a reassessment of their previously held beliefs;

v) *Duration:* The trail should take place for a period of four or more days in a wilderness area with a maximum of seven trailists and one guide;

vi) *Learning:* Trailists should gain new knowledge about their interdependency with their environment; and

vii) *Group dynamic:* There should be good interaction between the trail participants.

All of these dimensions require varying levels of human-nature interaction. Similarly, Frederickson and Anderson (1999) attribute the inspirational quality of wilderness experience to both positive social interaction and awareness of the expansiveness and power of nature (Morse 2011). It is therefore clear that the human – environment transaction is a complex one and will involve triggers which have their roots in a dynamic blend of natural (*matterscape*), social-cultural (*powerscape*) and personal (*mindscape*) realities.

2.3.6.2 Sense of place

MNE across multiple contexts are often understood to involve *genus loci* – 'a sense of place' (Jacobs 2006; Morse 2011). *Sense of place* is a broad and overarching concept that includes, but is not limited to, 'place attachment' (Jacobs & Buijs 2011). *Place* may be considered as a spatial location which mediates an individual's experience (Morse 2011) and gains its value and unique identity by the meanings ascribed to it (Jacobs 2006). In this case, the uniqueness is less about (attachment) to particular the location, landscape or community, but rather the individual or collective experience of the setting over time and space (Relph 1967 in Morse 2011). Sense of place can therefore be understood as the total collection of meanings that people assign to a particular place (Jacobs & Buijs 2011). Experiencing an authentic 'sense of place' may be connected to the *foci* of the actual journey being undertaken (Morse 2011).

The human relationship with place seems to be symbiotic and reciprocal. Frederickson & Anderson (1999) suggest that spiritual experience in nature is closely related to sense of place; however, implied is that MNEs are the product of complex human-environment interactions. Just as a place gains its identity through the meaning people assign to it, place is equally seen as being central to human identity, and is a source of inspiration for nature writers (Tredinnick 2003).

The catalyst which seems to convert a physical environment into a 'place' is linked to the process of experiencing deeply – a facet often linked to childhood experience (Gussow 1972 in Morse 2011). Individuals, particularly within Indigenous cultures, who have cultivated MNEs at locations across various scales see themselves as being inextricably connected with a certain place, such that the loss or forcible removal from a place is equivalent to a loss of identity (Sveiby & Scunthorpe 2006; Swan 2010; Verschuuren et al. 2010). This also underlies much of the importance of sacred natural sites (cf. Verschuuren et al. 2010; Swan 2010). Thayer (1976 in Jacobs 2006) identifies five levels of meaning inherent in place:

- *Presentation level:* physical properties of place (e.g. form) provide aesthetic sensation;
- *Associative level:* place evokes familiar images based on prior knowledge, concepts;
- *Affective level:* place elicits an emotional response;
- *Symbolic level:* place is compared with the value system of the perceiver; and
- *Activation level:* place triggers action, through a corresponding behavioural set.

Human geographers often describe sets of meanings attributed to a place - and these may include feelings of belonging, affection, connection and comfort that arise during the interaction (Jacobs 2006; Morse 2011).

Jacob (2006) stresses that without empirical research, the validity of many concepts is obscure and, as such, when 'sense of place' is used, it gives the impression that the place has identity in itself, whereas conceptual emphasis should be on the meaning which people ascribe to places. However, the situation may be more complex than that. Abram (1996) describes how the person-place interaction is characterized by the interplay of the different senses and enables the body and earth to connect through a reciprocal *participation*, where meaning emerges through this full-bodied engagement with the landscape.

> In suggesting that some environments can instil a sense of place imbued with meaning, there is a recognition that this is due to both the characteristics inherent within the place and the personal history that the individual brings to the transaction (Relph 1976 in Morse 2011:47).

It appears that there is both a conscious and unconscious sense of place: the former alludes to occasions when a person is knowingly aware of a place of significance, e.g. sacred sites, and attends to this cultural significance accordingly; the latter involves an unsolicited experience, which is characterized by an effortless sense of empathy (Morse 2011). A precondition for an unconscious sense of place is to suspend judgement, preconceptions and remain open and vulnerable to that which arises in immediate experience (Morse 2011). Whilst individuals can never be completely free of the personal histories brought to this human-environment transaction, can certain places hold inherent qualities that are more likely to trigger MNE?

Swan (2010: 11) argues that, despite it being established that "both the mental set of the person and the environmental setting have an influence on people experiencing altered states of consciousness (Tart, 1975)", there is a case to be made for investigating the more subtle influences of place. Swan (2010) finds it surprising that, despite pilgrimages to sacred places being one of the oldest and most universal spiritual traditions, little research has investigated the characteristics of these landscapes on human consciousness. In speculating on why certain places appear to be more likely to induce particular types of MNEs, Swan (2010) attends to the more fringe and largely unexplored biophysical dimensions such as electromagnetic fields, negative ionization of the air, unique water chemistry, mind-altering gases as well the contentious idea of the 'predecessor factor': i.e. that each place has a (geobiotic) 'memory' of what has taken place there previously (which aligns with the Chinese *Feng Shui* idea of geomancy for land harmony (cf. Samways 1990) and Sheldrake's (2009) controversial 'morphic resonance' concept). Some of the MNEs associated with sacred sites include: unitive bonding with nature/place; feelings of bliss, wonder and awe; interspecies communication and cooperation; ancestral-memory recollections; and fusion with elements of nature (Swan 2010). Swan (2010: 12) notes the unpredictability of these experiences and suggests that they may be best classified as 'synchronicities': meaningful coincidences which "seem to arise from magical harmonies that may or not be planned or conscious." Notably, rituals or ceremonies are often used at these sites to prepare - or harmonize - one's mind and consciousness with the place (Swan 2010).

In the same way that wilderness seems to trigger MNE, so too is sense of place a blend of situational characteristics linked to both the social and physical mileu. For example, a sacred site (geological landform, grove of trees) is a result of ongoing intimate interaction between nature and culture (Verschuuren et al. 2010). In other words, when particular environments evoke a deep emotional response, it is neither the

unique physical characteristics of a place (Williams & Harvey 2001) nor the psychological state of the person but rather a resonate meeting of the inner and outer which triggers profound (symbolic) meaning.

> The very idea of something that is partly internal, partly external, or of a zone or third world between the internal and external, is to some a sloppy thinking. Yet that sense of intermediateness is exactly what I feel sitting in a theatre…[or] watching a sunset. I cannot say where my hopes, dreams and longings end and what I am taking in from the experience begins. I am in the theatre [*matterscape*], in my mind [*mindscape*] and in the cultural experience [*powerscape*] – all at once (Ellsworth (2005: 65) quoting Robert Young).

2.3.6.3 Wild animals

> *The idea that animals can convey meaning, and thereby offer an attentive human being illumination, is a commonly held belief the world over. The view is disparaged and disputed only by modern cultures with an allegiance to science as the sole arbiter of truth. The price of this conceit, to my way of thinking, is enormous.* (Lopez 2003: 160)

Investigations into nature as a catalyst for MNE have largely focused on the qualities of natural landscapes. MNE catalysed by wild animal interaction has received far less attention, despite being long recognized as a trigger for profound experience (Laski 1961; Frederickson & Anderson 1999; Lopez 2003; Vining 2003; Curtin 2006). In one of the few studies on wildlife-triggered MNE, DeMares & Krycka (1998) (and DeMares (2000) as an extension of the same study) used phenomenological reduction to identify five themes common to participants' peak experiences with cetaceans:

i) *Intention*: sense of the animal wanting or choosing interaction;
ii) *Reciprocity:* sense of exchange between the human and animal, e.g. eye contact;
iii) *Aliveness:* sense of positive and ineffable feelings;
iv) *Connectedness:* sense of lasting connection with the individual animal and species;
v) *Harmony*: sense of appreciation of how the animal lives in harmony with its surrounds.

Key experiential elements underpinning keys themes include the subject's ability to experience eye contact as well as being in close proximity with the cetacean (DeMares & Krycka 1998). As with sense of place and other MNEs, CWN is apparent, since these encounters evoke an irrepressible and possibly enduring feeling of bonding or relatedness. Such profound experiences, despite being vulnerable to the analytical mind, may ignite or reinforce a belief in the spiritual nature of animals' lives and that there is more to the world than physical appearances (Lopez 2003).

In studying the transformative effect of a wild animal encounter in the context of Maslow's construct of peak experience, DeMares and Krycka (1998) acknowledge that it was not known whether species of wild animals other than cetaceans have (equal or greater) capability to trigger peak experience or what themes might characterize such encounters. However, literature does show that certain physical traits of animals (e.g. large size, posture similarity to humans) and aesthetics (e.g. surface texture and colour) are key characteristics which, in invoking anthropomorphic qualities, are highly influential in determining human preferences for some species over others (Kerley et al. 2003; Stokes 2007; Lemelin 2013b).

In investigating profound encounters triggered by wildlife, Smith (2007) found commonalities with both broader meaningful experiences (e.g. loss of self-consciousness, focused attention, ineffability, loss of temporal and spatial orientation, and detachment from everyday life) as well as themes from DeMares (2000), such as 'intention' and 'eye contact' are identified . In defining a wildlife encounter, Smith (2007:12) also finds that the experience starts "from the moment a person becomes aware that there is an animal in their presence." In this respect, the peak experience is not always triggered by visual stimuli: awareness may be triggered though the use of other senses. McDonald et al. (2009: 377, quoting 'Participant 16') provide such an example:

> Suddenly, and this is what produced our peak experience, was a hump back whale "blowing" very close to us.

2.3.6.4 Anti-triggers

In studying triggers for ecstasy, Laski (1961) found that reminders of everyday life, domestic animals, commerce and the presence of other people were found to be *anti-triggers* (Smith 2007). The interaction with domestic animals may be linked with the sense of familiarity, ordinariness and security felt. Rolston (2007: 240) explores this issue in the context of his own experiences with wild and domestic animals, e.g.

> Every time I see a wolf in Yellowstone, I get goose pimples…When I see a French poodle with painted toenails on the streets of Manhattan, I do not rejoice for the nature in the city.

Rolston (quoted by Palmer (2007: 193) concludes that

> Yes, I have a persistent sense that the domesticated and rural, tainted by human contact, are inferior contexts to the wild, as are the animals within them.

Are some species anti-triggers? Some researchers contend that the 'alienness' and lack of anthropomorphic qualities accorded to insects and arthropods invokes a dislike, fear or disgust which might be 'universal' to the human psyche (Hardy 1998; Arrindell 2000 in Lemelin 2013b). However, Lemelin (2009, 2013b) notes that such fear is not universal and insect encounters do not always result in a 'fright and flight' response for the persons involved. On the contrary, insects may evoke awe, epiphanies or can be a positive indicator for ecological health and utilitarian concerns (e.g. bees for crop pollination) (Lemelin 2013b). In any case, the 'negative sublime', i.e. the undesirable emotions (subconsciously) triggered by some species, can still form the basis for beneficial MNEs (Lockwood 2013; Lemelin 2013a).

Whether the presence of other people is an anti-trigger for MNE is contentious, and is not wholly supported by subsequent research (cf. Smith 2007). The concept of having a shared MNE is explored later in this dissertation (Section 4.3.2.2). Csikszentmihalyi (1990) claims that social and environmental barriers to enjoyment are those which induce excessive rigidity or fragmentation of attention (Smith 2007). Whilst we usually associate these barriers with urban and indoor areas they may be equally present in wilderness:

> The myriad of modern-day forces distracting our awareness from the land can be both overwhelming and insidious; it is all too easy to divert our attention toward the activity, the group, the gear, the gadgets – to be pulled away by the map, the altimeter, the GPS, by everything but the very landscape that can inspire our travels (Baker 2005: 269 in Morse 2011: 238).

Whether an interaction with animal, landscape or something else altogether, the control of attention appears central to triggering profound experiences (Smith 2007). Speculation therefore rises as to whether this may predispose certain personality types toward MNE. James (1929), Otto (1959) and Maslow (1968) asserted that their respective MNEs were available to all; however, Laski found different ecstatic experiences were more likely to occur for certain people (Smith 2007). Crichton-Browne, who ran experiments using nitrous oxide in the late 19th century, found that people with "superior mental power" (as opposed to "average mental calibre") (in Laski 1961) were more likely to have noetic qualities to their experience (Smith 2007). In contrast, Quarrick (1989) asserts that non-intellectual people are more easily absorbed and therefore more likely to have peak experiences.

In exploring the predisposition of people to obtain flow, Csikszentmihalyi (1990) experimented with groups of people who have difficulty in controlling attention, such as schizophrenics (Smith 2007). Csikszentmihalyi argues that such persons will rarely achieve 'flow' and suggests that certain people are born with the innate ability to achieve a flow state: "…it is possible that there are individuals with genetic advantage for controlling consciousness" (Csikszentmihalyi 1990: 86 in Smith 2007:38).

It appears as no coincidence that the ability to control focus, attention and concentration is at the heart of many Eastern practices, e.g. yoga, meditation, and martial arts (Taylor 2010). Increasing Western research into 'mindfulness' serves only to further support the importance of attention and concentration in deriving multiple and wide-ranging benefits for life (Davidson et al. 2003; Williams & Kabat-Zinn 2013).

2.3.7 Impacts and benefits of MNE

The benefits of MNE have been examined on a limited scale across a number of disciplines, e.g. tourism and leisure (Smith 2007; McDonald et al. 2009; Morse 2011; Smith et al. 2011; Ballantyne et al. 2011); environmental education (Tanner 1980, 1998; Chawla 2006; Gough 1999; Swan 2010; Morse 2011; Ballantyne et al. 2011); and childhood and adult psychological health and spiritual development (Maslow 1964; DeMares & Krycka 1998; DeMares 2000; Kahn & Kellert 2002; Kellert 2002; Louv 2005; Taylor 2010). In a study on facilitated outdoor wilderness experience, Kellert & Derr (1998: 56) conclude that

> …prolonged and challenging immersion in the outdoors, especially in relatively pristine settings, can exert a powerful physical, emotional, intellectual, and moral-spiritual influence on young people.

However, speculation of how such experiences might positively promote or reinforce ERB seems to have been overlooked in conservation and sustainability literature - in both theory and education practice.

The psychological (e.g. cognitive, intellectual) and physiological (e.g. health) benefits of general contact with nature have however been well documented both in specific contexts (e.g. Kellert & Derr 1998; Frederickson & Anderson 1999; Williams & Harvey 2001; De Wet 2007; Morse 2011; Atchley et al. 2012) and more broadly (e.g. Kaplan & Talbot 1983; Kaplan & Kaplan 1989; Kaplan 1995; Frederickson & Anderson 1999; Williams & Harvey 2001; Louv 2005; De Wet 2007; Mayer et al. 2009; Brymer et al. 2010;

Dustin et al. 2010; Fengler 2010a; Bratman et al. 2012; Zelenski & Nisbet 2012; Atchley et al. 2012; Keniger et al. 2013). McDonald et al. (2009) cite numerous authors to summarize a number of the many benefits of nature to include: (attention) restoration; flow experiences; education; personal growth; self-sufficiency, independence; creativity, inspiration; trigger for transcendent experiences, such as ecstasy, mystical experience and peak experience; and conducive to spiritual expression (the latter points referring to transcendent and spiritual experiences are specifically associated with wilderness immersion).

The documented benefits of direct contact with nature are compelling. For example, Maller et al. (2008) review a large body of literature to illustrate that humans benefit from nature, psychologically, emotionally and spiritually in ways which are difficult to satisfy by other means, and which make a vital - yet still inadequately recognized - contribution to human health, well-being and development. Focusing on a parks context, Maller et al. (2008) find evidence of natural green space reducing crime, stress, illness, apathy and boosting immunity productivity and healing, as well is being an effective and cost-effective source of disease prevention. Furthermore, Maller et al. (2008) cite literature supporting the benefits of nature in recovering from stress, improving concentration, and general mental health. Physiological evidence includes the positive effects of nature on blood pressure, cholesterol and cardiovascular disease (Maller et al. 2008). The authors also document ways in which nature is fundamental to building resilient social capital in furthering bonds between people and communities (Maller et al. 2008).

More recent studies by Bratman et al. (2012) and Zelensky & Nisbet (2012) provide additional supporting evidence through their respective reviews. Zelensky & Nisbet (2012) find that even when contact with nature is limited, the benefits are many and support: more pleasant moods; pro-social aspirations and generosity; self-control; reduced crime and aggression; and reduced mortality risk associated with income inequalities. Similarly, Bratman et al. (2012) cite a range of positive impacts of nature exposure on cognitive functioning and mental health, with a specific focus on attention restoration, stress reduction and preference for nature. These authors highlight evolutionary influences and how human history has been intimately tied to, adapted with and dependent upon a close relationship with the natural environment; ideas which resonate with the biophilia hypothesis and the human need to affiliate with other forms of life (Wilson 1984; Kellert & Wilson 1993; Bratman et al. 2012; Zelenski & Nisbet 2012).

These general benefits of contact with nature serve as a basis for understanding the potential extent of benefits to be derived from MNE. We might infer that certain forms of MNEs could deliver many of the benefits described above, with the caveat being that they should be matched with regular physical contact with nature, meaningful or not. This relationship is symbiotic: time spent in nature can spawn MNEs (McDonald et al. 2009); in turn, MNEs may encourage people to spend more time in nature (Morse 2011). Notwithstanding the benefits already described with respect to general meaningful experience (Section 2.3.3), the remainder of this section outlines a number of additional traits more specific to MNE:

i) Renewal and restoration;
ii) Compatibility and connection;
iii) Sense of time availability and satisfaction;
iv) Attitude formation and behaviour change;
v) Individuation and reconciliation; and
vi) Additional psychological benefits.

2.3.7.1 Renewal and restoration

'Renewal' has been found to be common to peak experiences in wilderness (McDonald et al. 2009). This concurs with the work of Kaplan and Kaplan (1989) and Kaplan (1995) on the role of nature in their Attention Restoration Theory. During the course of our everyday lives, we expend considerable effort and energy to not only sustain or direct focus to particular stimuli or activity, but inhibit everything else as competing stimuli (Kaplan & Kaplan 1989). This may result in fatigue, stress, irritability and an inability to apply direct attention (Kaplan 1995; Morse 2011). One way of resting or restoring our attention is to engage in activities where focusing requires little effort - the stimuli effortlessly fascinate us and, in the case of MNEs, they do so with awe. In wilder nature, this may include admiring beautiful landscapes or animal interactions (Morse 2011). Kaplan and Kaplan (1989: 179-180 in McDonald et al. 2009: 380) explain:

> As (William) James envisioned it, the way one maintains one's focus on a particular thought is not by strengthening that particular mental activity but by inhibiting everything else. From this perspective, the greatest threat to a given focus of attention is competition from other stimuli or ideas that can be the basis of a different focus. Inhibiting all such potential distractions protects and hence sustains the original focus. In focusing, or directing attention, a great deal of effort is devoted to avoiding distractions or as James put it, "to resisting the attractions of more potent stimuli"

Morse (2011) found that the deep level of rest, recovery, relaxation and renewal of attention through a wilderness journey (as a MNE) is something not normally obtainable in everyday life. In particular, it is not only the absence of distraction but the existence of elements of the natural surrounds which can effortlessly hold attention and provide meaning and purpose (Morse 2011).

2.3.7.2 Compatibility and connection

McDonald et al. (2009: 382) found that the "most powerful and enduring element" of participants' peak experience in wilderness is the transcendent connection with the "unseen world" and its powerful forces as an ultimate form of belonging and merging with the natural environment. This merging might be similarly perceived to what Morse (2011) describes as an 'interweaving' with the natural world. This profound connection may be expressed in more mystical language which relates to spiritual expression of feelings of oneness and being a part of everything; the construction of new meanings may subsequently value the environment - particularly wilderness - as being sacred or holding sacred power (Frederickson & Anderson 1999; McDonald et al. 2009). Wilderness may help people become more receptive for making contact with the 'sacred power' and the 'unknowable' which pulls them deeper into the depths of this power

(Frederickson & Anderson 1999). This may, as a result, lead to persons to "new spiritual heights" (Frederickson & Anderson 1999: 37). Such experiences are often coupled with profound insight, providing a level of meaning and purpose to fill an individual's "existential vacuum" (McDonald et al. 2009: 383).

Morse (2011) found that participants described their profound experiences as transcending their everyday profane perception of the world: there was value in perceiving one's place in the world as being deeply connected, but also in the realisation of a lack of such a perceived connection in ordinary day-to-day life.

> In considering the essence of meaningful experiences for many participants, though, it was the apparent paradox of separation and connection that was at the heart of what they reflected upon as meaningful to them (Morse 2011:230).

Morse (2011) suggests that his research supports the idea that wilderness as a MNE might assist in breaking down the persistent self-other barrier that seems to be central to the perception of the modern human. The psychological changes which take place in wilderness appear to shift individuals from a "culturally reinforced dualism-producing reality processing to a more non-dualistic mode" (Greenway 1995: 131 in Morse 2011: 243-244). Morse (2011: 265) concludes:

> To have a profound and moving experience, to break through the profane, to become interwoven with the world on such a journey is not necessarily to hold our 'everyday lives' as poorer substitutes; rather, it might be that such experiences can add something to our lives and allow us to question our sense of self-importance and separation from the world.

2.3.7.3 Sense of time availability and satisfaction [25]

Rudd et al. (2012) found that experiences of awe give participants feelings of: having more time available in their life; reduced impatience; greater willingness to volunteer their time to help others (e.g. community service); a stronger preference for experiences over material products; and an overall greater boost in life satisfaction. The authors note that since awe has the ability to bring people into the present moment, it can support positive changes: perception of time; decision-making; and fulfilment with life (Rudd et al. 2012).

The link to a change in time perception is a critical one. In reviewing the literature, Rudd et al. (2012) find that most people in modern society bemoan the lack of time and perceived time pressures are associated with a heightened risk of hypertension and physical ailments such as headaches, stomach pain and poor sleep quality. Further, a constricted sense of time also has flow-on effects in terms of lifestyle choices, ranging from dietary preferences to leisure and physical activity (Rudd et al. 2012). Finally, and of critical importance to a society burdened with overconsumption, experiences of awe appear to be associated with preferences for experiential products (which require time to process and savour the sensations involved) over material goods (Quoidbach et al. 2010; Rudd et al. 2012).

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[25] A popular article in *The Atlantic* summarizing the Rudd et al. (2012) study, elicited the following reader's comment: *For instance, how often do we actually feel overwhelming – and unadulterated – awe? Most instances I've experienced 'awe' comes from being outside; seeing the awe-inspiring beauty of majestic places, yes. But simple things, too; a bird song, a wild flower in bloom, the play of light on a brick wall in the later afternoon. Yet most Americans don't spend much time outside, so they limit their potential for having such experiences on a regular basis…*~ Rebecca Zicarelli (Zic) (Retrieved 21 July 2012 from http://www.theatlantic.com/health/archive/2012/07/study-awe-inspiring-experiences-change-our-perception-of-time/260138/)

Phenomenological studies on awe (i.e. how 'awe' is experienced) and the extended-now theory (cf. Vohs & Schmeichel 2003) suggest that awe expands perceptions of time since focusing on the present moment elongates time perception (Rudd et al. 2012). Returning again to 'attention', it is clear that awe captivates and holds attention and this dimension therefore forms a critical link with Attention Restoration Theory (Section 2.3.7.1) and the way in which humans use attention to shape consciousness. In finding that awe supports expanded well-being in many areas of an individual's life, Rudd et al. (2012: 17) conclude that

> …awe-eliciting experiences might offer one effective solution to the feelings of time starvation that plagues so many people in modern life.

2.3.7.4 Attitude formation and behaviour change

Evidence for the impact of MNEs one an individuals' life is often anecdotal or autobiographical and can be found in both scientific (e.g. Csikszentmihalyi 1990) and popular literature (e.g. Jaworski 1996). Despite a general dearth of literature on the impact of MNEs, more recent studies (e.g. DeMares 2000; Smith 2007; De Wet 2007; McDonald et al. 2009; Morse 2011) have attempted to address this gap through qualitative analysis (e.g. grounded theory, phenomenological methods); however longitudinal studies are lacking.

Smith et al. (2011) found that most interviewees recalling their profound encounters with wildlife stated that the experiences had some degree of impact on their lives, ranging from "a watershed moment" and "great pivotal or turning point" to "little impact". The impact of a profound wildlife encounter was most often associated with individuals changing their attitudes toward the animal central to the experience, with broader attitudes also affected in some cases (Smith 2007). Attitudes were found to be created, changed or reinforced in a way which positively aligned with wildlife and wildlife protection (Smith et al. 2011). In some cases, this led to both hedonic and conservation-oriented behaviour change (Smith et al. 2011).

In his study on cetacean-triggered peak experience, DeMares (2000) found that participants claimed to have new or modified behavioural intentions about a desire to see more cetaceans or to become involved in advocacy following their MNEs (i.e. peak wildlife experiences). Multiple other studies support the assertion that wildlife tourism through experience and interpretation can have:

> positive short- and long-term impacts on visitors' environmental learning by: developing a respect and appreciation for wildlife and nature; raising awareness of environmental issues; promoting environmentally sustainable attitudes and actions; and building tourists' capacity for longer-term adoption of sustainable living practices (Ballantyne et al. (2011: 771).

Other relevant behaviours post-MNE could be as simple as recalling, retelling and, where relevant, recommending the experience to others (Smith et al. 2011). This sharing of experience acts as the currency or "social lubricant" in stimulating conversation and building relationships with family and friends (Hunt et al. 1992: 247 in Curtin 2006). This is one reason why experiences have a greater social value than material possessions (Van Boven & Gilovich 2003). MNEs become more central to personal identity since our lives and our consciousness are a summation of our experiences (Van Boven & Gilovich 2003).

The emotion generated through MNE appears to have significant impact. McDonald et al. (2009) found that participants' peak experiences were highly valued and would retain importance into the future by providing insight and acting as a reference for the extraordinary emotions rarely experienced in everyday life. It has been shown that an embodied emotional involvement with nature is significant in influencing ERB (Kals et al. 1998; Chawla 2006; De Wet 2007; De Lange et al. 2010). For example, significant life experiences (as a form of MNE) ERB (Chawla 1999; 2006), embody emotional involvement and this may be an important springboard for (influencing) subsequent ERB (De Wet 2007). In exploring human-wildlife interactions, Bentrupperbäumer (2005) emphasizes the human need for contact with nature and notes that emotional attachments to wildlife can be particularly influential in motivating ERB (Ballantyne et al. 2011). ERB itself is said to be emotionally based and is usually a result of an experience of relationship with nature rather than intellectual knowledge of it: in other words, meaningfulness and the resulting emotional attachment drives behaviour more than scientific information (Kals et al. 1999; Maiteny 2002; De Wet 2007).

Maslow recognized that peak experiences could potentially encourage people to behave altruistically (Morse 2011). This finds accord with McDonald et al. (2009: 383) who found some evidence of:

> …a connection between peak experiences in wilderness and spiritual expression through the valuing of the natural environment as sacred, the construction of new meaning and a connection with the powerful unseen forces of wild nature. This link is considered important for wilderness users because of its ability to promote health, happiness and wellbeing, as well as providing further reasons for the continued conservation of wilderness areas.

Swan (2010: 10) also asserts that no matter what we choose to call the range of MNEs, there is

> …considerable agreement that experiences with a transpersonal quality are important to health, happiness, creativity and love for nature that translates into conservation action.

2.3.7.5 Individuation and reconciliation

Schroeder (1991) takes a Jungian-inspired depth psychology perspective to suggest that through MNE we can perceive archetypes – i.e. instinctive unconscious symbols and patterns of the individual and collective mind – such that they may lead us on a crucial process of *individuation*. Individuation may be understood as the process by which a person becomes a psychological *in-dividual*, a separate indivisible unity or *whole* which signals the birthing of one's true personality (Hyde & McGuinness 2008). For some, *this* process of personal growth and change involves the conscious turning of attention from mental images to the inner self to reveal one's true personality (Yunt 2001; Havik 2011).

One of the most important ways humans experience archetypes is by projecting aspects of themsevles onto elements of the environment or onto nature as a whole, e.g. a person may see ancient trees as 'wise elders' or a snake as a symbol of 'transformation'. This act of projection may evoke powerful emotions and assume profound significance for an individual (Schroeder 1991). Multiple MNEs may be a direct result of the act of projection. This does not undermine their importance; on the contrary, Schroeder (1991: 3) argues that:

> Experiences of this kind are important to psychological health because they draw people toward connection and relationship with the transcendent archetypes that underlie their individual personalities.

Similarly, the ability of these experiences to illuminate elements of an individual's inner self may lead to greater self-awareness and a deeper empathetic understanding of the realities of the human condition as well as becoming more sensitive to the dynamics the biophysical world (McDonald et al. 2009). In this sense, there is a constant interplay between the inner and outer - the observation of one, leads to reflection on the other. As one observes the workings of the biophysical world, a mirror is simultaneously cast back into the psychological world (Schroeder 1991). Katcher & Beck (1987: 175) also describe how:

> …[it] generated a feeling of being intact, complete, as if the solid distinct otherness of that natural world had acted as a mirror reflecting myself back to myself. That sense of being intact and comfortable in myself crystallized precisely at the moment when the sense of being a separate self was lost in contemplation.

This aligns with the paradox of connection and separation outlined by Morse (2011) above and the constant 'interweaving' with the world.

Schroeder (1991) warns that we must remain aware that experience comes from within the psyche and is not only derived from what is 'out there'. Failure to do so may cause us to disregard objective information, hold unrealistic expectations or behave overzealously (Schroeder 1991). Jungian psychology therefore contends that healthy relationships with people and nature require us becoming more conscious of the archetypal projections permeating our everyday perceptions and experiences (Jaffe 1990; Schroeder 1991).

2.3.7.6 Additional psychological benefits

Whilst the psychological benefits of MNE are only recently being explored, the psychological benefits of meaningful experience (i.e. without nature specifically) abound in published literature (Smith et al. 2011). Maslow in particular (1968; 1970b; 1994) has documented these extensively and has suggested that a lack of such transcendent experiences could be detrimental to a person's well being (Morse 2011). It appears that the tendency to perceive reality as a unified whole during peak experiences can be a revelation so profound that it can change a person's character and *Weltanschauung* [worldview] forever (Maslow 1994; Smith et al. 2011). Smith et al. (2011) review other literature on meaningful experience (e.g. peak, flow experience) to document multiple psychological impacts such that the experience(s) may: serve a guiding function in one's life; improve interpersonal relations; decrease stress and anxiety levels; improve well-being and happiness; improve mental organization; change destructive thought processes; and be regarded as some of the most important experiences in an individual's life.

With specific reference to MNEs involving wildlife, few studies have established a marked impact on psychological wellbeing (Smith et al. 2011). However, studies on the psychology of human-animal relations with companion animals (e.g. Knight & Herzog 2009) as well as the recognized benefits of animal-assisted therapy (e.g. Nimer & Lundahl 2007) provide some basis for potential benefits with wild animals, despite very different expected interactions. DeMares & Krycka (1998) found that encounters with wild cetaceans helped individuals resolve conflict in areas of their personal life. Other benefits related to a feeling of being permanently changed or enlightened by the experience; immediate stress reduction; as well as the feeling of

being able to call forth memories of the encounter at some future date for an emotional boost or to reduce stress (DeMares & Krycka 1998). MNE has been shown to evoke wonder both in the moment and a renewed sense toward the world in general (De Wet 2007; Smith 2007; Morse 2011). However, DeMares & Krycka (1998) found a tendency toward the ultimate denial of the experience in the sense that event was perceived as too wondrous and, as such, the experienced is question over time even if the related emotions remain vivid and undeniable.

Schroeder (1991: 28) believes that the crises humanity has created in the outer world of nature can only be resolved by healing divisions and conflicts within our own psyches; one of the greatest benefits of nature and prospects of MNE is the opportunity "to become reconnected with our own unconscious nature and to fill the spiritual vacuum within". Reconciliation of - and harmony between - both 'outer' and 'inner' nature seems essential if our civilization is to secure enduring well-being, resilience and survival.

2.3.8 Values and MNE

Do the impacts and benefits outlined above have 'value' to conservation in a way which can be 'valued'?' The notion of value - and its valuation – appears to be a philosophical grey area which can otherwise divide allies in conservation. Since the Enlightenment, the Western philosophical and scientific tradition has tended to promote a largely anthropocentric view of nature - something as only having value in relation to human uses and preferences (Posas 2005). In recent decades, this has been challenged – for example, through the concept of 'intrinsic value' (e.g. Rolston 1988, 1994; Naess 2008). As Rolston conceived it, intrinsic value is an appreciation of the fact that all living organisms as well as the earth and its abiotic components have evolved, survived or formed over millions and billions of years and that this alone warrants an ethical obligation to the environment (Posas 2005). However, 'intrinsic value' remains confusing (e.g. by being characterized as 'valuer independent') problematic (e.g. in being deemed as having infinite value) and, as having a poor ethical foundation, is considered useless to conservation decision-making (Justus et al. 2009a). Whilst it appears that some conflicts in understanding are driven by matters of definition and application (e.g. Sagoff 2009; Justus et al. 2009b), these debates nevertheless reveal the persistent paradox that any attempt to view nature as having value in and of itself is only possible though a human lens (Morse 2011).

The challenge with valuing heterogeneous MNEs is that: i) they can only ever be perceived through the experiencer's eyes (and would appear to imply that personal 'utility' is always involved); and ii) they are an emergent property of the biota normally the focus of ecological valuations. Drawing on Rolston's typology (see Posas 1995), one however could consider MNE and its components as having at least aesthetic, educational, recreational and religious value. Yet such an exercise is very much experience-dependent: the collective value of MNEs derived from whale watching or wilderness sojourns is easier to assess (e.g. in finding a proxy for valuation) than unpacking the individual value of a spontaneous (synchronistic) encounter with a swarm of bees or swirling swallows in one's backyard. This is particularly so since these MNEs are unplanned, unpaid for and, as a unique event, unable to be even closely replicated.

Table 7: Biophilic values (as presented by Kellert (1993) in Simaika & Samways 2010: 2)

Term	*Definition*	*Function*
Utilitarian	Practical and material exploitation of nature	Physical sustenance and security
Naturalistic	Satisfaction from direct experience or contact with nature	Curiosity, outdoor skills, mental / physical development
Ecologistic-Scientific	Systematic study of structure, function, and relationship in nature	Knowledge, understanding, observational skills
Aesthetic	Physical appeal and beauty of nature	Inspiration, harmony, peace, security
Symbolic	Use of nature for metaphorical expression, language, expressive thought	Communication, mental development
Humanistic	Strong affection, emotional attachment, 'love' for nature	Group bonding, sharing, cooperation, companionship
Moralistic	Strong affinity, spiritual reverence, ethical concern for nature	Order and meaning in life, kinship and affiliational ties
Dominionistic	Mastery, physical control, dominance of nature	Mechanical skills, physical prowess, ability to subdue
Negativistic	Fear, aversion, alienation from nature	Security, protection, safety

It may therefore be more instructive to place MNE in the context of Kellert's (1993) typology of human perspectives and biophilic valuations of nature (Table 7) since these valuations "encompass the entire breadth of human experience" (Simaika & Samways 2010: 2). Whilst a MNE appears likely to invoke naturalistic, aesthetic, symbolic, humanistic and moralistic values, it is equally possible that utilitarian, ecologistic-scientific or negativistic values could comprise or result from a MNE. This illustrates that MNE, depending on context, can have both intrinsic and instrumental / utilitarian qualities and that these need not be seen as polarities. Citing Norton (2000), Simaika & Samways (2010: 3) note that:

> …by rejecting the dichotomy of opposites, a pluralist and integrative arrangement emerges…there are many ways in which humans value nature, and these range along a continuum from entirely self-directed and consumptive values, to spiritual and aesthetic values, to noninstrumental valuations.

Norton (1987) has even taken this notion a step further by referring to nature's "transformative values"; whereby certain experiences with/in nature can provide opportunities for forming, reflecting upon and criticizing our own (deeply held) values (Saunders 2003). In this sense, it appears that humans become their highest selves when they "stretch out" of themselves and appreciatively value others (Rolston 1994: 163).

Concerning MNE, it appears it can encompass and ignite a range of values in a way which is likely distinct from - and in a different but complementary realm to – conventional notions of valuation. Specifically, whilst Justus et al. (2009a) give priority to the use of valuation for decision-making to support conflict resolution and stakeholder mediation in the social realm (*powerscape*), the value of MNE is primarily for the individual (in *mindscape*) but nevertheless holds promise of being sufficiently valuable to instil an appreciation for nature (the value of nature in itself) which may feed the collective good (in *powerscape* and *matterscape*).

2.3.9 The absence and need for research

Given the critical importance of MNE in forming attitudes and values concerning conservation, Swan (2010) speculates that it is the scepticism and fear of MNE being treated as being symptoms of mental illness which partly inhibits further exploration. In addition, whilst the broader aesthetic or spiritual experiences of nature have gained traction in scientific literature, little attention has been devoted to understanding the various dimensions of meaningful and profound encounters with wildlife. This is surprising given the highly significant role which wildlife is known to play in human development, meaning-making (Wilson 1984; DeMares & Krycka 1998), illumination (Lopez 2003), psychological and physiological healing, sense of self and self-esteem, connection with nature (Vining 2003) and as potential catalysts for changing the way people feel and act toward wildlife (Smith et al. 2011) by, e.g. recognizing the many values carried by nature (Rolston 1994). The question therefore begs as to why this dimension has been seemingly overlooked. Whilst it may be easy to suggest that such encounters are romanticized:

> …it is not easy to discount the tremendous emotional and spiritual affects that they sometimes have on people. As a biological scientist, I see that sharing these effects is still frowned upon. Even though most of us know they exist, we are not supposed to acknowledge them, perhaps because our field of study has not learned how to measure them (Frohoff 1998 in DeMares & Krycka 1998).

Vining (2003) also asks why scientists have avoided studying the 'magic' of the human-animal interaction. She also points to the problem of measuring and draws on William James' thinking to describe them as being "noetic but ineffable - the concept is knowable but we are unable to describe it in words, much less measure it in a scientific manner" (Vining 2003: 94). There is thus an elusive quality to MNEs which makes them difficult to study, particularly across changing contexts (Morse 2011). Because these states of consciousness currently defy rational explanation the unfortunate result is that MNEs tend to be ignored or dismissed as irrational by scientific research (Chawla 2002; Vining 2003). Cooper (1994) and Higgins (1996b) offer a telling reminder that despite the fact that these experiences are difficult to measure, this does not make them any less real or influential on the experiencer.

The formal research which has investigated the impact of these experiences (e.g. DeMares & Krycka 1998; Curtin 2006; Smith 2007) has employed qualitative and phenomenological method and has focused heavily on human interactions with cetaceans - primarily dolphins (Smith 2007). Whilst phenomenology does not 'measure' in the quantitative sense (i.e. it remains a qualitative approach), it is seen as appropriate as an exploration in isolating and identifying the essences of the experience (e.g. DeMares & Krycka 1998; Curtin 2006; see Chapter 4). Given that few studies have investigated the impacts and essence of MNE involving encounters with wild animals, this dissertation pays particular attention to those types of MNEs. As a timely invitation for this doctoral research, Smith et al. (2011: 62) observe that:

> …**additional phenomenological explorations**…seem urgently needed if we are going to advance this important area of research to the stages of theory development and empirical testing. [*emphasis added*]

Summary and key messages for Section 2.3

- Experience comprises (and is tied) to human consciousness. It is therefore subject to the same problems associated with consciousness in terms of explaining how/why certain factors make us feel certain ways
- Experience is the seamless process of interacting with the world through our senses and perceptions
- Perception is the primary mode of human experience and is process of constructing mental models or concepts, which largely define the cognitive aspect of experience
- Emotion consists of emotional stimuli and bodily reactions which form the affective aspect of experience
- 'An experience' has indistinct temporal and spatial boundaries
- Experience can be personal, mediated, interactive, lived through, qualitative and meaningful (Morse 2011)
- Experience can be conceived of as having 3 modes: *matterscape, powerscape* and *mindscape* (Jacobs 2006)
- Experience is the result of how consciousness attends to and participates with the world

- Meaningful experience arises from human 'meaning-making' - a result of the poorly understood process of how humans process and interpret stimuli in a way which 'produces' meaning in consciousness
- Meaning is not fixed in time: it relates both to a given experience as well as the subsequent (emotional) impact on a person's life and as accessed through memory
- Many types of meaningful experiences have been described and include awakening, ecstasy, exceptional, flow, mystical, numinous, peak, significant life, synchronicity, spiritual and transcendent experiences
- Spirituality may be understood as consisting of: spiritual ethos (*cognitive*), spiritual experience (*affective*) and spiritual practice (*experiential dimensions*)
- Nature is a well-accepted trigger for meaningful experience

- Meaningful nature experience (MNE) consists of: ***Non-ordinary experiences with/in nature that are particularly profound, significant, affective and difficult to wholly describe*** (Swan 2010; Morse 2011)
- MNE may be an awakened or heightened state of consciousness involving sensory arousal, emotional intensity, temporary or extended shifts in perception and a connection with 'a something other'
- Triggers for MNE are unclear but arise out of the complexities comprising the person-place interaction. This draws on a blend of physical traits and ambience, social-cultural constructions and psychological traits which may also include the symbolic (archetypal) structures of the unconscious mind
- Known triggers for MNE include: wilderness landscapes; sense of place; and wild animals. Anti-triggers may include stimuli which bring familiarity, ordinariness, distraction (attention fragmentation) and rigidity
- The value and benefits of MNE build on the many documented benefits of exposure to nature to further include: (mental) renewal and (attention) restoration; compatibility and connection (with nature and the sacred); expanded sense of time availability and life satisfaction; positive attitude formation, emotional recall and behaviour change aligned with pro-social and pro-environmental outcomes; individuation through the discovery of one's true personality and recognition of perceptual and archetypal projections; and additional psychological benefits such as reduced stress and anxiety, improved interpersonal relations and increased happiness

2.4 Synchronicity

> *There exists a type of phenomenon, even more mysterious than telepathy or precognition, which has puzzled man since the dawn of mythology: the seemingly accidental meeting of two unrelated causal chains in a coincidental event which appears both highly improbable and highly significant* (Arthur Koestler in Butterworth 2000).

Synchronicity has received considerable attention in scholarly literature (e.g. Grof 2006; Main 2007), even though it remains at the societal and scientific fringe. It is therefore unsurprising that Jung (1960: 3) felt that his bold exploration of synchronicity might "make uncommon demands on the open-mindedness and goodwill of the reader". However, it was his conviction that in endeavouring to "reveal some of its manifold aspects and connections" he might "open up a very obscure field which is philosophically of the greatest importance" and which has a vital "human as well as scientific foundation" (Jung 1960: 4).

2.4.1 Definitions

Multiple interpretations and usages of the term 'synchronicity' exist, often which are poorly understood or misused. Synchronicity as a concept has also become popular in what is broadly referred to as 'New Age' literature and has therefore attracted an element of stigma which has inhibited scientific explorations of the topic (Grof 2006). This is somewhat surprising given that synchronicity has been investigated independently of its relationship to any specific traditional belief structures or modes of thought (Main 2007).

Swiss psychotherapist Carl Gustav Jung first described the concept of 'synchronicity' during his 1930 memorial address for the late Richard Wilhlem (the translator of the *I Ching*, the ancient Chinese / Taoist Book of Changes) and referred to it as an "a-causal connection between psychic states and objective events" (Hyde & McGuinness 2008). At this time, Jung sought to use synchronicity as the explaining principle underpinning the workings of the *I Ching* (Hull in Jung 1960).[26] Jung subsequently referred to synchronicity a number of times in lectures and publications, but it was not until several decades later that Jung elaborated on his thesis through his various psychological explorations – as well as later collaborations with Wolfgang Pauli into the physics - of the phenomenon. Jung (1960: 25) defined synchronicity as the:

> …simultaneous occurrence of a certain psychic state with one or more external events which appear as meaningful parallels to the momentary subjective state-and, in certain cases, vice versa.

Jung was motivated to delve further into the topic because his "experiences of the phenomenon of synchronicity [had] multiplied themselves over decades" and that he was equally "amazed to see how many people have had experiences of this kind and how carefully the secret was guarded" (Jung 1960: 4). Nevertheless, he was reluctant to broach a problem wherein "there can be no question of complete description and explanation of the complicated phenomena" and that "in most cases they were things

[26] Scholars studying synchronicity have also made parallels to the divination traits of the *I Ching* (Peat 1995; Main 2007)

which people do not talk about for fear of exposing themselves to thoughtless ridicule" (Jung 1960: 4). Jung (1960) refers to synchronicity as the meaningful coincidence of two or more events, where something other than the probability of chance is involved. Jung (1960) considered such events and the "something other" to involve an 'acausal connecting principle' which does not appear to reveal any conceivable or rational causal connection. In other words, events in space and time (Figure 4) or, in taking an expanded quantum view, space-time and life energy (Figure 5) are either connected through deduced ('objective') cause and effect (causality) or through their personal subjective meaning (synchronicity) (Jung 1960).

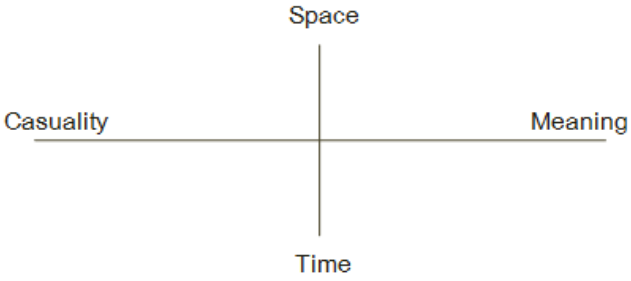

Figure 4: Connected events in space and time (Jung 1960)

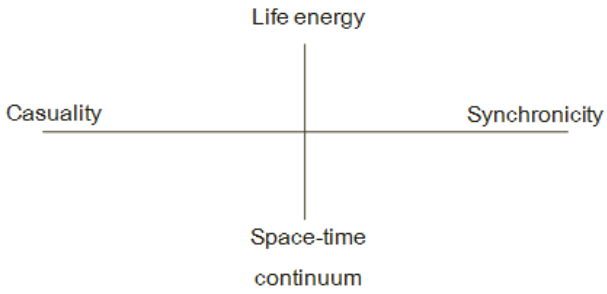

Figure 5: Connected events in space-time and energy (adapted from Jung 1960; Wikipedia 2012)

Other scholars have expanded upon these understanding. Peat (1995: 27) refers to "significantly related patterns of chance" which appears "as if the formation of patterns within the unconscious mind [are] accompanied by physical patterns in the outer world". Peat (1995) uses the words: "as if" because this points us in the direction of what the experience of synchronicity 'feels like' rather than being a definitive statement on its 'actuality'. Like Jung (1960), Peat (1995) also recognizes an intersection between the psychic state and that which is perceived in the physical world. Whilst, opting for the term "significant" rather than "meaningful", Peat (1995) recognizes, in noting the explorations of Nobel laureate and physicist Wolfgang Pauli and Swiss physicist - psychologist Arnold Mindel, the importance of introducing meaning into this kind of conception of reality because it has the potential to integrate the objective approach of physics (connection through cause-effect) with the subjective values of psychology and perception (connection through concurrence and meaning). More specifically, Peat (1995: 2) sees synchronicity as being linked to "the immense patterns of nature, the underlying dance which connects all things and the mirror which is suspended between inner and outer universes."

Whilst usually outside of the bounds of a formal literature review, the Wikipedia (2012) definition of 'synchronicity' provides useful terms of reference:

> …the experience of two or more events, that are apparently causally unrelated [or unlikely to occur together by chance], yet are experienced as occurring together in a meaningful manner (Wikipedia 2012).[27]

For the purposes of this dissertation, this definition is helpful since it places an emphasis on: i) the experience of concurrent events; ii) that the event is beyond expected chance; and iii) that the event is perceived to occur in a meaningful way. These three elements align with salient themes of MNE.

[27] The Wikipedia 2013 definition has changed from that which was online and retrieved in 2012; however, the amendment is not necessarily an improvement. This definition therefore combines the 2012 and 2013 versions.

Despite these definitions broadly serving well as an introduction, they can lead to misleading assertions as to what constitutes a synchronistic experience (Main 2007). Analytical psychologist Roderick Main (2007) reviews and critiques prominent definitions of synchronicity in order to arrive at a working definition with key criteria. In unpacking these various dimensions, Main (2007: 14) suggests four criteria for synchronicity:

i) Two or more events parallel one another through having identical, similar, or comparable content;
ii) There is no discernible or plausible way in which this paralleling could be the result of normal causes;
iii) The paralleling must be sufficiently unlikely and detailed as to be notable; and
iv) The experience must be meaningful beyond being notable.

Main (2007) attempts to overcome the difficulties of previous definitions (as he highlights them) and proposes an amended working definition, within which no absolute assumptions are made about the:

i) Temporal simultaneity of coinciding events, i.e. that the events need to happen within an almost near-simultaneous timeframe;
ii) Events being either physical (outer) or psychic (inner), i.e. the occurrence of a specific psychic state in the observer need not be a precondition for synchronicity;
iii) Causal relationship between coinciding events, i.e. acausality is relative to the experiencer's worldview which may recognize transcendent or paranormal modes of causation as valid. Also, what seems acausal now may be shown to be causal in the future; this calls for use of the term 'normal causes' which, whilst relative, debatable and vague, is used in this sense to reflect that which is considered to fall within practical common sense and/or current scientific consensus.

Further, Main (2007: 23) distinguishes between 'notability' for simply classifying something as a 'coincidence' and the meaning required for "a coincidence to be elevated into a synchronicity", leaving open what it may be that provides the deeper meaning. Whilst this does not constitute a 'final' framework for synchronicity, we can say that, given knowledge and understanding this reflects progress toward a working definition.

> *Just as new* [animal] *droppings or tracks are not DIRECT PERCEPTION of a phenomenon but are intimations of something unknown, so meaningful coincidences is to me an indicator of something glimpsed but yet to be clearly seen or understood* (Plaskett in Main 2007: 103, emphasis in the original).

Image 1: Signature tracking: indirect perception of phenomena

A student tries her hand at 'signature tracking' ('extra-sensory tracking'/'spirit-tracking'): a technique that focuses non-visual senses and intuitive perception to elicit information about an animal. This draws on Indigenous cultural accounts (e.g. /Xam hunter-gatherers) describing 'presentiments': the ability for a hunter to foretell impending events (e.g. the type / location of quarry) by interpreting sensations felt in areas of their body (Bleek & Lloyd 1911; Liebenberg 1990).

Box 6: Synchronicity or synchrony?

A standard keyword search of 'synchronicity' in popular scientific databases returns many 'hits' with most references linked to the natural sciences. This somewhat counter-intuitive result is because, in the majority of cases, usage of 'synchronicity' varies to the definitions expounded here. For example, articles published in *Nature* (e.g. Laepple et al. 2011), the *Proceedings of the National Academy of Science* (e.g. Saavedra et al. 2011) and *Animal Behaviour* (e.g. Eriksen et al. 2011) all refer to 'synchronicity' – with two of these even using the term in the title.

Closer inspection however reveals that these papers refer to what might otherwise be termed 'synchrony' - a simultaneous action, occurrence or event but which does not make any explicit reference to perceived meaning. 'Synchrony' may be prefixed to denote specific usage, e.g. 'reproductive synchrony' as used in evolutionary biology or behavioural ecology to refer to events such as mass spawning on coral reefs, breeding seasonality or the menstrual synchrony sometimes experienced between females living in close quarters. In the natural world, synchrony may be an instinctive risk-avoidance strategy by some organisms to optimize chances of survival.

Saavedra et al (2011) investigated the performance of financial traders in managing risk through synchronous behaviour. Since their study was centred on human behaviour, there is initial ambiguity as to whether the authors are referring to Jungian notions of synchronicity or the synchrony described in ecological systems. To confound matters, the authors appear to use both terms interchangeably throughout the article, yet opt for 'synchronicity' in the title when 'synchrony' or 'synchronous' is used far more frequently in the article itself. In their *Nature* article titled *Synchronicity of Antarctic temperatures and local solar insolation on orbital timescales,* Laepple et al (2011) use 'synchronicity' to refer to a variety of natural phenomena arising at the same time. Likewise, Eriksen et al. (2011), in reporting on the behavioural activity patterns (i.e. simultaneous foraging behaviour) of wolves and moose use 'synchronicity', 'synchronous' and 'synchronized' seemingly interchangeably.

Biggs et al (2008: 331) also use the terms interchangeably in referring to "opportunities for notable change [which] arise through synchronous processes that, although not necessarily all connected, give rise to 'meaningful coincidence' and synergies." In this, they represent one of the few articles in the broader environmental sciences and natural resources management field to engage with Jungian thinking. The particular interest of Biggs et al (2008) is how to reliably create and capitalize on processes - 'windows of opportunity' - which enable profound change. In this respect, the authors draw on notions of 'social-ecological resilience' to imply that solutions emerge out of the complex fusion found when human society complexity interacts with biophysical complexity (Biggs et al. 2008). Learning from these experiences is encouraged so that future role players may seek synchronistic opportunities to influence the pace and direction of change as well as becoming active in creating new realities (Biggs et al. 2008).

Some dictionary definitions (e.g. dictionary.com) suggest that 'synchronicity' and 'synchrony' can be used synonymously to mean the simultaneous occurrence of events that appear significantly related but have no discernible causal connection, i.e. acausal. The choice may also be dictated by the grammatical usage, i.e. whether used as an adjective or adverb. However, the problem with lack of clear delineation between the terms is that it potentially excludes meaning-rich experiences which are perceived to emerge from the complexity of social-ecological interactions (as per Biggs et al. 2008) and, in this respect, can clearly be differentiated from 'synchrony'. Whilst such notions may be belittled by retorts like "What confuses the issue that is the New Agers' misuse of the term 'synchronicity' to imply something spooky like omens or messages from the spirit world or whatever",[28] this instead demonstrates ignorance of the true origins of the term 'synchronicity' and who used it for what purpose. Although the etymological 'root' of both terms may extend back to Medieval Latin and/or more recent Greek, the term 'synchronicity' itself is widely attributed to Jung who had a specific meaning in mind which was not merely 'synchrony' (e.g. ODO 2012b).[29] Jung himself also made a deliberate distinction between 'synchronicity' and the 'synchronism' of events which occur simultaneously but are unconnected in (personal) meaning (Jung 1960).

[28] Eggcorn forum: <http://eggcorns.lascribe.net/forum/viewtopic.php?id=5191>, *retrieved 17 January 2012*

[29] To claim otherwise would almost appear tantamount to (the natural sciences?) 'co-opting' the term in order to deny its legitimacy as a subjective experience, whether objectively verifiable or not. The additional irony being that to perceive 'synchrony', e.g. in ecological interactions, requires subjective human interpretation in the sense that the particular event is somehow perceived as significant and worthy of scientific reporting, for whatever reason.

2.4.2 Experience of synchronicity

> *It is as if, however briefly, there is a palpable meeting between psyche and substance. The feeling is one of being immersed in a field of actions, interactions, and feedback. It is as if we have touched a potential that has been lost and if not, a gift of Nature that we are beginning to unwrap. It is an implacable sensing that everything in the universe is connected… It can't be pinned down or called upon and will, a reminder that it is not an ego skill such as memory or intellect, something to be measured or worked at. Rather, it is mercurial, experienced as something that happens to us unexpectedly, dramatically, and, sometimes, poetically.* (McCallum 2005: 146-147)

Despite of its reputed "extraordinary nature", the *experience* of synchronicity has not been thoroughly explored (Grof 2006; Main 2007: 9). Literature on synchronicity often moves quickly toward examining scientific principles of psychology and (quantum) physics which justify its existence as a legitimate phenomenon (e.g. Bolen 1979; Peat 1995; Combs & Holland 1996; Cambray 2009). In so doing, the actual immediacy of synchronicity as a lived experience is often overlooked. Main (2007) also notes this tendency and provides it as rationale for his analysis on synchronicity as a spiritual experience. However, whilst a thorough and comprehensive exploration of spiritual traits of synchronicity, Main's (2007) analysis focuses on the multiple experiences recorded by 'only' two individuals (i.e. Thornton and Plaskett). This approach is appropriate in the context of Main's (2007) case study approach and general objectives; however, in terms of broadening the evidence base and furthering understanding on the possible impact of such encounters as a shared and common lived experience, it cannot make a substantial contribution.

Whilst generally not part of formal investigations into the phenomenon, various descriptions of the experience of synchronicity can be found. Jaworski (1996) sees synchronicity as relating to that perfect moment - that heightened 'sense of being' when things seem to come together in an unbelievable way, events unfold in an uncontrollable and unpredictable way, the right people and opportunities appear at the right time and that it seems there are some sort of invisible 'helping hands' at work.

Bolen (1979) sees the synchronistic event as almost always immediately being felt as significant with its meaning seen or sensed in an intuitive flash. In those moments, the world and this particularly event are experienced as a mirror which feels as though they hold promise in the sense that, if we change within, the outer events may also change (Bolen 1979). Bolen (1979: 7) suggests that such experiences convey a feeling of being part of a greater whole with the visible and intangible being experienced as being aspects of the one inexpressible, ineffable, unseen connection "that unlocks the door to the Eastern appreciation of totality that we find so mysterious". In drawing such parallels with Eastern perspectives as expressed through the ancient Chinese tradition of *Tao*, Bolen (1979) suggests that the experience of synchronicity gives a glimpse into this underlying oneness, along with a reassurance that we are not alone in this universe.

Main (2007: 10) also looks East and, as part of his exploration of synchronicity as a spiritual experience, investigates the *I Ching* (which is embedded in an understanding of the principles of *Tao*) "as a specific framework for elucidating possible relationships between synchronicity and spirit". However, in looking at

the spiritual dimensions of spontaneous synchronicities, Main (2007) finds parallels with both mythology and, more tellingly, various types of religious experiences, particularly that associated with Christianity. These key concepts connected with synchronistic experience are: numinosity, miraculousness, unity, transformation, transcendence and immanence, providence and revelation (Main 2007). Grof (2006: 16) equally notes that "auspicious synchronicities can initiate and accompany a powerful spiritual awakening."

Peat (1995) shows particular interested in the type of revelation known as 'epiphany' - the sudden or striking realization, manifestation or comprehension of the (larger) essence or meaning of something. Epiphanies may be felt as (intuitive) flashes of insight which deliver a profound experience of (a leap in) understanding or affords one a new perspective of a problem under prior investigation.[30] Peat (1995) sees the experience of epiphany as an essential feature of synchronicity since it has the ability to reveal (in the field of perception) larger patterns in the cosmos. Such epiphany moments are often aligned with our subjective psychic state as part of our search for 'an answer' to some question. Jung suggested that it feels like the subjective psyche imprints upon the objective (Hyde & McGuinness 2008)

Peat (1995) refers to Jung's four Psychological Functions of thinking, feeling, sensation and intuition to point out that feeling needs to be balanced with thought in order to make important reasoned decisions in life. It is therefore important not to discount the felt sense of patterning of the cosmos as experienced though synchronicities and epiphanies since the ability to access 'the universal' through such bursts of creativity have been the source of inspiration or innovation to great artists, architects, writers, musicians, mystics, shamans and scientists throughout history (Peat 1995). Maybe it was this 'universal' that Spinoza referred to when he considered intuitive knowledge as the highest level of knowledge since, in his eyes, it approaches 'the infinite idea of God' (MacDonald 2001: 46).

Like Bolen (1979), Main (2007) finds that synchronicity can facilitate a realization of unity on three levels: within oneself; between oneself and the world; and as an intrinsic feature of reality in general. Main (2007) sees the experience as capable of linking aspects of the psyche which would otherwise remain separate: in other words, it can facilitate a process of integration which reconciles apparently disparate and conflicting elements within the psyche and the external world - not unlike shamanistic experience (cf. Hancock 2007). It appears that such experiences allow one to view oneself in a totally different way, even if only fleetingly.

> The experience of synchronicity feels as though an:
>
> *…unseen presence is mysteriously orchestrating events so as to shape them into a message for us. This presence seems responsive to our needs, since it speaks to situations in which we need counsel… It seems to have our welfare in mind, since it apparently tries to move us in the direction of achieving successful outcomes and realizing our highest potentials.* (Jargodzki 2010, adapted from Robert Perry, *Signs* (2009))

[30] Based on: http://en.wikipedia.org/wiki/Epiphany_(feeling), *Retrieved 20 June 2012 and 3 April 2013*

2.4.3 Nature-based

Literature (scientific and popular writing) referring to synchronicity usually bundles all types of synchronistic events and, in the majority of cases, focuses on people-people encounters or occurrences where something from the 'inanimate' material world shows itself, e.g. a letter appears in the post which has timely meaning for the recipient. Alternatively, nature-based synchronicity might occur "somewhere in the wilds, while thinking about a particular elephant, it suddenly appears from out of the thicket" (McCallum 2005: 146).

When providing examples of synchronicity, writers on the topic almost always (only) cite the well-known example of Jung and his female patient who, having dreamt of a scarab beetle the previous night, had one appear at the window during a therapy session the following day.[31] It seems extraordinary that, in the half century since this published account, few other (more comprehensive) anecdotes or evidence present itself as worthy of citation - not only with natural ('animate') phenomena, but in general. This section therefore begins by identifying a few other published examples of *synchronicity with/in nature* to address this unhelpful shortfall in evidence.

Jung (1960: 10-11) was in the process of writing about the symbolism of fish and, in reflecting upon a series of encounters he had with fish or fish motifs in the previous 24 hours, notes that, despite the notable sequence, he did not necessarily deem this to be synchronicity:

> Fishes frequently occur as symbols of unconscious contents. So there is no possible justification for seeing in this anything but a chance grouping. Runs or series which are composed of quite ordinary occurrences must to the present be regarded as fortuitous

However, Jung footnotes that paragraph with an addendum which immediately invokes synchronicity:

> As a pendant to what I have said above, I should like to mention that I wrote these lines sitting by the lake. Just as I had finished this sentence, I walked over to the sea-wall and there lay a dead fish, about a foot long, apparently uninjured. No fish had been there the previous evening. (Presumably it had been pulled out of the water by a bird of prey or a cat.) . The fish was seventh in the series (Jung 1960: 10-11).

Jung (1960) also shares another story involving animals as recalled by one of his patients. At the death of the female patient's grandmother and mother, birds gathered outside the windows of the deceased's houses and Jung notes that he had heard similar stories from other people (Jung 1960; Hyde & McGuiness 2008). At that time, Jung also sensed that this woman's husband needed to see a heart specialist and recommended such. The husband duly went to specialist only to be told that nothing was wrong with him. However, on his return home, the man suddenly collapsed in the street and was brought home dying. His wife (Jung's patient) was already in a panic because, soon after her husband had left for the doctor, a large flock of birds settled on the house (Hyde & McGuiness 2008).

A final story from Jung (in Bolen 1979: 20) involves an experience he had with another female patient:

[31] Jung's patient's treatment was at an impasse based on her resistance to the notion of unconscious processes (Cambray 2009). One night she had a dream of an Egyptian golden scarab beetle. The following morning during another counselling session with Jung, he heard a tapping on the window, opened it and subsequently caught a rose chafer, a Scarabaeid beetle - this catalysed a breakthrough in the patient's treatment (Jung 1960; Cambray 2009).

> I walked with a woman patient in the wood. She tells me about the first dream in her life that had made an everlasting impression on her. She had seen a spectral fox coming downstairs in her parental home. At this moment, a real fox comes out of the trees not forty yards away and walks quietly on the path ahead of us for several minutes. The animal behaves as if it were a partner in the situation.

Combs and Holland (1996: 34) cite two short examples of synchronistic events involving animals:

> Once during an afternoon nap, which included a dozy dream about pigeons, a pigeon smashed through a plate glass window just feet from where I lay. (Account recalled by Suzanne Padfield).

The other example was reported by Dame Rebecca West to author Arthur Koestler:

> While in the south of France she was writing a passage about a girl finding a hedgehog in her garden when she was interrupted by a servant who asked her to come see the hedgehog just found in the garden. (Combs & Holland 1996: 34)

Combs and Holland (1996) cite a story as retold by mythologist Joseph Campbell involving an encounter with a praying mantis at his home, a fourteenth-floor apartment in New York City (see also Grof 2006: 8-9). Campbell was reading about the mantis, which plays the part of the Hero in Bushman mythology:

> I was reading about the praying mantis - the hero – and suddenly felt an impulse to open the window….I opened the window and looked out to the right and there was a praying mantis walking up the building. He was there, right on the rim of my window! He was this big [showing the size]; he looked at me and his face looked just like a Bushman's face. This gave me the creeps! (Combs & Holland 1996: 31)

Staying with the praying mantis, Main (2007: 1) opens his book with the following passage:

> A professor of biology, Adolf Portmann, was delivering a lecture that he intended to conclude with a story about a praying mantis. Just as he was about to broach the subject, a praying mantis flew into the lecture hall through an open window, circled around Portmann's head, and landed near the lecturn lamp, to the effect that the insect's wings cast on the white wall behind him a huge shadow in the form of the arms of a praying man.[32] (Quispel 1992: 247 in Main 2007: 1)

As Combs and Holland (1996: 31) note, such examples illustrate a fundamental enigma of synchronicity:

> Meaningful coincidences frequently involve several events which, though radically different in form – one may be an idea, another a physical object – are tied together by a common pattern or theme…[and] seem bound together by a common sense of meaning, the meaning of fish for Carl Jung as he worked on his manuscript and the meaning of the mantis for Joseph Campbell as he studied Bushman mythology.

Limiting the exploration of synchronicity with/in nature (and as a MNE) to the above accounts without acknowledging non-Western and Indigenous worldviews would be an oversight: Native American, Australian Aboriginal and African traditions are replete with accounts which could be described as synchronicity. However, the phenomenon is naturally perceived and understood through a different cultural lens and therefore such events may invariably be attributed to alternative modes of causation, e.g. spirit ancestors, and/or which may also form part of totemism. [33]

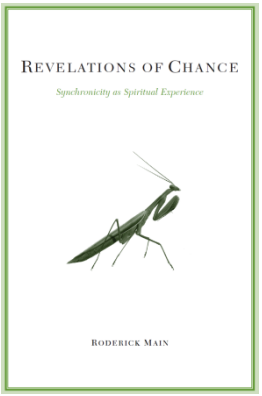

Image 2: Revelations of chance

[32] The praying mantis is also used as the cover image of Main's (2007) book (Image 2), despite this opening story (and example of synchronicity) being the only mention of the mantis in the 259 pages of research comprising his book.
[33] Totemism is a belief system in which groups or individuals are linked with nature by establishing natural relationships with spiritual beings who may manifest as species of animals (Boll 2006)

In her anthropological work with the Yolŋu Aboriginal people of northeast Arnhem Land, Australia, Boll (2006) finds that animals belong to - or make their appearance in - a specific environment where other animals or ancestral beings also appear and other events occur. Similarly, the Yolŋu also use both synchronicity and synchrony in nature as indicators for action: an event will only proceed when a sufficient number of conditions (as signposted by synchronicity) have been met [34] - the flowering of a certain tree will indicate when seasons are open for, e.g. collecting yams or hunting stingray (Sveiby & Skuthorpe 2006; pers. observ.) In addition, the Yolŋu, like other Aboriginal groups throughout Australia, believe that when a Yolŋu person dies, the spirit travels quickly to those closest, appearing to them in a dream or by message from a bird (Isaacs 1995).

Such notions are also widely known and documented as common to African belief systems:

> … According to a number of African symbolic systems, the relationship between humans and the natural environment engages the entirety of social relations, including the connection to dead ancestors and the spirits who people the forests and sacred woods (Ouedraogo 2005: 19 in Cock 2007: 30).

In investigating Xhosa cultural values as providing opportunities for conservation, Cocks et al. (2012) find that forests are places where Xhosa people encounter the presence of ancestors who may communicate with (and guide, mentor or protect) their living descendents through the appearance of specific animals. Village men undertake spiritual sojourns into the forest and often report encounters with clan totem animals (*izilo zasekhaya*) and messenger animals (*izithunywa*) (Cocks et al. 2012).

Notions of the timely appearance of certain animals as 'signs from God' also form a common part of the Zulu worldview (Biyela in Cock 2007). In her anthropological work, Bernard (2010) paid particular attention to the mermaid beliefs of the Zulu and noted its various manifestations as a snake, rainbow, small animal, or plant or tree. Zulu *sanusi* (uppermost *sangoma*, i.e. traditional diviner / shaman) Credo Mutwa (1996: 14) sees such shape-changing ability as something practiced by the 'great Earth Mother':

> The great Earth Mother, together with other lesser goddesses, was believed by African people to be capable of changing her shape to that of any animal, bird or fish whenever she chose, and this is why Zulus call her *Nomkhubulwan*e, a name which means 'she who chooses the state of an animal' ..."

Mutwa (1996) lists various shapes which *Nomkhubulwane* can manifest at will such as the springbok, eland, python, elephant, rhinoceros, giraffe, lion or lioness, various birds and lizards.

Bleek and Lloyd (1911) investigated species of significance to San (Bushmen) folklore to find various linked events as being of significance. For example, in their area of study, certain snakes, lizards or small antelope seen near human graves were to be respected; a snake lying on its back would announce a death in the family and, under these circumstances, should not be killed (Bleek & Lloyd 1911).[35] [36] Featuring in many

[34] This practice is also common to Xhosa and Zulu peoples as researched by one in-depth interviewee and quoted later in this dissertation (Chapter 5.3.4)

[35] Personal experience with the Khomani San Bushmen of the Kalahari gave me into insight into how the timely appearance of, e.g. the oryx and praying mantis were considered good omens for the day or time ahead. See my three-part blog series reflecting upon these experiences: ***Part 1*:** http://eyes4earth.org/mne16-welcome-to-the-kalahari/ ; ***Part 2*:** http://eyes4earth.org/mne17-tracking-leopard-in-the-neverending-story-kalahari-part-2/ ; ***Part 3*:** http://eyes4earth.org/mne18-gift-of-the-golden-key-kalahari-part-3/

tales, the praying mantis was also revered by the San ('Bushmen') and Khoekhoen ('Khoi') as a harbinger of good fortune, a hero, Trickster or deity figure - its Afrikaans name is *Hottentotsgot* or *hotnotsgot* which translates as 'a god of the KhoeKhoen'. [37] (Andrews 1993; Brink 2005; Grof 2006). Given these origins, the mantis could well be considered as one of the oldest (animate) human symbols of 'god' (Lauck 1998).[38]

In the above examples, an entity of nature is the substrate for synchronicity. Whether this influences the prospect of synchronicity occurring is a matter of conjecture. Butterworth (2000: 11) explains:

> The choice of physical medium is almost irrelevant; given sufficient time one could learn to interpret synchronicities from the shape of clouds, or the flight of birds.

Such a claim might be valid in terms of extracting meaning and insight. However, whether experiences with natural entities are phenomenologically comparable to synchronicities involving people or inanimate objects is yet to be investigated. The phenomenological analysis (Chapter 4) begins that exploration.

> *Learning one's place through attention to animals is not solely a matter of being open to 'statements' they make about physical, chemical, and biological realms we share. A more profound communication can take place. In this second sphere, animals have volition; they have intention and the power of influence; and they have the capacity to intervene in our lives. I've never known people who were entirely comfortable addressing such things.* (Lopez 2003: 163)

2.4.4 Associations

Literature on synchronicity has often speculated and produced evidence for synchronistic experiences being associated with certain conditions. Anecdotal and experiential evidence suggests that synchronicity appears to be linked to times when an individual experiences heightened emotional states and periods of transformation such as birth, death, falling in love, therapy, intense creative work, focused breathwork or changing career (Peat 1995; Grof 2006). As Bolen (1979: 39) speculates:

> Synchronicity also seems to increase in some dimension when there is intensity of feeling, whether that feeling be due to falling love, or being in a period of creative struggle, or meeting a heightened state of emotional conflict. With increased emotional tension, synchronistic events seem to be more frequent…

Bolen (1979) note that such occasions may be linked with an active or emotionally charged 'archetypal layer', i.e. patterns of instinctual behaviour and/or emotional responses linked to primordial images stored in the deeper universal and inborn part of the human mind/psyche, i.e. the *collective unconscious*.

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[36] A distinction may be made here between 'signs' and 'omens' under the umbrella of synchronicity. Plotkin (2003) identifies a '*sign*' as an event in nature that follows one's request for help with a difficult decision. It may not necessarily be verbalized but it is consciously formalized with the intent of having the question resolved during, for example, a wilderness experience. The resulting manifestation of the sign is then used as guidance for how to proceed, as if one were practicing divination or consulting an oracle. On the other hand, an '*omen*' is not something intentionally asked for. Omens can range from outlandish, bizarre, wondrous, conspicuous, astounding, subtle, shadowy or vague, but that they are always mysterious and may indicate or foretell an ominous, portentous, prophetic event about to occur (Plotkin 2003). Omens can invoke fear and/or involve superstition, i.e. an *a-priori* acceptance of one's beliefs or experiences being a consistently true/reliable statement on reality.

[37] 'Hottentots' is generally considered to be a derogatory term for the Khoekhoen (Khoi).

[38] *Mantis* derives from Greek as literally "one who divines, a seer, prophet," from *mainesthai* "be inspired" and related to *menos* "passion, spirit" (http://www.etymonline.com/ *retrieved 29 December 2013*). The mantis is seen to symbolize 'power in stillness' and 'the voice of the infinite in the small' and in other cultures, it also has been ascribed as having divinatory qualities in helping to 'find one's way', e.g. in guiding pilgrims toward Mecca (Andrews 1993; Lauck 1998).

Combs & Holland (1996: 58) observe a link between synchronicity and meditation or, to be more specific, when the brain reaches a meditative state, synchronicity appears to occur more frequently:

> Many people who practice meditation of one kind of another have found that the deeper and clearer their meditations, the more they experience curious patterns of coincidences. This tends to be particularly so after extended meditation retreats; on returning to regular activity, each day can seem like a continual train of the most unlikely, and most supportive, coincidences. (Russell 1983 in Combs & Holland 1996)

Butterworth (2000: 11) has noticed similar patterns and asserts that clarity of mind along with respectful sincere purpose is of crucial importance in laying the foundation for synchronicity: "the more transpersonal one's frame of mind, the more coherent will be the response." Combs & Holland (1996) suggest that this is linked different modes of brain activity whereby a greater resonance or coherence between the left and right hemispheres of the brain are likely to be more conducive to synchronicity. Jargodzki (2010) also contends that intensified flows of synchronicity are measures of the degree to which an individual is in harmony with the universe (see also Braden 2000).

> *When I pray, coincidences start to happen. When I don't pray, they don't happen.*
> ~ Former British archbishop William Temple (as quoted in Combs & Holland 1996: 58)

Peat (1995: 27) also sees a link with "profound activation of energy deep within the psyche" and believes that when patterns of the psyche are on the verge of reaching consciousness then synchronicities are more likely to peak; they tend to reduce or disappear as one becomes consciously aware of a new alignment of forces within their personality. In linking this hypothesis with the experience, Peat (1995: 28) observes:

> It is as if this internal restructuring produces external resonances or as if a burst of "mental energy" is propagated outward into the physical world.

McCallum (2005) emphasizes the psychological (and usually unconscious) human urge to seek and form symbols, connect patterns and make meaning. Despite the apparent irrationality in doing so and despite defying accepted laws of cause-and-effect, humans make improbable correlations because they are intrinsic to our search for meaning in the world (McCallum 2005). The unconscious mind produces symbols and these symbols can also be meaningful to the conscious mind: synchronicity is the bridge which allows a special sense of being part of that meaning (McCallum 2005). As Bolen (1979) and Grof (2006) note, when the archetypal layer of the collective unconscious is provoked, there is both emotional intensity and a tendency for symbolic expression. The result is that the everyday experience is altered - one may feel: inspired; 'magic in the air'; 'on a mission'; and/or have dreams of greater intensity (since, like synchronicity, dreams are also expressed symbolically) (Bolen 1979).

Observations made in this section do not explain how and why synchronicity happens: they merely note a number of important associations involving synchronicity and states of consciousness. Further, the largely anecdotal or non-transparent empirical basis upon which these assertions are founded makes it difficult to know the accuracy of such associations and /or if they are common across disparate accounts.

2.4.5 Criticisms

The above examples clearly show that the experience of synchronicity exists – it is real in the *mindscape*. However, synchronicity falls foul of current scientific understanding and attracts ardent criticism when proponents posit the phenomena to actually exist in the *matterscape*. In doing so, tentative claims of an apparent causality, even including the associations outlined above, may be invoked and this is sufficient to draw rebuke from persons who may argue that correlation does not imply causation or that the outcomes are statistically probable. Ultimately, it challenges the *status quo* since it moves beyond cause-and-effect descriptions and sees the psyche as embedded in the substance of the world (Cambray 2009). In exploring the *experience* of synchronicity, this dissertation makes no definitive claims on the causality of synchronicity or whether it 'exists' in an objective reality. Nevertheless, in documenting commonalities over multiple experiences, the reader may be inclined to infer such conclusions. To balance such an interpretation, this section briefly introduces some of the more common dismissals of synchronicity.

Firstly, it should be noted that not all Jungian analysts or Jungian-inspired psychologists / psychotherapists / psychiatrists embrace synchronicity. Of all Jung's concepts - many of which have entered mainstream psychology and even the mainstream lexicon, e.g. 'introvert' and 'extrovert' - synchronicity and Jung's parallel examinations of paranormal phenomena are often avoided by academics and professionals. This is more attributable to politics (in, e.g. being at odds with current scientific thinking) than lack of knowledge (Cambray 2009). As noted above, Jung (1960) was reluctant to broach the subject of synchronicity due to both complexity and public perception of the phenomena. Synchronicity's potentially far-reaching – and therefore contentious - implications are difficult to analyse or assert with conventional scientific method.

Mathematicians Diaconis and Mosteller (1989) propose a rational theory for studying coincidences and give several arguments for grounding such studies and caution that claims of meaningful coincidence recognize:

> i) *Hidden cause* - much of scientific discovery depends on finding the cause of a range of perplexing coincidences – the constant of change in social-ecological systems will always allow for the emergence of new and unforeseen patterns;
>
> ii) *Psychology* - what we perceive as coincidences and what we neglect depends on what we are sensitive to. The processes of the human brain work in ways which remain poorly understood and are subject to memory failure, selective attention, recognition and recall as well as taking heuristic shortcuts in perception;
>
> iii) *Multiple endpoints and the cost of 'close'* - there may be multiple moments that coincidences could have occurred and have still been meaningful because they were sufficiently 'close' to the paralleling event. This suggests that the event needed for synchronicity could actually 'move further away' so as to not be simultaneous,[39] but yet still remain meaningful in a person's mind.

[39] This rebuke is based on Jung's condition of simultaneity for synchronicity; the later working definition proposed by Main (2007) above excludes this strict criteria of simultaneity.

iv) *The law of truly large numbers* - events which might be rare per person will occur in higher frequency in the presence of large numbers of people, objects, or natural phenomena. In other words, it is inevitable that the cumulative interactions of people and events over time allows for outrageous scenarios to occur such that statistical considerations are able to explain away the apparent meaningfulness of the most coincidences (Diaconis & Mosteller 1989; Main 2007).

Diaconis and Mosteller (1989) do not however call the disciplinary study of synchronicity into question and, on the contrary, acknowledge that coincidences delight, confound, amaze, disturb or annoy and can alter the course of a person's life (Main 2007). Diaconis and Mosteller (1989) agree that synchronicity is a surprising concurrence of events, perceived as meaningfully related, with no apparent causal connection and maintain that, since they occur in the minds of observers, they are necessarily subjective. They believe, however, that in a culture based heavily on determinism and causation, further investigation into the forces behind coincidences is required (Diaconis & Mosteller 1989). Their provisional explanation is "that *nature* and we ourselves are creating these moments, sometimes causally, and also partly through perception and partly through objective accidental relationships" [*emphasis in the original*] (Diaconis & Mosteller 1989: 860).

> *...for the 'one chance in a million' will undoubtedly occur, with no less and no more than its appropriate frequency, however surprised we may be that it should occur to us.* (Fisher 1937: 16 in Diaconis & Mosteller 1989: 853)

McRaney (2011) synthesizes a large body of psychology literature in a popularized book which aims to demonstrate the many ways we delude ourselves on a daily basis as part of consciously and subconsciously constructed perceptual biases. Whilst McRaney's (2011) other chapters detailing the fallacies of the human mind were well-cited with scientific literature, his chapter on synchronicity has a comparative paucity of references. Nevertheless, McRaney (2011) argues that there is a misconception that some coincidences are so miraculous that they must have meaning whereas, in reality, the truth is that such coincidences are a routine part of life – with any meaning being purely subjective and applied by the experiencer. Whilst the idea of meaning being applied is an accepted part of synchronicity from whatever angle it is viewed, McRaney (2011) extends the argument to suggest that the experience of synchronicity may be alternatively known as 'apophenia' - the tendency to believe that synchronicities (or other meaningful patterns or connections) are more than just the occasional signalling rising from the chaotic random 'noise' of everyday life. McRaney (2011) thus considers 'true apophenia' to be the subsequent connecting of dots in one's life in a way that tells a story which the experiencer interprets as having special meaning. This, in turn, relates back to *confirmation bias* - considered to be one of the most dependable delusions of the human psyche and is the tendency to see what we want to see in life and ignore the rest in order to confirm, and sometimes desperately cling to, our preconceived beliefs (McRaney 2011). This echoes the work of Wiseman (2011) who argues that people's beliefs are not passively waiting for confirmation but instead actively shape the world, particularly when it comes to paying attention to coincidences that support one's beliefs.

Varvoglis (1996, 1997) agrees that people tend to select information which confirms their beliefs and avoid that which does not, such that this 'selective perception' influences interpretation of apparent paranormal experiences. Whilst sceptics are justified in their assertions that firm believers will see the phenomena in question (e.g. synchronicity) everywhere, Varvoglis (1997) also points out that disbelievers will tend toward the complementary fallacy by seeking out rational interpretations and accepted explanations. However, parapsychology's discovery of 'the sheep-goat effect' gives this argument an additional twist:

> …the sheep-goat effect suggests that the differences run deeper than mere interpretation: one's attitudes toward psi [i.e. psychic phenomena] affects the likelihood that such phenomena will occur in the first place. The more an individual harbors a reductionistic view of the world, the less chance such phenomena will emerge (let alone be witnessed by them); the more one is interested in interconnectedness, and open to psi experiences, the more likely the world will "respond" by creating such experiences (Varvoglis 1997).

Like Diaconis and Mosteller (1989), McRaney (2011) also contends that much can be attributed to the 'law of truly large numbers', including Littlewoods Law which finds that one in a million events could actually happen once a month on average. It is argued that since the human mind is culturally pre-organized to notice order (and would therefore prefer to see patterns than miss instances of cause and effect), this increases the chances of apophenia (McRaney 2011; Wiseman 2011). Finally, McRaney (2011: 86) notes that when coincidences do not happen no one cares and that "you end up with an echo chamber of tales where stories of coincidence have no competition."

> *For every person who reads this valuable book there are hundreds of naïve souls who would prefer to have their spines tingled by a sensational but worthless potboiler by some hack journalist of the paranormal. You who now read these sentences join a small but wiser minority*". (Gardner in Marks & Kammann's (1980), *Psychology of the Psychic*, 1st ed).

Writers on synchronicity have acknowledged the potential risk of over-analysis or stretching the search for patterns in order to make personal meaning (e.g. Main 2007). McCallum (2005) also recommends care to avoid confusing synchronicity with the notion that every life event is 'meant to be'. McCallum (2005) contends that certain life events do not appear to have any meaning at all and we are faced with a far more rational process as to whether to ascribe meaning or not. This view counters those who favour a pre-deterministic view of everything, from illnesses to tragedies as a result of some co-occurrence of factors which might be found to be meaningful (McCallum 2005). In contrast, the sense of meaning felt as part of a synchronistic experience is usually "immediate and profound" (McCallum 2005: 149). However, Grof (2006) cautions that the intense feelings of numinosity and enchantment (and, potentially, ego-inflation) associated with synchronicity can be seductive, deceptive and should not be unconditionally trusted and naively acted upon since (when archetypes are activated) a positive outcome is not always guaranteed.

On a similar note, synchronicity also needs to be distinguished from superstition: with superstition we believe our beliefs *a-priori* and assign objective weight to them; in synchronicity, we understand that our subjective beliefs are shaping the reality we experience and therefore do not assign objective weight to them nor believe everything we think (as a tendency toward excessive irrationality) (Nelson u.d). However, there is an equal argument in the opposite direction: excessive rationality. Plaskett (in Main 2007) argues that there is a difference between being scientific and being (overly) rational.

Synchronicity scholars have invariably highlighted shortcomings of the dismissals outlined here. One key rebuttal concerns the unquestioning application of mathematical probability. For example, Combs and Holland (1996: 155) assert that:

> …to know mathematical probability of a specific event requires a knowledge of all possible events that can occur in the situation in question.

In almost all real-life cases of synchronicity, there are so many imponderable variables that cannot be controlled for, foreseen or predetermined that any effort to calculate, or even approximate statistical probability becomes very dubious or even entirely meaningless (Combs & Holland 1996; Main 2007). The core problem is that synchronicity is: i) unique to the individual; and ii) an event which will almost always be unique to those particular conditions. Therefore, as Combs and Holland (1996: 158) state:

> Frequency theory runs into serious trouble if, as is usually the case with synchronicity, the event in question never happened before, and there is no sense in talking about its frequency in the first place.

When applied to such situations, statistics work by ignoring what is unique about the individual case, whereas analyses of synchronicity try to investigate the uniqueness (Jung & von Franz 1970; Main 2007). For statistics to be useful in such cases, calculations would need to be performed and proven on every reported case in order to invalidate the individual's claims to meaningfulness and, even then, it does not discount truth or meaning outright:

> The real issue is how one chooses, or has learned, to interpret the experience of a sometimes indefinite reality. There is no final court of appeal to judge what is true and what is not true. If there were, philosophy would have been at an end thousands of years ago… The point here, however, is that the issue of probability is one of choice and not of evidence; there is no hard evidence in the matter of synchronicity, and arguments can be built in both directions. To appreciate the other point of view [i.e. synchronicity]…. one need not believe it, but at a minimum one must, to use John Lilly's words, "simulate the belief" and see where it leads. (Combs & Holland 1996: 159)

Synchronicity undoubtedly represents "a phenomenon of questionable status, whose occurrence is neither predictable nor repeatable to order" but can equally be persuasive by their sheer quantity or, if documented carefully, by their forms of physical evidence (Main 2007: 104).

Box 7: Descartes' vision

> On the night of 10–11 November 1619, while stationed in Neuburg an der Donau, Germany, Descartes shut himself in a "stove" (some type of room specially heated for that purpose) to escape the cold. While within, he had three visions and that a divine spirit revealed to him a new philosophy. Upon exiting he had formulated analytical geometry and the idea of applying the mathematical method to philosophy. He concluded from these visions that the pursuit of science would prove to be, for him, the pursuit of true wisdom and a central part of his life's work. Descartes also saw very clearly that all truths were linked with one another, so that finding a fundamental truth and proceeding with logic would open the way to all science. (Wikipedia: https://en.wikipedia.org/wiki/René_Descartes, *retrieved 14 April 2013;* Sheldrake 2012)

This and other examples of famous (and sometimes simultaneous) discoveries from scientific luminaries (e.g. Archimedes (density), Newton (gravity and calculus), Leibniz (calulus), Darwin (natural selection)), shows that even the founders and influencers of modern-day science drew on intuitive flashes in the form of visions, epiphanies and synchronicities. A number, including Descartes, also acknowledged or allowed themselves to be guided by a God or divine spirit. However, where many modern-day quantum scientists (e.g. Einstein, Bohr, Bohm, Planck, Heisenberg) importantly depart from the Cartesian worldview is in integrating their intuitive insights and revelations with logic, reason, experience and understanding to form theories and patterns about the inseparability of mind-body-spirit. On a tangent, the physical setting of Descartes' vision, i.e. in an indoor 'stove' is in stark contrast with the natural (wilderness) settings for the visions which inspired the various religious figureheads. Whilst such a setting concurs with findings presented later in this research that indicate that disrupting of perceptual-biological homeostasis may trigger awakening experiences (Taylor 2010), might the (man-made and 'artificial') characteristics of a given setting also influence key 'qualities' and content of such visions (e.g. separation vs oneness or egocentrism vs ecocentrism)?

2.4.6 Implications

2.4.6.1 Interconnectedness

In his autobiographical book on leadership, Jaworski (1996) recounts the pivotal synchronicities which led him to founding the American Leadership Forum. During a period of intense introspection after the breakdown of his marriage, Jaworski (1996: 52-55) recalls a life-changing encounter with an ermine in the Grand Teton Mountains (Box 20) and subsequently reflects on its importance to him:

> I knew then that it was a profound experience and consider it so to this day…I experienced what I can only describe as a kind of transcendence of time and a feeling of oneness with all the universe…The encounter with the ermine was so important to me because it was the first time I had directly experienced the interrelatedness of the universe. What it taught me was the importance of the experience of oneness...That provided me with new clarity. I had had a direct contact with an aspect of the natural world which my lifelong, fragmented perspective had previously said was not open to me. This forced a shift in conscious functioning and began to prepare me at a deep level to recognize the impermanence and transparency of boundaries in all other aspects of my existence.

Synchronistic experience seems capable of narrowing the subject-object divide and overturning ingrained belief systems built on a purely mechanistic view of the universe (McCallum 2005; Grof 2006). Further, in delivering a sense of a unifying pattern of meaning, synchronicity seemingly dissolves boundaries between 'inner' and 'outer' life with events which appear to transcend our normal conception of space, time and causality (Peat 1995; McCallum 2005). It provides some experiential testament - if only momentarily perceived - of a connecting principle which makes possible the idea that everything in the universe is invisibly and harmoniously linked as part of an underlying, undivided, unbroken matrix of totality (Bolen 1979; Bohm 1980). Synchronistic experience imparts a sense of being part of a greater whole (Bolen 1979).

The beliefs of many non-Western cultures align with a worldview which matter-of-factly accepts such notions of interconnectedness. Cocks et al. (2012) found that the nature-based religious beliefs of the Xhosa are not only closely linked with the natural landscapes and its biodiversity, but also a strong sense of interconnectedness. As part of the traditional Xhosa worldview, humans are part of nature and one community in which people are one with plants and animals, rivers and forests, as part of a larger, all encompassing whole (Cock 2007). This perspective also underpins the traditional African notion of *ubuntu*[40] which, at its simplest, means "because of you, I exist" (McCallum 2005: 150). Mbiti (in Ashwell 2010: 61) takes that concept a step further to parody and contrast Descartes with the statement "I belong, therefore I am". The implications of this for human behaviour are profoundly captured by Mutwa (in Cock 2007: 32) who simply states that: "You cannot conserve something, which is not part of you." In this sense, whether or not synchronistic events or interconnectedness objectively exists becomes irrelevant. The importance instead centres on the perception and interpretation since it is this which may have a causal power on attitudes and behaviour towards the environment (M. Jacobs pers. comm.).

2.4.6.2 Empirical evidence

Evidence of cause-and-effect is obtained through the repeatable testing and observation of interactions between events and phenomena in order to explain how one event is a consequence of another. Empirical evidence is concerned with, or verifiable by, observation or experience rather than only theory or pure logic (ODO 2012c). To appreciate cause-and-effect, it is necessary to observe outer events and think logically; however, to appreciate synchronicity, an individual needs to be able to also note an inner subjective state - a thought, emotion, vision, dream, premonition - and to link it (usually intuitively) to a related outer event (Bolen 1979). In other words, in order to fully appreciate a synchronistic event, personal experience - as a dimension of empiricism - is required and whereby, understood only through the logic of cause-and-effect, the event seems statistically improbable (McCallum 2005; Grof 2006).

Synchronistic events are therefore tied to the subjective experience since they invite reflection on if or how the event might have been linked with one's inner state. As discussed, these experiences transmit a sense of totality which, to date, has eluded accepted knowledge or consensus in the mainstream scientific community.[41] In attempting to explain such possibilities, quantum theory has used the principle of

[40] Whilst often simplified as part a Western tendency to misappropriate traditional wisdom, the concept of *ubuntu* is multi-layered and not necessarily as anthropocentric as it initially appears (Le Grange 2012). Le Grange (2012) writes:

> *Ubuntu* is an African word comprising one of the core elements of a human being. The African word for human being is *umuntu,* who is constituted by the following: *umzimba* (body, form, flesh); *umoya* (breath, air, life); *umphefumela* (shadow, spirit, soul); *amandla* (vitality, strength, energy); *inhliziyo* (heart, centre of emotions); *umqondo* (head, brain, intellect), *ulwimi* (language, speaking) and *ubuntu* (humanness) (Le Roux, 2000, p. 43). The humanness referred to here finds expression in a communal context rather than the individualism prevalent in many Western societies (Venter, 2004, p. 151). Battle (1996, p. 99) explains the concept *ubuntu* as originating from the Xhosa expression: *Umuntu ngumuntu ngabanye Bantu.* 'Not an easily translatable Xhosa concept, generally, this proverbial expression means that each individual's humanity is ideally expressed in relationship with others and, in turn, individuality is truly expressed'.

[41] Note that the recently closed Princeton Engineering Anomalies Research (PEAR) lab and the Institute of Noetic Sciences (IONS) (http://noetic.org/) have made steps – albeit often controversial ones – in this direction.

complementarity to present deeper understandings of the mind-body and human-nature relationship. For example, Wolfgang Pauli has suggested that the *physis* and *psyche* form complementary aspects of the same reality; Neils Bohr stated that materialism and spiritualism are two aspects of the same thing; and David Bohm presented a model of reality where the mental and material are two parts of one underlying process - an *implicate order* - separated only in thought and not in actuality (Bohm 1980; Max-Neef 2005; Main 2007). Modern physics also recognizes the participatory role of the experimenter in obtaining results ('the observer effect') and how this may extend to our *participation* in life (Main 2007; Section 3.2). As intellectually captivating as these theories and ideas may be, they tend to lack empirical evidence – or at least the type of substantiation which might be grasped by a larger cross-section of science and society.

It is therefore almost impossible to rely solely on logic to effectively investigate insights gleaned though synchronistic experience. In this respect, Marie-Louise von Franz, a close collaborator of Jung, asserts:

> [S]ynchronicity requires two essentially heterogeneous world systems, whose sporadic interlocking causes certain aspects of wholeness to manifest themselves…The coincidence of the two realms in synchronistic phenomena is our only *empirical* indication of unified existence to date [*emphasis in the original*] (von Franz 1974: 247 in Main 2007: 52).

Main (2007) argues that this statement requires qualification now that new empirical understandings have emerged as physicists attempt to resolve paradoxes, such as incompatibilities between relatively theory and quantum theory. In any case, can a unique subjective experience form reliable empirical evidence? Unlike other experiences (Section 2.3.3), it is possible that synchronicity is not purely subjective:

> …what is interesting about synchronistic experiences is that they are equally both subjective and objective. The inner psychic aspect of synchronicity, unlike that supposed to attach to quantum events, most definitely is experienced directly; and the outer physical aspect of a synchronicity, unlike that said to pertain to mystical experiences of unity, most definitely is susceptible to being registered by independent observers. Thus, if von Franz is not quite accurate in asserting that synchronistic phenomena are our "*only* empirical indication of unified existence to date," she may be right to draw attention to them as being our *best* such indication [*emphasis in the original*] (Main 2007: 53).

Whilst theories and laboratory experiments might one day make thinkable ideas of interconnectedness, it is only when deeply experienced (e.g. emotionally) that an intuitive sense of 'I know' enters one's mind. Further, the human psyche or consciousness may be one of the few 'receivers' in the universe that can fully comprehend the meaning of existence – and its links with divinity (Bolen 1979).

2.4.6.3 Meaning

Debate may ensue as to whether synchronicity can be considered to provide empirical evidence about the interconnectedness of reality. Irrespective of that outcome, it can be stated that the experience of synchronicity provides an *interconnectedness of meaning* (and distinguishing it from 'just chance'). As Jung (1960) articulated, events in time and space are either connected by their causality or by their meaning. Causality is pursued through objective observation, logic and reasoning; meaning is encountered through subjective experience, intuition and feeling – it is, as quantum physicists would have it, a *complementarity*.

Notwithstanding that argument, the fundamental point is the importance of meaning and mythopoetic imagination to the human condition. An overemphasis on the study of coincidences, their probabilities or purported relationships to an objective 'reality' risks shifting the focus away from the important transcendent meaning(s) present in synchronistic experience. The value of synchronicity therefore lies in its ability to connect us to a meaning as a pathway to the heart and wholesome living (Bolen 1979).

Attending to synchronicity is purported to add extra dimensions to our awareness and 'being' that can enrich our inner lives (Bolen 1979). Remaining alert, attentive, self-aware, 'tuned-in' and open to such occurrences helps our cognitive and personal development by receiving information from both logical and symbolic sources (Bolen 1979). In nourishing and balancing the four psychological functions of thinking, feeling, sensation and intuition, it can aid persons in seeing 'the whole picture' (Bolen 1979). Equipped with this more holistic perspective, synchronicity will appear more natural to a mind that is constantly sensitive to change and the patterns of nature and mind which provide context for meaning (Peat 1995). The alternative is to rely on logic, rationality and perception dominated by the visual senses which, in lacking emotion, imagination and spiritual dimensions, can be impoverishing (Bolen 1979; Ashwell 2010). As Jung concluded in his 1959 BBC interview, "Man cannot stand a meaningless life." [42]

> *Perhaps the real message of synchronicity, for the Western scientific viewpoint, is not to throw away all that is of value within the last five hundred years, but to be sensitive to new perspectives and to allow the mind its full creative potential.*
>
> *In this way it becomes possible to retain a subjective experience of nature and a sense of the meaning and interconnectedness of things without needing to reject the scientific approach…* (Peat 1995: 57)
>
> *While science has an awesome power to predict and control, it is also clear that its essential fragmentation of nature is no longer able to address all the major problems that face the world today. Synchronicity, however, with its sensitivity to harmony and the indivisibility of consciousness, humanity, and nature at least opens up the possibility of a new approach. But again this does not mean making a choice to "adopt" synchronicity or to "replace" some of the approaches of science with those of synchronicity. Rather, by being perceptive to these issues it may be possible to move, in a creative way, in an entirely new direction...One step toward becoming more sensitive to the duality between these different worldviews is to begin to question the whole current order of science and to develop new ideas and theories that have a more holistic approach.* (Peat 1995: 146)

[42] BBC *Face to Face* (1959): http://www.youtube.com/watch?v=FPGMWF7kU_8, *retrieved 17 February 2013*

Summary and key messages for Section 2.4

Synchronicity is the experience of two or more events that are apparently causally unrelated or unlikely to occur together by expected chance or normal causes yet are experienced as occurring together in a meaningful manner. Synchronicity is characterized by the following criteria (as per Main 2007: 14):

i) Two or more events parallel one another by having identical, similar, or comparable content
ii) No discernible or plausible way in which this paralleling could be the result of 'normal causes'
iii) The paralleling must be sufficiently unlikely and detailed as to be notable
iv) The experience must be meaningful beyond being notable

- 'Synchronicity' is to be distinguished from 'synchrony' which are simultaneous actions, occurrences or events but which do not involve or reference perceived (subjective) meaning
- Perceptions or emotional 'charges' identified as accompanying the experience of synchronicity may include: heightened sense of 'being'; intuitive 'flash'; numinosity; miraculousness; providence; transformation; transcendence and immanence; revelation; and epiphany. An experience of unity, oneness or feeling part of a great whole is noted and may be felt on several levels: within oneself; between oneself and the world; and as an intrinsic feature of reality in general. There may also be a sense of guidance as if an invisible 'helping hands' were at work
- Synchronicity with/in nature does not appear to have been specifically investigated - examples in literature largely consist of anecdotes included as part of broader explorations of the topic. However, stories from Indigenous and non-Western cultures can be particularly insightful.
- Synchronicity has been found to be associated with: periods of transformation in one's life (which may involve heightened emotional states); meditative states or changes in brain activity; creative or symbolic expression and an active 'archetypal' layer
- Critics dismiss synchronicity on the grounds of psychological delusion, statistical probabilities (e.g. law of truly large numbers); hidden cause; and a desire to seek out and confirm our beliefs
- Implications of synchronicity for this research are its experience of interconnectedness (and possible empirical evidence for) and the importance of meaning to psychological well-being.

Image 3: Mesmerized by mantis

In early 2010, I assisted an environmental education weekend for shelter children living in Port Elizabeth (Section 3.3.2). Whilst on a nature walk, with the kids enthusiastically chatting away, I loped at the back of the throng lost in thought, troubled by the aims and target group for this research. At that stage, I felt a little lost for direction. I was jolted from this brooding by the sight of a praying mantis as it scrambled across the path in front of me - somehow avoiding the many pairs of trampling feet that had already passed ahead, unawares. Having never seen such a striking mantis since living in SA, I gently picked it up and showed the kids who were equally fascinated, with some eager to have the mantis sit on their hands. I haphazardly took this photo which unintentionally captured this rich expression, symmetry and a pivotal MNE (Box 8).

Box 8: Reflections on arriving at education into adulthood

In embarking upon this research in 2009, the point of departure with respect to education was broad: I envisioned results being able to both inform social marketing (intervention) strategies for broad scale public awareness and be useful for education curricula in schools. In accordingly familiarizing myself with literature in both these fields, I soon concluded that adopting a social marketing process for designing an implementation strategy was a dedicated dissertation in itself and my elected approach would not suffice. However, many of the psychological underpinnings of social marketing remained highly applicable to education at all scales.

In coming to an additional realization that readings on 'education' were automatically steering me in the direction of childhood education and this did not feel entirely 'right'. In my dealings with people of all backgrounds, I repeatedly found that talk of environmental education (EE) seems to default to a supposition that one is referring to childhood or early adolescent age groups. Whilst feeling a 'pull' to move beyond this age bracket, I was at that point unable to articulate my motivation for doing so.

Around that time, I encountered De Wet's (2007) thesis on the influence of wilderness experience on the adoption of environmentally responsible behaviour (ERB) and gained further clarity on the matter:

> Conventional environmental education programmes commonly apply mass approaches with heterogeneous groups of people, who are often not in a position to make a significant difference (e.g. children), in the short time available to solve the environmental crisis. (De Wet 2007: 1-2)

Whilst a focus on cultivating CWN in children through MNE is an absolute necessity, *it is not the end, but merely the beginning*. This may appear common sense but it is currently not reflected in practice where we tend to find that as students mature, the shift moves from EE to specialized theoretical and analytical concepts for application in ecology and the natural sciences. This form of education can potentially steer students away from experiential emotional connections and toward a fixation and intellectual fascination with biophysical knowledge and theories.

In participating in an outdoor EE program early in my research (February, 2010), I was afforded the opportunity to pilot a research method with the children involved. The weekend was of immense learning value, particularly in gaining newfound appreciation for the need to retain heightened sensitivity toward education for invasive alien species (IAS). However, what was troublesome was that the methods I had envisaged using to elicit children's perceptions of nature experience had, in this case, essentially failed in returning usable results nor inspired in the way anticipated. However, a MNE with a praying mantis later that day (Image 3) coupled with subsequent rational reflection enabled me to see that the MNEs I was hoping to explore were those rarely fully comprehended until the onset of (late) adolescence, at which time there appeared to be an emerging curiousity and competence to engage with more abstract, symbolic and introspective thinking.

As a result, the decision was made to omit children (as a distinct target group) from this research and instead give greater focus to the 18-30 age bracket when considering education implications (Chapter 6). As became clear through subsequent reading (e.g. Plotkin 2008), this period of life is often recognized as an incredibly important passage as one makes the transition into adulthood. In awakening a new disposition toward discoverying the world, it presents a window which may only be open for a limited period before the 'shutters of socialization' take full effect. As interviewee Galeo reflects (Section 5.5.4):

> *I think postgraduate and graduate level engagement is where there is a distinct gap because of the mindset that those folk have. "I've got my degree, the world is my oyster, I am it." That age group is - somewhat surprisingly - still young. Young in the sense of being still very open from a sensory perception perspective. I find people in their 30s or from 30 to 50 are actually quite a lot more closed. They have formed harder opinions of the world or maybe some bitterness about life and it is not so easy for them to engage with nature's phenomena. There is still a rational dimension that becomes a filter. Graduate level is where there is a gap for education that can have a very profound impact on how those graduates implement their work in the world.* [Galeo]

The results of this research have subsequently reaffirmed that the type and depth of MNEs of which we speak and the understandings of CWN which we seek are more effectively addressed from late adolescence.

2.5 Education for sustainability

> *Nothing in education is so astonishing as the amount of ignorance it accumulates in the form of inert facts.* ~ Henry Brooks Adams (1828-1918)

In recognizing that education is central to addressing global challenges as well as being the primary agent for the transformation of individuals, the United Nations (UN) dedicated 2005 – 2014 as the *UN Decade of Education for Sustainable Development* (UNDESD). The overall goal of UNDESD is to integrate the principles, values and practices of sustainable development into all areas of education (NSW-OE&H 2013). The objectives identified represent an exceptionally broad agenda and invite ESD to be applied to gender equality, health promotion, environment, rural development, cultural diversity, peace and human security, sustainable urbanization and sustainable consumption (UNDESD 2012). The associated education effort encourages the development of curricula which enhances value-based learning and critical thinking as well as fostering changes in thinking patterns and behaviours which will create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations (Ateljevic 2009; NSW-OE&H 2013). This represents a radical shift from the *quo* and, as this decade draws to a close, we must critically reflect on the extent that such aims have been achieved in various contexts.

2.5.1 What is the difference between EfS, EE, EESD, SE and ESD?

To the uninitiated, the various terms and acronyms which pervade the *environmental education* field might be bewildering. We invariably encounter *environmental education* (EE), *conservation education* (CE), *nature study education* (NSE), *outdoor education* (OE), *learning for sustainability* (LfS), *sustainability education* (SE), *environmental education for sustainability* (EES), *education for sustainable development* (ESD) and/or *education for sustainability* (EfS). Whilst environmental educationists hold a diversity of views on the relationship between these various terminologies (Le Grange 2011b), to the non-academic outsider or practitioner the distinctions between each are blurred and the overlap is significant. Some of these terms are acknowledged as being interchangeable with each other, e.g. ESD is most used internationally and generally regarded as a synonym for LfS, EfS, SE and EES to describe the practice of teaching and learning for sustainability yet all are likely to vary across geographical scales and cultural and political contexts (NSW-OE&H 2013).

However, before proceeding with an uncritical bundling of terminologies, it is important to note that these terms and their usage are contested in literature (e.g. Jickling 1995, 1997; Le Grange 2007; 2011b). The array of terms illustrates that whilst ESD concepts, their understandings and interpretations will continue to evolve, they are vulnerable to being hijacked and 're-branded' for specific interest groups (Ashwell 2010). Specifically, Le Grange (2011b) warns that 'education for sustainable development' (ESD) represents a migration of 'sustainability' into global (neoliberal) discourses (see also Footnote 46).

2.5.1.1 Roots of EE

EE as a formalized term first entered the global scene in the late 1960s and early 1970s, with the first EE gatherings in the USA and Australia held in 1969 and 1970 respectively (Swan 2010; NSW-OEH 2013). Definitions were already put forward at these meetings with the USA participants defining the purpose of EE as developing "a citizenry which is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help resolve these problems, and motivated to do so" (Stapp et al. 1970: 30 in Swan 2010: 3). This group saw EE as an evolution from earlier education methods of OE, NSE and CE which had respectively focused on outdoor recreation skills; field biology and identification; and resource conservation information on, e.g. soil, forests, and agriculture (Swan 2010). (At that time in South Africa, people interested in the intersection between environment and education tended to be involved CE (Ashwell 2010)). EE was therefore aimed at developing a concern for the entire biophysical environment and having informed persons taking informed action (Swan 2010).

The International Union for the Conservation of Nature (IUCN) put forward a definition for EE in 1971 as

> a process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among people, their culture, and there biophysical surroundings. Environmental education also entails practice in decision-making and self formulation of a code of behaviour about issues concerning environmental quality (IUCN 1971 in Irwin & Lotz-Sisitka 2005).

For its time, this definition was progressive and had strengths in recognizing: the interconnectedness between people, culture and nature; the influence and links between human values, attitudes and behaviour; and that informed decision-making and a code of ethics was integral to EE (Irwin & Lotz-Sisitka 2005). However, weakness identified were that the definition took a rational linear science-based view of education (which reflected much of the institutional scientific thinking at the time) and gave a weak focus to EE as a tool for social critique and change (Irwin & Lotz-Sisitka 2005). It was not until 1977 that guiding principles for EE were officially formulated at a UN intergovernmental conference held in Tbilisi (Georgia) and which subsequently became known as the *Tbilisi Principles (*Irwin & Lotz-Sisitka 2005). The principles were far-reaching and again stressed the interrelatedness between people, their cultures and the biophysical world as well as the need to: understand various perspectives and develop positive attitudes and values towards the environment; obtain knowledge and skills to participate actively in addressing environmental problems, embrace interdisciplinarity, complexity and critical thinking; adopt a broad range of solution-oriented approaches; and emphasize practical activities and direct experience (IUCN 1971).

2.5.1.2 From EE to ESD/EfS and the loss of 'nature'

Despite these long-standing principles and definitions, authors invariably refer to shifts made both within EE and from EE to EfS to reflect new understandings. For example, Armstrong and Gough (2012) note that the Belgrade workshop (1975) and the Tbilisi conference (1977) were instrumental in shifting the focus of EE from information *about* the environment to forming with values and action-based skills aimed at *addressing* environmental problems. This was then followed by the influential concept of *sustainable development* during

the 1980s (e.g. WCED 1987) which, in highlighting the critical nature of sustainable development, saw a gradual shift toward the concept of ESD (Ashwell 2010; Armstrong & Gough 2012). Around the early 1990s, there was a transformation in many countries from "mainly nature-based education programs (education about and in, but rarely for, the environment) to whole of school programs (education for sustainability)", with some of the latter seeing "the emergence of adolescent empowerment and leadership for sustainability, which appear to be increasingly relevant to school sustainability programs" (Armstrong & Gough 2012: 27). The Eco-Schools program[43] provides a good example of this 'whole-of-school' approach.

EE/ESD/EfS is increasingly tasked with the role of: fostering eco-literacy and naturalist field observation; improving environmental knowledge and awareness; building skills and capacity for addressing complex environmental issues; fostering critical thinking, reflection and participation; acting sustainably through informed lifestyle choices; supporting personal growth; and/or in making an active contribution toward positive social change, In this vast portfolio, there is a real danger of EE/ESD/EfS "becoming a salvation narrative for the twenty-first century, aiming to address all the issues in the world" (Ashwell 2010: 45).

When reflecting upon and justifying the 'shift' in focus of EE toward EfS, it is regularly acknowledged that the development of EfS is to move away from "knowledge of natural ecosystems – and the threats posed to them by overuse and depletion of resources" and toward "equipping all people with the knowledge, skills and understanding necessary to make decisions based upon their full environmental, social and economic implications" (Commonwealth of Australia 2009a: 3) These definitions appear not all that far removed from the original definitions for EE put forward over 50 years earlier (except for the notable shift of including sustainability principles across all curricula and to embed these principles within the respective institutional setting). Despite tinkering with definitions[44] over the past decades, one issue remains unchanged:

> …*how* to effectively educate and motivate people to care about ecology so their concern translates into appropriate action (Swan 2010: 3). [*emphasis added*]

This evolution or flux between preferences for particular terms might alternatively convey an implicit dissatisfaction with previous terms which carry contested 'excess baggage'. An example is with 'sustainable development' which, after its formal introduction into environmental discourse in the mid-1980s (e.g. WCED 1987), has become increasingly aligned with an agenda for socio-economic needs satisfaction and market-oriented ethos of resource management (Ashwell 2010). In so doing, sustainable development has become distanced from other interpretations such as: a green agenda of biodiversity conservation; an integrated agenda of caring for the community of life on earth; and a radical political and ethical agenda of

[43] Eco-Schools Global: http://www.eco-schools.org/ ; South Africa: http://wessa.org.za/what-we-do/eco-schools.htm

[44] Whilst imperfect, these earlier definitions already represented, given the state of affairs then and now, a progressive roadmap for sustainability (and not nearly as narrow or limited as they are retrospectively cast). The successful, or even part, implementation of the *Tbilisi principles* is likely to have negated the perceived need for alternate conceptualizations (although, admittedly, this would not satisfy science's insatiable appetite for intellectual innovation and 'progress'). So the onus comes squarely back to implementation (the *how*) and less about definition (the *what*). Definition and delineation obviously needs to guide effective implementation but ultimately what is persistently lacking is the individual and collective impetus (coupled with political and institutional wherewithal) to *enact change*.

transformation (Hattingh 2002; Ashwell 2010). Therefore, it is important to be aware that as any 'new' slogan or appealing terminology enters mainstream discourse (i.e. policy and business contexts), it is likely to be eventually co-opted by various interest groups and ideological agendas (e.g. as part of 'greenwashing'), with the dominant interpretation being that which aligns most closely with dominant interests in the context of implementation (Hattingh 2002; Robottom 2007; Ashwell 2010).

Importantly, such notions influence education policy and EE direction. For example, Armstrong and Gough (2012) noted the transformation away from nature-based education programs in the early 1990s. Similarly, in South Africa, "as the concept and focus of environmental education broadened, so its methods and approaches evolved" (Ashwell 2010: 44). Guided eco-trails and nature-based sensory experiences gradually gave way to active learning approaches such as fieldwork and environmental problem-solving in local settings (O'Donoghue & Janse van Rensburg 1995; Ashwell 2010). With regard to ESD, it has had the tendency to displace ecological issues in the face of pressing social issues in the misguided belief that they can be "*separated from, oppositionalised with and prioritised above* ecological issues" (Rosenberg 2004: 148 in Ashwell 2010: 45; [*emphasis in original*]). As an ironic illustration of these concerns, Ashwell (2010) cites the South African then-Deputy President Mlambo-Ngcuka, in her opening address to the 2007 World Environmental Education Congress in Durban, as calling for sustainable development to "grow our economies, create jobs and eradicate poverty" and stating that "Africa does not have the luxury of viewing environmental education processes as green issues."[45]

The cumulative result appears to have been that notions of 'nature' have been gradually transferred into 'environment' (Ashwell 2010) or as a 'resource' to support 'development'. For example, in a review of ESD practices in southern Africa (Lotz-Sisitka et al. 2006), Ashwell (2010) performed a word search and found that neither the words 'nature' nor 'ecology', 'natural- or biophysical environment' appeared once in the 77 page text, in contrast to 19 returns of the more utilitarian concept of 'natural resource'. This is reflected in many South African youth environmental education programmes whereby the focus appears to be on teaching about environmental issues, at the expense of embodied experience with nature (Ashwell 2010). The irony here is that evolving definitions and understandings of EE/EfS/ESD may continue to be unrealized given the fundamental omission of *direct nature experience*. Given this trend and the increasing way in which sustainable development orients both education policy and curricula, Ashwell (2010: 47) rightly asks:

> Where did nature go?

[45] Full speech at: http://www.info.gov.za/speeches/2007/07070310151001.htm , *retrieved 14 August 2013*

Box 9: Institutional interpretations of EfS and ESD

UNESCO

UNDESD (2012): *Education for Sustainable Development* allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. ESD means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behaviour and take action for sustainable development. ESD consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way. ESD requires far-reaching changes in the way education is often practised today.

IUCN

The IUCN (2005 in NSW-OE&H 2013) identifies the fundamental aspects of EfS as:

- Focusing on values and ability to co-create a sustainable future;
- Building capacity for sustained change and improved quality of life;
- Linking awareness-raising and behaviour changes to broader lifestyle choices;
- Developing skills and knowledge for socially critical citizens to deal with complex issues;
- Focusing on sustained social, institutional and organisational change;
- Working to mobilise learning across all levels of society; and
- Focusing on triggering fundamental shifts through creative exploration of values and ideas.

Australian Government

The Commonwealth of Australia (2009b: 9) outlines seven key principles of EfS:

- ***Transformation and change:*** EfS is not simply about providing information but involves equipping people with the skills, capacity and motivation to plan and manage change towards sustainability within an organisation, industry or community;
- ***Education for all and lifelong learning:*** EfS is driven by a broad understanding of education and learning that includes people for all ages and backgrounds and at all stages of life and takes place within all possible learning spaces, formal and informal, in schools, workplaces, homes and communities;
- ***Systems thinking:*** EfS aims to equip people to understand connections between environmental, economic, social and political systems;
- ***Envisioning a better future:*** EfS engages people in developing a shared vision for a sustainable future;
- ***Critical thinking and reflection:*** EfS values the capacity of individuals and groups to reflect on personal experiences and world views to challenge accepted ways of interpreting and engaging the world;
- ***Participation:*** EfS recognizes participation as critical for engaging groups and individuals in sustainability;
- ***Partnerships for change:*** EfS focuses on the use of genuine partnerships to build networks and relationships, and improve communications between different sectors of society.

2.5.2 What does EfS mean?

Sustainability as a term was first used in the 18th century as part of German forestry management practices (Le Grange 2011b). According to a 1986 supplement of the Oxford English Dictionary, the use of 'sustainability' in English is said to only date from 1972 (Le Grange 2011b). However, since that time – and largely as a result of its popularization through the Brundtland Commission Report (WCED 1987) – 'sustainability' has become a highly contested and malleable concept, with different meanings applicable to different contexts (Le Grange 2011b). As Le Grange & Loubser (2005) and Le Grange (2011b) note, uses of 'sustainability' may return more than 50 different interpretations and be combined with concepts such as

yield from natural resources, agriculture practices, infrastructure development, information technology, ecosystems, societies and the planet as a whole. As eluded to above, 'sustainability' has been re-badged or co-opted to fit dominant (e.g. neo-liberal) discourses, globalized business models and standardized education curricula and policy (Le Grange 2011b; Irwin 2013). Therefore, assigning strict definitions is risky, meaningless or futile if definitions are simply 'tailored to order' or alternatively made too complex to convey anything useful or practical (Le Grange & Loubser 2005). Exploring the potentiality and range of meanings is therefore a social, contextual and evolving process rather than an expert-driven fixed idea (which, by the term 'educating for' suggests an instrumentalist view of education (Le Grange 2011b)).[46]

Ecological sustainability (as part of EfS) invites reflection on core values and actions such as interdependence, interspecies equity, biodiversity and ecosystem conservation and minimizing 'ecological footprints' (Fien 1993; Le Grange & Loubser 2005). In terms of social justice, we may reflect upon values and actions such as basic human needs (health), human rights, peace, socio-economic justice, democratic participation, community empowerment, cultural diversity and gender, racial and intergenerational equity (Fien 1993; Le Grange & Loubser 2005). From an adult developmental perspective, such a disposition may be regarded as a more advanced stage of consciousness (Podger et al. 2010). Yet these suggestions are not immutable since deep ecologists might criticize social justice values as being anthropocentric and eco-socialists may emphasize social justice over ecological sustainability (Le Grange & Loubser 2005). Ultimately, EfS must be a vector for alternative contextualized possibilities which address self, nature and society.

2.5.2.1 A reflexive and negotiated concept

EfS is therefore understood to be a reflexive process which cultivates an "appreciation of the diversity of meanings and usage of the concept of sustainability, but also that such meaning ought to be re-clarified within specific sites and discourses of environmental education" (Le Grange & Loubser 2005: 117). In recognizing the social construction of academic discourses, EfS can therefore not be about forcing static messages and ideologies on the learner but rather, in creating a dynamic learning experience with negotiated meanings, enables the student to make sense of the information they are provided (Ballantyne & Packer 2005; Strydom 2009). "EfS encourages a shift from viewing education as a delivery mechanism to a lifelong, holistic and inclusive process" (Commonwealth of Australia 2009a: 3).

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[46] The term *education for sustainability* may be equally contentious. For example, Holdsworth et al. (2013) differentiate between: an education *about* sustainability (1st order: unchallenging of the current paradigm); an education *for* sustainability (2nd order, adaptive response largely unchallenging of the values, knowledge and skills needed in learning for change) and education *as* sustainability (3rd order: creative (post)paradigmatic response to sustainability, epistemic and increasingly able to facilitate a transformative learning experience). Le Grange (2011b) believes that *education for sustainability*, if subscribing to a narrow view of environmentalism, is in danger of becoming an education accepting of consumerism and unbridled economic growth – and therefore prefers to use the terms sustain *sustainable development education* or *sustainability education*:

> When we talk about "education for" anything we imply that education must strive to be "for" something external to education itself…However, as prescriptions become more specific interpretations of education become more loaded and more problematic for many educators (Jickling 1997: 95).

This interactive and iterative process might therefore be better conceived as sustainability dialogue (with dialogue understood through its (Greek) etymology of *dia* and *logos*: *meaning flowing through* (Jaworski 1996)). Sustainability dialogue envisages bringing together diverse groups (e.g. students, stakeholders) in the search of a common language to discuss and engage around a social-ecological issue (Wals & Jickling 2002). In this space, different worldviews meet, dissonance is created and learning ('at the edge') is likely to ensue (Wals & Jickling 2002). However, a reflexive orientation goes beyond just 'talk' to inspire: "reflecting, reviewing and changing in response to contextual factors and improved understandings of their practice" (Lotz-Sisitka et al. 2006: 10 in Ashwell 2010: 35). Since the mid-1990s, this approach has gradually come to characterize EE research and practice in southern Africa (Ashwell 2010). Part of the appeal of reflexive orientation is that it moves beyond the rhetoric of 'EfS/EE' to a word which has practice-centred meaning and an educational act which focuses on embodied practices for personal and social change (Lotz-Sisitka pers. comm. in Ashwell 2010). However, notions of such change cannot be based on simplistic linear or hierarchical assumptions; rather, the importance of attending to process (over 'product' in terms of 'change outcomes') must be valued in transformational EfS (Janse van Rensburg 1994; Ashwell 2010).

Conceptualizing such a process is open to interpretation and imagination. Le Grange (2011b) promotes a decentred rhizomatic view of EfS as opposed to a fixed arborescent view rooted in the dominant neo-liberal discourse. Expanding horizontally, an EfS 'rhizome' produces multiple shoots as it interweaves through social-ecological systems creating new connections, new interactions or forming whole new systems which map alternative possibilities for growth in ways of knowing and being (Smagorinsky et al. 2006; Le Grange 2011b). This process is part of a transdisciplinary trajectory for EfS (Le Grange 2011b).

2.5.2.2 A moral imperative

Orr (2004: 8) states that "education is no guarantee of decency, prudence or wisdom" and illustrates this by pointing out how highly educated people have been responsible for large-scale environmental destruction across all scales (De Wet 2007: 21). Similarly, in pursuing the outwardly focused 'triple-bottom line' (i.e. economic development, social development, environmental protection) approach to sustainable development, society has harboured the "deep but demonstrably misplaced conviction that science and technology alone can deliver global sustainable development" (Nath 2003: 253). It is clear that such frameworks (for education) have neglected values, ethics and an inwardly-focused philosophy. Whilst this is a 'woolly' process of reflection and introspection, any conception of sustainability that does not include or integrate the subjective interior alongside the objective exterior can only ever be partial (Riedy 2003).

EfS necessarily needs to work at the interface of beliefs, values, attitudes and behaviour. This has long been recognized – also in EE – and calls for this integrated and holistic process of lifelong learning have only accentuated. UNESCO's (1997) report entitled *Education for a sustainable future: a transdisciplinary vision for concerted action* highlights sustainability as a "moral imperative" and, in short, "a fundamental reorientation of education and training systems worldwide" (in Irwin & Lotz-Sisitka 2005: 45).

Increasingly, these interior human dimensions of (un)sustainability are being recognized and, in particular, the need to instil moral foundations (Nath 2003; Jickling et al. 2006) and "higher order dispositions [that] are associated with a new ecological, humanistic, and transformative worldview that assumes interdependence and interconnection" as part of a "critical moral consciousness" (Podger et al. 2010: 341). Fien (2001) and Nath (2003) both call for holistic education with a moral philosophical base which restores our humanity by cultivating an ethic of care, concern and competence in cooperation, community service, communication and peaceful conflict resolution (Podger et al. 2010). The resulting goals for EfS are therefore to be able to exercise discernment and responsibility in moral and ethical affairs, to exhibit genuine stewardship for the natural environment and to acquire the knowledge and skills to contribute to ecologically sustainable development (Fien 2001 in Podger et al. 2010). In pointing to the emergent focus in EfS literature on the importance of the ancient tradition of 'virtue' as a disposition of change, Podger et al. (2010) argue that whereas 'virtue' once stood for right living in an immediate community bounded by relationships, 'virtue' in a contemporary sense includes ecological responsibility and social justice which extends beyond a single community in a location governed by fixed temporal and spatial boundaries.

Caution is needed with respect to the 'moral renaissance' sometimes advocated as being a mandatory element of formal EE curricula (e.g. Nath 2003). This is because it tends to assume that there is a collection of immutable 'morals' (associated with set behaviours) ready for instruction with notions of 'good', 'bad', 'right' and 'wrong' to be taught rather than negotiated. Further, educators may be unable to resist imposing their own moral ideals or judgement on the student's learning. This may result in students conforming to prescribed actions which align with expert opinion on 'sustainability' across generalized contexts, but which may lack specific relevance and meaning to the student's own situation and aspirations. Therefore, whilst EfS should be about promoting the need for underlying values, it should not be about transferring one fixed narrative, perspective or construction on what sustainability is or ought to be (Le Grange & Loubser 2005).

Such a sentiment finds resonance with Wals et al.'s (2008) observation that the Dutch interdepartmental government program on Learning for Sustainable Development has, in recent times, favoured a shift away from instrumental paradigms focusing on prescribed behaviour change, in preference for civic engagement – an emancipatory human development approach designed to empower citizens to take more responsibility in the search for sustainable ways of living (Wals et al. 2008). There is a natural and well-founded temptation for educators to blend strategies from instrumental and emancipatory approaches. Whilst pragmatic, there are implications in doing so and it is therefore critical to first understand the type of change desired and if this is indeed the 'right' change to pursue (Wals et al. 2008). This again emphasizes the importance of sustainability as a negotiated and reflexive orientation.

> *An increase in exterior or social development can only be sustained with a corresponding increase in interior development in consciousness and culture. Simply trying to put a new form of governance, political system, [techno-economic system] or social distribution network in place without a corresponding development in the levels of the interior dimensions of consciousness has historically guaranteed failure in societal transformation.* ~ Ken Wilber (quoted in Riedy 2003: 7)

2.5.2.3 A 'whole-person' approach

Wilber's (2003) integral framework and reference to consciousness highlights the importance of a 'whole-person' approach to education. This is an approach which

> seeks to cultivate in the learner the integrated development of the powers of mind, heart and will, so that the person can manifest a growing consistency between what they know and understand, what they care about and love, and the daily choices they make" (Podger et al. 2010: 341).

Casting EfS in this light follows the interpretivist paradigm of EE which strives for the potential of the 'whole' person to be actualized: i.e. the learner should be helped to become all that he or she can become (Schulze 2005). It is also constructivist in the sense that students actively participate in the construction of knowledge and meaning based on their experiences (Riley-Taylor 2002; Morse 2011). The role of the educator herein is to make meaningful contributions to the student's life by guiding learning according to the requirements needed to reach their innate potential (Schulze 2005). Such an education makes possible what Archbishop Desmond Tutu refers to as "the opportunity to fulfil" one's "human and spiritual potential (Colby & Damon 1992: xii in Podger et al. 2010: 341-342).

A whole-person approach pays particular attention to the consciousness of the individual or the collective. For example, Sterling (2007) argues that a "connective cultural consciousness", informed by a relational worldview, is both a necessary goal and condition for educational and cultural change (Podger et al. 2010). This finds resonance with the *consciousness of connectedness* advocated in Section 2.2.). Qualities, values or virtues associated with such a consciousness including a "widening and deepening of the boundaries of concern", flexibility, resilience, creativity, participation skills, competence, material restraint (i.e. reduced consumption), sense of responsibility and transpersonal ethics (Sterling 2001: 52 in Podger et al. 2010). Importantly, a whole-person approach recognizes the limitation of privileging 'thinking' over more integrative 'knowing' which

> …combines mind with body, emotions, and spiritual understandings, so that we might experience with more intensity the full capacity of our abilities for being and becoming in the world. (Riley-Taylor 2002: 20).

This process of individual and collective change involves self-awareness and self-critique (reflexivity) - characteristics which have been shown by psychological developmental research to be linked with mature critical moral consciousness (Mustakova-Possardt 2004; Podger et al. 2010). In this respect, we can conceive sustainability as a 'frame of mind' which Bonnett (2003) proposes.

2.5.2.4 An institutional endeavour

Despite its ideals, EfS remains faced with the very real and practical reality of being tasked with complicated challenges such as changing values and attitudes and fostering behavioural changes across unique individuals and contexts (Kilgour 2012). A measure of realism is therefore required and, again, it is necessary to return to the importance of using processes of learning and engagement to elicit change as opposed to only a fixation on measurable outcomes (Hocking & Armstrong 2012).

There is only so much an individual educator can achieve and therefore it is vital that EfS efforts are embedded in a supportive institutional framework. Indeed, possibly the biggest shift that distinguishes current conceptualizations EfS as opposed to EE is that is not only oriented toward 'whole-person' but also 'whole-organization' or 'whole-society'. In this sense, it emphasizes social change processes such as cross-sectoral partnerships and participation. For example, a number of sustainability units are being formed at tertiary institutions and, whilst promising, they have only had limited success in influencing the broad scope of education and bureaucratic activity at universities (Hocking et al. 2012).[47] In many cases, a lack of clarity as to what constitutes best practice, alongside the frameworks and approaches for implementing EfS across institutional courses and activity, inhibits uptake (Hocking et al. 2012).

In order to improve the effectiveness of these necessary initiatives, institutions are advised to consider the following processes: formulating agreed principles and framework to guide the strategic journey; developing steps to refine the organization's strategic direction; knowing where to start from (in terms of the current status of EE/EfS in the organization); affirming the organizations role in EE/EfS (in terms of garnishing inter-departmental commitment); finding out what other institutions are doing to provide a benchmark for (exceeding) best practice; identifying the critical EfS issues and cycles (i.e. awakening, discovering, transforming, sustaining, leading and celebrating); and instilling a culture of lifelong learning for behaviour change as opposed to only knowledge content (Jones 2012). Shifting from instrumental to transformative learning requires rethinking ontological, epistemological and axiological assumptions (Wals & Dillon 2013)

2.5.2.5 A placed-based consciousness

Gruenewald (2005) suggests that one of the ways in which institutional dynamics of schooling may be transformed is though placed-based – or *place-consciousness* – education. This may be defined as:

> …learning that is rooted in what is local—the unique history, environment, culture, economy, literature, and art of a particular place. The community provides the context for learning, student work focuses on community needs and interests, and community members serve as resources and partners in teaching and learning. Place-based educators have discovered that this local focus has the power to engage students academically, pairing real-world relevance with intellectual rigor, while promoting genuine citizenship and preparing people to respect and live well in any community they choose (Rural School and Community Trust 2003 in Gruenewald 2005: 264).

Place-based education is therefore fundamentally tied to EfS. Not only is there potential to enrich educational settings though building collaborations inside and outside of formal learning environments, but it is a first and vital step in bringing learners attention back to the places they inhabit so that their newfound care and understanding may transform into practices for sustainability (Gruenewald 2005). A growing place-consciousness also incorporates an awareness of other places beyond one's local environment, but one's local environment serves as a basis for examinations of interrelationships, similarities and differences

[47] This is in reference to progress in Australia but my understanding is that it could equally apply to South Africa. In South Africa, Rhodes University's *Environmental Learning Research Centre* probably provides the most progressive initiative in bringing together various stakeholders to foster related activities in the university and community.

(Gruenewald 2005). Place-based education grounds the notion of 'context' which is so essential to EfS. It allows for focus on the social and ecological interactions which are produced and experienced in different places and how EfS tools and approaches may be applicable (Gruenewald 2003). With particular relevance to MNE, place-based education helps to situate debates about the diversity and validity of lived experiences as encountered across diverse social-ecological contexts (Gruenewald 2003). Ultimately, place-based education highlights the inappropriateness of generalized curricula models and instead urges for the contextualisation of curricula which, as part of an EfS approach, should include localized studies of nature and culture, community-based problem-solving, collaboration with local organizations and involvement with community decision-making (Smith 2002; Gruenewald 2003). This collectively strengthens human agency and the ability to anticipate, adapt and respond to change – it is both a learning process and knowledge outcome which can build/restore individual and community resilience (Shava et al. 2009).

> *The great aim of education is not knowledge, but action.* ~ Herbert Spencer (1820–1903)

In summary, EfS is a process of fostering learning and change within the individual and across all sectors of society. It is an education which informs, equips and engages individuals, institutions and communities in a continuous reflective practice of how they live and work in the world so they are empowered to make informed place-based decisions toward creating a sustainable lifestyle for both themselves and society as a whole (NSW-OE&H 2013). Critically it understands that a focus on both 'inner' and 'outer' dimensions of human development is essential to realize systemic change. In recognizing CWN as a critical component of the 'inner' dimensions, the educational endeavour constantly orients itself toward questions of *how* to motivate and cultivate genuine care, concern and responsibility in taking action for sustainability.

Box 10: 'Resilience' or 'sustainability'?

'Resilience thinking' is becoming increasingly popular. In short, resilience is about ensuring that vulnerable systems - ecosystems, people, communities and organizations - are able to withstand or even flourish in the face of external stressors disturbances or 'shocks' resulting from (social, political and biophysical) environmental change (Shava et al. 2009; Zolli 2013). Three key attributes of social-ecological resilience are the ability to: absorb shock and maintain function; self-(re)organize after disturbance; and build and increase capacity for learning and adaptation (Gunderson & Holling 2001; Shava et al. 2009). Resilience is a compelling aspiration but to suggest, as does Zolli (2013), that we should farewell 'sustainability' in order to welcome 'resilience' appears folly.

We can also ill-afford to take a purely anthropocentric approach to how we define resilience, i.e. a sole focus on imbuing "our communities, institutions, and infrastructure with greater flexibility, intelligence, and responsiveness to extreme events, and at the other centers on bolstering people's psychological and physiological capacity to deal with high-stress circumstances" (Zolli 2013). Real resilience should embody the entire social-ecological spectrum: without resilience in natural ecosystems, we cannot expect resilience in human communities.

Resilience thinking needs to be foundational to sustainability, i.e. understanding that adaptation, mitigation, flexibility and durability - as part of constant cycles of flux and change - are all integral to the sustainability challenge. Some contexts will demand a greater focus on conventional 'sustainability'; others will need to place resilience to the fore. Whilst resilience is not listed in the definitions above (Box 9), this study assumes resilience to be integral to EfS. Indeed, in addressing self, nature and society, EfS should support and strengthen attributes of resilience.

Summary and key messages for Section 2.5

Education for Sustainability (EfS):

- May be used interchangeably with Environmental Education (EE); Education for Sustainable Development (ESD) and Sustainability Education (SE); however, each term is distinctive in its history and application. EfS and ESD are particularly contested in that they may submit to the dominant (neo-liberal) paradigm;
- Has multiple interpretations and meanings and these must be explored in the relevant context;
- Has its roots in EE but is regarded as moving beyond educating *about* the natural environment and the threats posed to it and toward educating *for* the environment as part of a process of equipping people with the knowledge, skills and understanding necessary to make decisions based upon their full environmental, social and economic implications;
- Extends the mission of sustainability and transformation to 'whole-person',' whole-institution' and 'whole-society', with emphasis on participation and collaboration;
- Is a reflexive and contextual practice-oriented process aimed at personal and social change;
- Necessarily addresses values, ethics, attitudes and beliefs as part of a 'moral imperative';
- Aims to make the global context (of social-ecological crises) local, personal and achievable;
- Informs and empowers individuals to allow them to create sustainable lifestyles;
- Recognizes the interconnectedness and complexity of the social-ecological system;
- Is susceptible to losing the concept of 'nature' in terms of embodied direct nature experience;
- Is placed-based and stimulates awareness, collaboration, understanding and action in the local sphere;
- Is a process of fostering learning and promoting change within the individual and across all sectors of society aligned with negotiated and context-specific ideals for sustainability outcomes;
- Understands that attending to the 'inner' dimensions of human development is critical in creating a consciousness motivated to care and act for sustainability.

Image 4: EfS = doing

Our Wildlands Studies (WS) South Africa 2010 program incorporated an activity whereby the tertiary students, after learning the theory and practice of native plant propagation for ecological restoration, were then required to appropriately pass on their newly acquired knowledge to children from neighbouring communities. Such hands-on activities hold value in completing a knowing-doing cycle which not only benefits students' own learning (through the act of teaching) but contributes to society by providing fun (yet often hard-to-access) experiential EE learning for less-privileged youth.

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Even the most detached scientist must begin and end her study in this indeterminate field of experience, where shifts of climate or mood may alter his experiment or interpretation of "the data": the scientist, too, must take time off from his measurements and analyses to eat, to defecate, to converse with friends, to interact straightforwardly with a familiar world that is never explicitly thematized and defined. Indeed, it is precisely from his experience in this preconceptual and hence ambiguous world that an individual is first drawn to become a scientist, to adopt the ways of speaking and seeing that are acknowledged as appropriate by the scientific community, to affect the proper disinterested or objective attitude with regard to a certain range of natural events. The scientist does not randomly choose a specific discipline or speciality, but is drawn to a particular field by a complex of subjective experiences and encounters, many of which unfold far from the laboratory and its rarefied atmosphere. Further, the scientist never completely succeeds in making himself into a pure spectator of the world, for he cannot cease to live in the world as a human among other humans, or as a creature among other creatures, and his scientific concepts and theories necessarily borrow aspects of their character and texture from this untheorized, spontaneously lived experience.

~ David Abram (1996: 33)

3 Methodology and research approach

3.1 Methodology

> *Sometimes I think of it as a form of hygiene. Do your methods properly. Eat your epistemological greens. Wash your hands after mixing with the real world. Then you will lead the good research life. Your data will be clean. Your findings warrantable. The product you will produce will be pure. It will come with the guarantee of a long shelf-life.* (Law 2006: 2)

Positivism, the epistemology spawned by the scientific Enlightenment, conceived the world as inherently mechanistic and the nature of reality as essentially deterministic. In developing rigorous 'scientific rules', positivism implicitly claimed that research mirrored reality and was represented in a 'pure' way - free of research bias, language ambiguity or other threats to its validity (Scheurich 1997; Le Grange 2000). The positivistic epistemology became synonymous with research in the natural sciences, a method which sought causal explanation through 'external' observation. Positivism thus separated and distanced 'subject' from 'object' as a necessary demarcation in order to proceed with scientific method: an ordered neutral process of logical steps aimed at discovering the 'truth' of an object under study (Riley-Taylor 2002). In privileging rationalism and reason as part of a patriarchal view of nature and culture, this accepted approach gradually came to dominate our thinking and 'ways of knowing' the world (Plumwood 1991; Riley-Taylor 2002).

For at least a half-century, combined post-modern work in the social sciences / humanities and natural sciences has called these positivistic assumptions into question since, like the *interpretivism* of the social sciences, they are unavoidably shaped by the theories, concepts, paradigms and worldviews employed by researchers (Kuhn 1962; Lather 1992; Le Grange 2000). Whilst positivism has been philosophically and theoretically rejected as an epistemological doctrine, the legacy of positivist thought continues to dominate scientific attitudes, concepts, methods, practices and the culture of positivism (i.e. norms, values) still orients expectations in academic publishing, research funding and public discourse, whilst marginalizing the social sciences because of perceived incompatibility with scientific formalisms (Howe 1992; Lather 1992; Le Grange 2000; Bradshaw & Bekoff 2001). Despite much progress between the biophysical and social sciences in finding intellectual and methodological common ground, they continue to diverge on a pivotal point: "the relationship between the observer and the observed" (Bradshaw & Bekoff 2001: 461).

We are at a point in human history where we must urgently reflect upon whether this fragmented thinking can serve global society in a way that can sustain ecological integrity and social justice. Current evidence (Chapter 1) suggests otherwise and it is therefore clear that the challenges of the 21st century require us to live differently. To live differently, we must think differently - a link which was equally understood during the Enlightenment. How do we reform or transform remnants of a positivist culture which no longer adequately serves a rapidly changing world? The time appears ripe for a 21st century Enlightenment that would champion a new form of humanism - a *humanness* - which, in celebrating the human-nature

experience, cultivates purpose, passion, intellectual and creativity ability, empathy, self-aware autonomy and meaningful *participation* within interconnected social-ecological systems (Le Grange 2011a; Taylor 2010).

Methodology and *method* are inseparable from these aspirations. *Methodology* is a philosophical positioning, theory of knowledge and interpretive framework that guides a particular research process whilst *method* refers to the set of tools and techniques used for gathering evidence as part of a systematic enquiry within a given discipline (Harding 1987; Le Grange 2000: 192). Rather than method being accepted as part of an epistemology aimed at understanding reality in a particular (scientific) way, it has instead often become a worldview for accepting what is 'real'; i.e. an *ontology* defining one's (default) perception and experience of the world or, simply, 'a way of being' (Law 2006; Sheldrake 2012). This view permeates the traditional methods found in prescriptive scientific textbooks which, as 'a form of hygiene', tries to sanitize a world which is inherently messy, complex, textured, emotional and constantly changing (Law 2006). Manipulating the phenomena of interest in an attempt to simplify reality though abstraction does not change the reality of an incoherent world (Le Grange 2010). The challenge for evolving method is to find more naturalistic and integrated ways of capturing the complexity in real world settings rather than reducing reality to simple components in the belief that, with knowledge of the parts, we can infer understandings of the whole. How might we re-imagine a methodology and method capable of precipitating a 21st century Enlightenment?

The answer, in part, requires opening up to different ways of knowing and to embrace uncertainty about what is 'known'. The decline of absolutes in the post-modern era challenges ideals of what constitutes scientific knowledge and deconstructs existing representations of social reality (Le Grange 2000). As a result, we require methods that give voice to other forms of knowledge and versions of reality, which may otherwise be marginalized under the dominant paradigm (Hargreaves 1994; Le Grange 2000). We need embodied, as opposed to only empirical, method. With embodiment, the researcher arrives at more participatory ways of knowing. This requires the full use of sensory capabilities *alongside* the usual reliance on knowledge produced though observation, logic and deduction. If we seek an Enlightenment where celebrating a new 'humanness' is our goal, we need to employ (and, where necessary, courageously create and craft) methods which deliver incisive and illuminating interpretations of what it means to *be* human across diverse contexts. This requires engaging and integrating with the *human sciences*, alongside the natural and social sciences. Clearly, this implies a paradigm shift.[48] This is not to suggest we discard established method or dwell on well-worn dichotomies and dualisms (e.g. positivist vs. interpretivist). Rather, in looking to integrate and transcend accepted ways of knowing and doing, we may surpass our own histories, discourses and assumptions to enter an age of post-paradigmatic and enlightened research.

[48] *Paradigm* was popularized by Thomas Kuhn (1970) to refer to a distillation of broad conceptual and methodological presuppositions (i.e. sets of beliefs, values and assumptions) which include, but are not limited to beliefs (ontological epistemologically, axiological, aesthetic and methodological) that a scientific community of researchers have in common which are embodied in their standard examples of 'normal science' and which exercise a significant influence on the way a specific scientific community defines what are legitimate questions to ask, what types of explanation are sought and what types of solutions are considered acceptable (Lincoln & Guba 1985; Johnson & Onwuegbuzie 2004; van Breda 2008). Paradigms appear as a form of sub-culture; our actions cannot proceed independently without them.

3.1.1 Human sciences

> *…all insight into the relations between man and the environment is grounded in experience.*
>
> (Lowenthal & Prince 1976: 119 in Morse 2011: 57)

Creswell (2007) recommends situating research within a philosophical and methodological framework (Figure 6). These distinctions are clarified in the sections that follow. For this research, phenomenology largely orients those frameworks. Whilst depicted as a qualitative and analytical (and thus methodological) approach (Figure 6), phenomenology also carries an overarching philosophy which, in the context of this research, is believed to preserve the integrity between the research questions, my own background and the intended contribution of the research project (Morse 2011).

Phenomenology, as an approach sensitive to lived and meaningful experience, falls squarely in the domain of the human sciences (van Manen 1990). *Human science* aims at explicating the meaning of human phenomena and an understanding of lived structures of meaning (van Manen 1990). The distinction between the human and natural sciences is often attributed to Wilhelm Dilthey [49] who, at the risk of oversimplifying his detailed exploration, differentiated *natural sciences* as studying 'objects of nature', 'things', 'natural events', 'the way objects behave' (in e.g. physics, chemistry) and *human sciences* as studying 'persons' or beings that have 'consciousness' and that act purposefully with sovereignty and responsibility in the world by creating objects of meaning that are expressions of how we (as human beings) exist in the world (in e.g. history, law) (van Manen 1990).

The natural sciences is usually linked to a positivist paradigm which, as outlined, privileges the production of knowledge and an objective 'truth' of which we can be 'certain', i.e. that which can be directly verified through the senses or logically deduced from pre-existing knowledge (Morse 2011). There tends to be a sometimes radical separation between the researcher and the 'object' in order to derive one objectively knowable reality (Morse 2011). This way of knowing, whilst beneficial in certain contexts, is not always applicable in the study of human phenomena, such as perception and experience, whereby both the observed phenomena and the observer are changing from moment-to-moment.

The human sciences, in contrast, questions whether the researcher can legitimately stand separate from the research, at risk of limiting openness and understanding of the phenomena which one is studying – particularly where meaning-making and emotion are involved (Patton 2002; in Morse 2011). In looking through the eyes of the experiencer, human sciences seek to question the way we experience the world, describe how one orients to lived experience and interpret the 'texts of life' (van Manen 1990).

[49] German historian, psychologist, sociologist and hermeneutic philosopher (1833 - 1911) who was concerned with establishing a comprehensive theoretical and methodological foundation for the human sciences (*Geisteswissenschaft*) (http://en.wikipedia.org/wiki/Wilhelm_Dilthey , *retrieved18 June 2013*).

In acknowledging that both the natural and humans sciences have their place, this research has attempted to blend both approaches within a largely interpretative and pragmatic framework (Figure 6). This approach implicitly recognizes that hyper-objectivity can be misleading and, further, that being the subject, observer and experiencer can lead to unique insights not afforded through conventional dualisms (H. Spencer pers. comm.). The research indeed explores how natural (human) objects behave and how natural events affect that behaviour, but equally complements that with understandings of how people, through consciousness, create objects of meaning as expressions of their existence in the world.

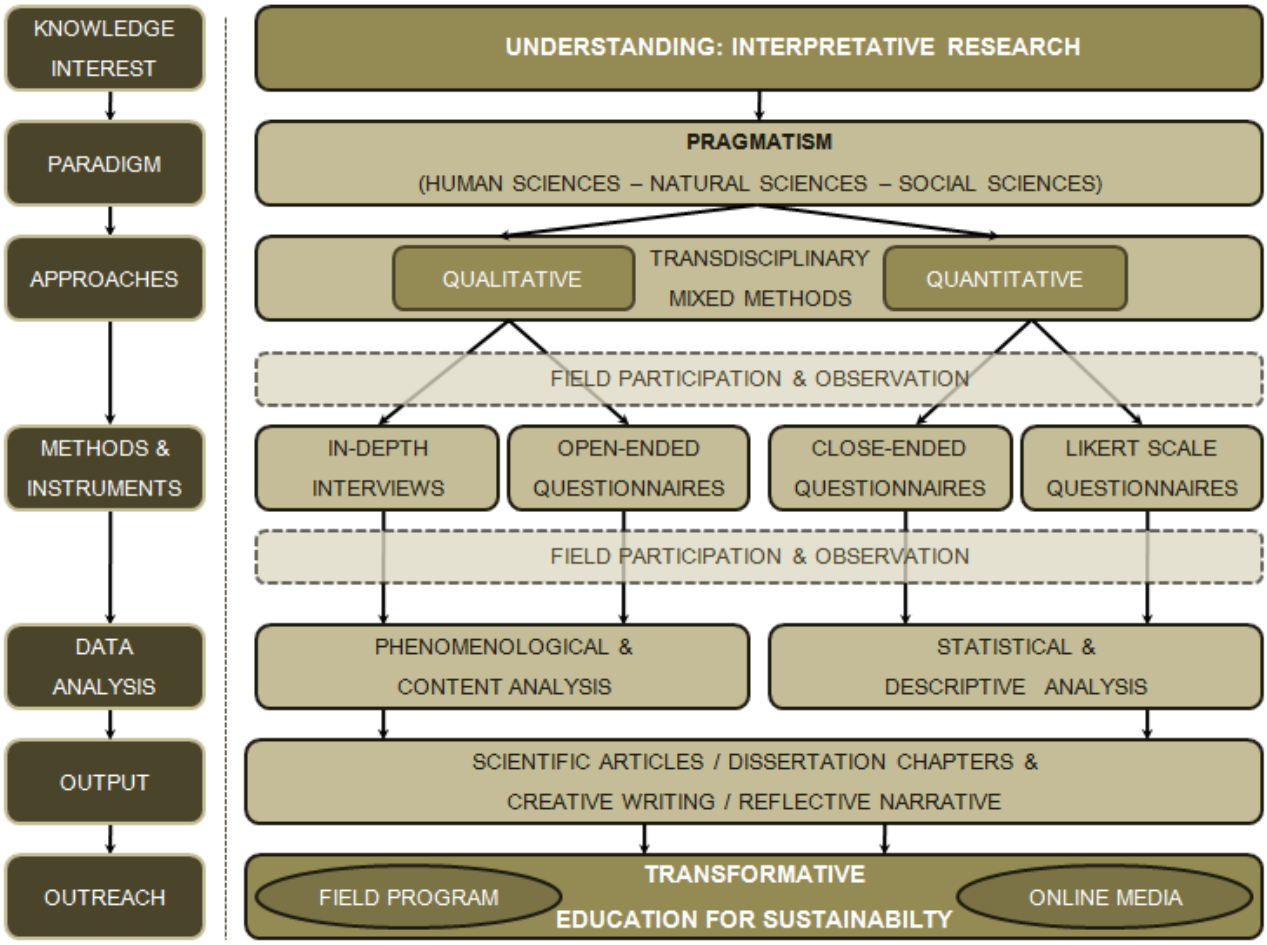

Figure 6: Methodological framework guiding the overarching research approach

3.1.2 Philosophical underpinnings, assumptions and paradigms

3.1.2.1 Knowledge interest, underpinnings and assumptions

The knowledge interest for this research is *understanding* (from the four 'primary interest' knowledge categories of prediction, understanding, emancipation, deconstruction (Habermas 1972; Lather 1992; Le Grange 2000) and is characterized by interpretivist, hermeneutic, naturalistic constructivist, ethnographical and phenomenological approaches (Le Grange 2000). The purpose is to understand the research subjects' lived experiences of nature and, as a secondary aim, my own lived experiences within that process (Le Grange & Beets 2005). As Weber and other philosophers have noted, understanding (*Verstehen*) is inseparable from interpretation because it is guided by the researcher's desire to understand (and therefore

interpret) reality (Bhattacharya 2008). In line with these hermeneutic underpinnings, the main purpose of this study is to pursue understanding in terms of meaning-making, as opposed to explanation (Bhattacharya 2008). This research acknowledges the following philosophical underpinnings and assumptions:

Ontological: Reality does not just exist 'out there': the researcher and research participants hold multiple different *realities* of varied meanings based on subjective experiences in *mindscape* and social constructions in *powerscape* (Moustakas 1994; Lotz-Sisitka et al. 2013). Following Husserl's concept of *intersubjectivity* (as part of his broader conceptions of phenomenology (Section 3.2), two distinct regions of the experiential field are said to exist (Abram 1996):

i) Phenomena that unfold entirely and only for the observer and;
ii) Phenomena that are experienced by other embodied subjects as well as by the observer.

The latter can be understood as *intersubjective* phenomena – that which is experienced by a multiplicity of sensing objects (Abram 1996). Husserl's notion of *intersubjectivity* presented a new interpretation of the subjective world and, in contrast to conventional distinctions of 'subjective' and 'objective' realities, allowed it to be reframed within the context of the subjective field of experience itself: a contrast between *subjective* and *intersubjective* phenomena (Abram 1996). This research also aligns itself with Naess' 'gestalt ontology': 'reality' is unified but multidimensional, creative and open to multiple interpretations based on the changing ways individuals organize or pattern their world according to their experiences (Drengson in Naess 2008).

Epistemological: Knowledge is subjective and different people experience different, multiple realities. A 'coming to know' is based on what is experienced and constructed through interactions between the researcher and research subjects (Lotz-Sisitka et al. 2013). The researcher comes to know through *observer intersubjectivity* whereby knowledge is produced as a result of interaction between subjects, i.e. the researcher subjectivity meets the subjectivity of the research subject (Le Grange 2010). The knowledge is the meaning which emerges from collective subjective experiences and therefore has more objectivity than personal experiences alone. This assumption also demands that, in a qualitative research context, that researchers try to get as close as possible to the (perspectives of) the participants being studied (Creswell 2007), as opposed to predictive/positivist approaches which expect the researcher to 'objectively' distance and separate themselves from the subject. The research is value-laden: in order to limit influence from the researcher's own values and beliefs, the phenomenological approach (Section 0) includes a process called *bracketing* which is an active and transparent process of suspending certain things (e.g. judgements, biases, personal histories) at stages of the research process so as to better arrive at an intersubjective objectivity (Section 1.3). This process fits well with and tends to characterize hermeneutical research.

Methodological: Methodology aims to identify and analyse individual constructions and interpretations of reality and to recognize patterns and commonalities in the field of experience (Lotz-Sisitka et al. 2013; Appendix 9.1.2). A *mixed methods* approach is employed. For the qualitative dimensions, interactional phenomenological methods are employed with the purpose of producing thematic commonalities,

narratives and rich descriptions. For the quantitative dimensions, key variables are included in the study frame with the purpose of producing statistical data for descriptive, inferential and inductive reasoning.

In a post-modern or post-positivism context, it is increasingly understood that research - and each and every observation therein - is always influenced assumptions, suppositions and inferences (Johnson & Onwuegbuzie 2004; Le Grange 2000; 2010). Our reality is framed by a lens tinted according to an array of past and present internal and external factors, e.g. beliefs, theories, knowledge, social norms and personal experiences. In this respect, we must accept that observation alone is not a perfect and direct window into reality (Johnson & Onwuegbuzie 2004): any view on reality is always contested and can rarely proclaim to be an ultimate and absolute 'Truth'. At best, it forms a partial, relative, contested and provisional 'truth' as we understand and live by at this point in time. It is a (lowercase) 'truth' which, like reality itself, is impermanent and shaped by experience and experimentation (Hart & Goenka 2004; Johnson & Onwuegbuzie 2004). The observed phenomena are not the same from moment to moment and the observer, with their own psychological reality (*mindscape*), are also changing (Le Grange 2010).

> *Ask a scientist what he conceives the scientific method to be and he will adopt an expression that is at once solemn and shifty-eyed: solemn, because he feels he ought to declare an opinion; shifty-eyed, because he is wondering how to conceal the fact that he has no opinion to declare.* (Medawar 1969: 11)

3.1.2.2 Pragmatism as a post-paradigmatic approach

In acknowledging provisional truths and relative (inter)subjective realities, this study's philosophical and (post) paradigmatic approach falls within as the domain of *pragmatism* (Box 11). Following Johnson & Onwuegbuzie (2004: 18) research which adopts a pragmatic philosophy has, at its core, the aim:

> to find a middle ground between philosophical dogmatisms and skepticism and to find a workable solution (sometimes including outright rejection) to many longstanding philosophical dualisms about which agreement has not been historically forthcoming.

Pragmatists place a "high regard for the reality of and influence of the inner world of human experience in action" whereby it follows that "knowledge is viewed as being both constructed *and* based on the reality of the world we experience and live in" (Johnson & Onwuegbuzie 2004, [*emphasis in original*]). Pragmatists understand that 'truth' is transient, temporary and varies in its degree of truthfulness and that research always occurs in a human context influenced by social, cultural, historical and political factors (Creswell 2007). Therefore, the defining characteristic of pragmatism is that it shies away from embracing knowledge as being an 'absolute truth' (i.e. the way things really are) and instead judges findings / knowledge according to its internal coherence, accessibility and usefulness in addressing practical challenges (Johnson 1996).
Similarly, pragmatism rejects traditional dualisms (e.g. rationalism vs. empiricism, Platonic appearance vs. reality, facts vs. values, subjectivism vs. objectivism) and prefers more moderate and commonsense versions of philosophical dualisms based again on their problem-solving potential (Johnson & Onwuegbuzie 2004).

Of particular relevance to this research is that pragmatism recognizes the existence and importance of the natural or physical world (*matterscape*) as well as the social world that includes language, culture, institutions (*powerscape*) and the inner psychological world of subjective thought (*mindscape*) (Johnson & Onwuegbuzie 2004). Pragmatists place a "high regard for the reality of and influence of the inner world of human experience in action" whereby it follows that "knowledge is viewed as being both constructed *and* based on the reality of the world we experience and live in" (Johnson & Onwuegbuzie 2004: 18). Pragmatists maintain a level of freedom in selecting the methods to best meet their research needs (Montpetit 2009) and agree that research always occurs in, e.g. social, historical and political contexts (Creswell 2007). Pragmatic research therefore moves from being a systematic inquiry made public to value-laden inquiry whereby results made public may be similarly subject to multiple interpretations and alternative explanations. The resulting knowledge is based on both being constructed and based on the world we live in (Johnson & Onwuegbuzie 2004) (
Box **11**). As will be later demonstrated, phenomenology - and the way in which it critically explores the content of consciousness - illuminates understanding that reality is a child of social interpretation / construction and individual perceptions / beliefs (Wells 2000).

Box 11: Core traits of pragmatism

- Finds the middle-ground between dogmatisms and scepticisms;
- Finds workable solutions to pervasive dualisms (e.g. rationalism vs. empiricalism; facts vs. values; subjectivism vs. objectivism) existing in recognized social, historical and political contexts;
- Practices strong empiricism in finding 'what works' in problem-solving;
- Practices action instead of only philosophizing;
- Remains uncommitted to one system of philosophy and reality;
- Remains moderate and commonsensical in chosen philosophy;
- Maintains a level of freedom in method selection and data analysis that best meet purposes;
- Maintains focus on the "what" and "how" of the research based on its intended consequences.

(Johnson & Onwuegbuzie 2004; Creswell 2007)

Pragmatism has a number of potential shortcomings – some accurate and others potential misconceptions. Concerning the latter, pragmatism is sometimes portrayed as "a kind of black hole in the philosophical universe" because it is defined by the counterweight of its anti-theoretical teachings rather than the weight of its theories (Wells 2000: 347). Three potential misconceptions of pragmatism include that it:

i) is banal in that it only advocates continuation of commonsense practices;
ii) is overly relativistic in that it reduces everything to viewpoint and perspective; and
iii) undermines idealism since it does not help people to lead morally better lives (Wells 2000).

In this regard, Wells (2000: 347) recommends that (the various forms of) pragmatism "must be read in the context of the practices that generate it and the goals it serves." However, there are additional, and possibly more valid, criticisms of pragmatism. Firstly, in moving away from perceived 'dogmas', pragmatists may believe that their relativism absolves them of making clear metaphysical claims when in fact it often means that controversial metaphysical claims are 'smuggled' into their definitions and approaches (Johnson 1996). Secondly, it may fail to specifically address the question 'for whom is the pragmatic solution useful?'

(Johnson & Onwuegbuzie 2004). This also hints at a deeper underlying issue in that even those persons (e.g. scientists) who proclaim to seek an absolute truth for its own sake are likely to still (pragmatically) behave in a way which furthers personal or institutional interests (Johnson 1996). Thirdly, and closely linked to the three misconceptions above, is that pragmatism may tend to promote incremental change (commonsense practice) as opposed to structural or revolutionary societal change (as a form of idealism) (Johnson & Onwuegbuzie 2004). Finally, the idea of 'what works' may be vague unless explicitly addressed (Johnson & Onwuegbuzie 2004). This fuels the critique that 'pragmatism doesn't work' since a philosophy that only deals with means without being able to say anything about the ultimate ends is claimed to be inadequate (Johnson 1996). As Johnson (1996) asks: "Who wants to rely upon people who think that the only truth is that we should employ the most effective means to get whatever it is we happen to want?"

Pragmatists would contend that this is an unfair oversimplification of what pragmatism strives to achieve. It does not seek to argue *against* evidence, knowledge or truth but instead only allows a tentative 'epistemic worth' to these and tempered also by the extent to which the evidence, knowledge or truth has value in serving society (as opposed to being isolated 'facts') (Wells 2000; IS 2012). Rather than elevating 'action' over 'thought', pragmatism instead promotes a degree of economy to the process of knowing: utility, usefulness, meaningfulness as encouraged through 'learning by doing' as one of its defining virtues (IS 2012).

Morgan (2007) defines the pragmatic approach as way of guiding methodology in the social sciences. In this approach, methodology is conceived as being at the centre of an approach which connects issues at the abstract level of epistemology (e.g. reconciling paradigmatic differences) and the mechanical or procedural level of actual methods as follows: epistemology ⇔ methodology ⇔methods (Morgan 2007; Teddlie & Tashakkori 2010). Morgan (2007) also provides an organizational framework for understanding how this pragmatic approach can resolve key methodological issues (Table 8).

Table 8: A pragmatic alternative to key issues in social science methodology (from Morgan 2007: 71)

Type of Experience	*Qualitative Approach*	*Quantitative Approach*	*Pragmatic Approach*
Connection of theory and data	Induction	Deduction	Abduction
Relationship to research process	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

Traditional research methodology texts assert the connections between theory and data as the key distinguishing factor between qualitative and quantitative research (Morgan 2007). Whilst providing helpful instruction to beginners, such a pure distinction is far from reality; a pragmatic version recognizes that *abductive* reasoning – moving between induction and deduction – is far more realistic (Morgan 2007). Similarly, pure subjectivity and objectivity is a theoretical basis which is far-removed from the actual practice of *intersubjectivity* which demands that researchers work with both approaches interchangeably (Morgan 2007). Finally, a pragmatic approach invites the researcher to explore which knowledge gained is transferable to other settings, as opposed to remaining fixed to inferences which must either be classified as generalizable or context-dependent (Morgan 2007).

3.1.2.3 Mixed methods research

Mixed methods research (MMR) is therefore best suited to a pragmatic approach (Johnson & Onwuegbuzie 2004; Creswell 2007)[50]. Whilst difficult to define, MMR is generally used to refer to the use of qualitative and quantitative techniques (Box 12) in a single study across the entire research (i.e. data collection, data analysis and during the integration of results) and whereby the use of both quantitative and qualitative approaches provides data and insights that would otherwise likely be unobtainable with a single approach (Tashakkori & Teddlie 2010). In other words, MMR can provide deeper understandings and meanings underlying the theme at the centre of the study (e.g. experiences, behaviours) as well as potentially allowing for stronger inferences to be drawn from the data.

A quality MMR study / approach emphasizes the formulation stage of the research process and the need to make philosophical assumptions and theoretical frameworks explicit as well as performing an appropriate literature review which has led to the development of the research questions (Mertens 2010; Onwuegbuzie & Collins 2010). The rationale and implications of using MMR in the study and, specifically, which methods are employed where, when and why – both in answering the research questions and throughout the research process - need to be made clear (Mertens 2010).

For this study, the research questions demand use of both qualitative and quantitative inquiry (Box 12). Primarily, in moving from understanding the essential nature of MNE (qualitative) to its links with CWN (primarily quantitative) and toward perceptions and outcomes related to ERB (qualitative and quantitative), IAS (primarily qualitative) and EfS (primarily qualitative), there is a constant need to weave approaches in order to compose a more comprehensive and robust picture concerning MNEs and their implications.

Of the six primary categories of MMR design (see Creswell et al. 2003), this study draws on *concurrent triangulation design*: quantitative and qualitative data are used simultaneously collected during one data collection phase whereby the results from the two methods are integrated during the interpretation phase, with the purpose to highlight how the results support or differ from each other. Whilst equal weight is given between the two methods, for this study the volume of qualitative research tends to give it priority – also because it served as both exploratory (e.g. Section 5.2) and confirmatory (e.g. Section 5.1) research.

In using MMR as part of a pragmatic approach, the researcher is inevitably drawn outside of – or transcends – existing paradigms and must therefore find ways of reconciling potentially incompatible ontologies and epistemologies. Whilst these may not be resolvable within a single study, the researcher must always reorient himself with the intention of finding which combinations of methods allow a particular research question to be best answered. In the interim – and until epistemological divides narrow -– the researcher needs to be 'trilingual' (in speaking quantitative, qualitative and MMR languages) in order to converse across methodological boundaries and make them more permeable in the process (Teddlie & Tashakkori 2010).

[50] It is debatable whether mixed methods entirely suits a transdisciplinary approach (Section 7.1)?

Naturally, limitations of MMR remain. In endeavouring to give equal weight to quantitative and qualitative phases (within a single study), the most commonly cited constraints of various MMR approaches concern feasibility in terms of limitations of time, resources and expertise, i.e. is the researcher capable of applying selected approaches, interpreting the findings and has the ability to suitably harmonize, analyze, compare and integrate results from disparate quantitative and qualitative approaches (Creswell et al. 2003)?

Box 12: Distinguishing between quantitative and qualitative inquiry

As part of MMR, this research combines what is traditionally regarded as qualitative and quantitative scientific inquiry: *Qualitative research* explores the human dimensions of a topic, using specific and tailored methods designed to examine how people see and experience the world (Given 2008). Qualitative methods are best for addressing the 'why' questions which constitute a research project, e.g. why a certain behaviour occurred (Given 2008). Qualitative approaches are usually used "to explore new phenomena and to capture individuals' thoughts, feelings, or interpretation of meaning and process" (Given 2008: xxix). Qualitative research emphasizes research design and begins with

> …assumptions, a worldview, the possible use of theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to social or human problem (Creswell 2007:37).

Quantitative research aims to explain to explain a phenomenon by producing numerical data that can be analysed using mathematical and statistical-based methods (Muijs 2004). Quantitative research is generally more suited to examining 'who' and 'what' questions, e.g. who engaged in a particular behaviour, what happened and was it effective (Given 2008). Quantitative approaches can be used to cross-check findings elicited in through qualitative research by e.g. measuring attitudes on a Likert scale. Muijs (2004) notes that many researchers take a pragmatic approach toward research and use quantitative methods to answer research questions in what may be a primarily qualitative domain. This may be done under the pretext that 'hard' quantitative data will appear more robust in the scientific domain. Creswell (2007) sees it otherwise:

> Qualitative inquiry represents a legitimate mode of social and human science exploration without apology or comparisons to quantitative research (Creswell 2007: 11).

Given debates over what may be classified as qualitative and quantitative research, one should caution against making demarcations which portray them as mutually exclusive (Le Grange 2000). Qualitative and quantitative approaches have epistemological roots in the positivist-interpretivist split and have therefore come to be defined or differentiated along those lines (Le Grange 2000). In making a literal (i.e. concerning data production, research design and analysis techniques) and derivative distinction (i.e. concerning underlying epistemological assumptions), Le Grange (2000) shows the traditional qualitative-quantitative demarcation to be problematic. In short, the literal distinction highlights the fact that, e.g. questionnaires (traditionally regarded as quantitative) can include both open (qualitative) and close-ended questions (quantitative).

Similarly, quantitative research nowadays includes psychometrics, attitudinal measures and case studies, meaning that a single method cannot be split into two 'camps' *a-priori* but rather used and defined in different ways to produce different types of qualitative and quantitative data (Le Grange 2000; 2010). The derivative distinction highlights the perceived incompatibility of positivist and interpretivist epistemologies (and therefore quantitative and qualitative approaches) but argues that this is only a valid dichotomy if one accepts positivism as a tenable epistemology (which, as argue, it is not) and embraces interpretivism in a very narrow and thus non-pragmatic way (which this study aims avoid) (Le Grange 2000). It is therefore advisable to use 'quantitative' and 'qualitative' when referring to the data (analysis) and not the epistemology (paradigm) or method(ology) (Le Grange 2000; 2010). Ultimately, the research question(s) should guide the choice of methods. True pragmatism recognizes this and, as a post-paradigmatic approach, presents itself as a suitable philosophical grounding for transdisciplinary research.

3.1.3 Theoretical underpinnings: transdisciplinarity and complexity theory

3.1.3.1 Transdisciplinarity

> *No scientific community…nor even a given research joint venture will be able to canonize one particular understanding of transdisciplinarity. On the contrary, such a result will only be reached, if at all, through a long process of creating a common understanding, a process that will require as its precondition building a tradition of transdisciplinary research and establishing better institutionalization. This process cannot be steered; it is evolutionary and requires time.* (Jahn 2008: 2)

The notion of *transdisciplinarity* underpins this research and hence its inclusion within Stellenbosch University's *Transdisciplinary Doctoral Programme of Sustainability*. The aim is therefore not to undertake an extensive review of transdisciplinary literature in an attempt to "canonize one particular understanding" (cf. Jahn 2008). However, given that many and various interpretations of transdisciplinarity can be found in literature, it is necessary that transdisciplinarity, as it is employed in this research, is expounded here.

Firstly, it is important to acknowledge the need for transdisciplinarity in this research context. The reasons are numerous but are primarily linked to shifting understandings of the:

- Subject-object relationship and thus the human relationship with the natural world;
- Complexity of societal problems and the inability to solve these at the speed required through mono-disciplinary approaches, or even through science alone;
- Need to engage and empower diverse stakeholders through participatory approaches;
- Role of science in a pluralistic society of contested norms, values and beliefs; and the
- Role of education in adequately preparing learners in a rapidly changing society characterized by increasing integration, collaboration and creativity.

Transdisciplinarity therefore begins to breakdown rigid classical thought systems by sensing complexity, recognising unity in diversity and remaining open to multi-dimensional and multi-referential realities (Nicolescu 2002). Allen (2001: 29) reflects on past and prevailing paradigms in that "each discipline takes partial and particular view of a situation, and in so doing promotes analysis and expertise at the expense of the ability of integration, synthesis, and a holistic view." It also often comes at the expense of practical, implementable and empowering solution-oriented research:

> …a narrowly disciplinary or academic mode of research cannot deal adequately with the problems that are facing us…[and]… is no longer held to be appropriate by the numerous societal actors affected (including many societal policy makers) as a means for finding solutions to the problems facing society (Jahn 2008: 3).

The complex social-ecological systems problems of the 21st century cannot be approached from within the confines of single disciplines (van Breda 2008). A transdisciplinary approach may be conceived as a coordinated interdisciplinary process oriented toward society which, somewhat paradoxically, "has freed itself from disciplinary boundaries, defining and solving its problems independently of any discipline" (Mittelstraß 1998: 44 in Jahn 2008). Transdisciplinarity moves outside of disciplinary thinking and therefore

becomes more than the sum of its underlying disciplines (Reyers et al. 2008) (Figure 7). This resonates with Naess' idea of a 'total view' – a response to the environmental crisis which goes beyond relying upon (technical) forms of knowledge in specialized Western disciplines and instead recognizes the values, motives and possibilities infusing personal, social and cultural contexts (Drengson in Naess 2008). Transdisciplinarity therefore aims to drive scientific progress within the new areas it opens up through integrated and participatory approaches which ultimately provide useful social interventions (Jahn 2008).

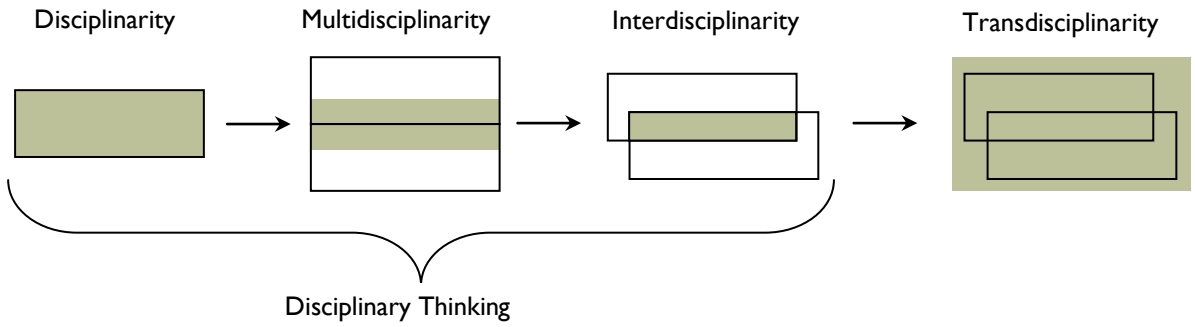

Figure 7: The continuum of the discipline (Ramadier 2004 in Reyers et al. 2008: 143)

It is important to note disciplinary and transdisciplinary thinking are complementary and both have their place, role and function to fulfil:

> Disciplinarity, multidisciplinarity, interdisciplinarity, and transdisciplinarity are like four arrows shot from but a single bow: knowledge (Nicolescu, 2002: 46 in van Breda 2008: 39).

Nicolescu's quote could be amended to suggest that transdisciplinarity can and should *also* be 'shot' from another complementary bow: *action*. Understandings of transdisciplinarity may be expanded through insight into what the practice aims to achieve. Lawrence and Depres' (2004) list of shared aims are helpful to this endeavour since transdisciplinary studies:

- Tackle complexity (Section 3.1.3.5) and reject the fragmentation of knowledge;
- Accept local context and uncertainty;
- Rely on close collaboration and communication during all phases, working across disciplines and knowledge systems; and are
- Action-oriented, making linkages between science and practice, generating knowledge on societal problems and their solutions (Reyers et al. 2008: 143).

Max-Neef's (2005) exploration of transdisciplinarity provides additional depth of understanding for how it can be contextualized for this research. Whilst Max-Neef (2005: 5) does not attempt to provide an explicit definition of transdisciplinarity, he conceptualises it as being

> …an epistemological challenge that introduces a kind of quantum logic, as a substitute for linear logic, and breaks with the assumption of a single reality).

Max-Neef (2005) sees transdisciplinarity as being the result of coordination between (cross-sectoral) disciplines which can be classified on different levels according to their purpose: *empirical level* – what exists (i.e. biology, chemistry, geology); *pragmatic level* – what we are capable of doing (i.e. engineering,

architecture, agriculture, medicine, forestry); *normative level* - what we want to do (design (of social systems), politics, (environmental) planning, law); and finally the *value level* – what we must do (ethics, philosophy, theology), with the purpose of each level being to help define the next level.

Transdisciplinarity is therefore understood as existing on a continuum whereby *weak transdisciplinarity* employs traditional methods and logic and *strong transdisciplinarity* challenges traditional binary and linear logic by delving deeper into realms of reality (e.g. quantum) and complexity, yet simultaneously recognizing the value of rational and relational (e.g. intuitive, emotional, experiential) modes of reasoning (Max-Neef 2005). It recognizes that the laws of a given reality are not sufficient to describe the totality of the phenomena occurring at the same level (Nicolescu 2000 in Max-Neef 2005), but that the different levels of reality are accessible to human knowledge through different levels of perception (Max-Neef 2005). It is an alternate yet complementary way of seeing the world – a view that is more systemic, holistic and fosters understanding as opposed to simply the production of knowledge. It is a view which is supported by three fundamental characteristics of 'transdisciplinary attitude': rigour; openness and tolerance (Nicolescu 2002).

Max-Neef's (2005) work is useful in conceptualizing how a paradigmatic shift might appear. Nevertheless models can only simplify a complex reality. In this sense, we must remain attentive to the fact that Max-Neef's model is also formed through a Western scientific lens and might neglect 'other ways of knowing', e.g. Indigenous knowledge. This said, Max-Neef (2005) does suggest that the *value level* which asks "how should we do what we want to do?" aims at generations to come, at the planet as a whole and at an economy designed as if people matter. In this respect, it embodies a global concern for the human species and life in general where the organizing language is a form of deep ecology (Max-Neef 2005). This approach may therefore implicitly recognize other worldviews and value systems which may be valid in realizing transdisciplinarity as well as sustainability.

Transdisciplinary research engages the traditional criteria of scientific objectivity within technical disciplines alongside the subjective, normative domains in which societal values and ethics are expressed (Max-Neef 2005; Jahn 2008). Its core assumption is that research questions need to be framed according to life-world problems rather than disciplinary frameworks (Kueffer et al. 2007). Bridging the divides between the normative and scientific domains, collaborating across scientific disciplines and integrating knowledge from heterogeneous sources, the relevance of transdisciplinary research to societal problems, values and beliefs is enhanced (Kueffer et al. 2007; Audouin et al. *in prep*). With transdisciplinary research contributing to and being influenced by both its academic and life-world contexts, there is greater likelihood that such research will be effectively used in stakeholder decision-making and implementation (Kueffer et al. 2007; Audouin et al. *in prep*). Transdisciplinarity is therefore essential to sustainability science (Burns & Weaver 2008).

3.1.3.2 Transdisciplinary research and sustainability science

> *Universities have departments, the real world has problems.* (Bozeman & Crow 1990 in Pohl 2011)

Since overcoming "disciplinary divides" appears necessary for solving present-day societal problems (van Breda 2008), transdisciplinarity is therefore embedded in sustainability science. Whilst the widely accepted meaning of 'science' tends to be closely aligned with the paradigm of natural sciences, the transdisciplinary aspects of research for sustainability necessarily encompass the social sciences and humanities as well as the participation of societal actors (Hirsch Hadorn et al. 2006). These complementary knowledge bases provide qualitative approaches which facilitate understandings of the diverse views and practices held in society in order to develop knowledge of an issue (Hirsch Hadorn et al. 2006). In other words, transdisciplinarity addresses disparate knowledge demands in order to respond to complex societal problems and concerns (Hirsch Hadorn et al. 2006). Transdisciplinary research is therefore a solution-oriented social process: a bottom-up approach that makes the values and norms in society and science explicit, negotiable and gives meaning to the knowledge produced by science to support problem-solving (Hirsch Hadorn et al. 2006).

Action research is one manifestation of a transdisciplinary approach. It strives to integrate theory and practice for mutual benefit, such that the research itself becomes a reflective process of progressive problem-solving (Wikipedia 2009). Action research comes from an understanding that knowledge is gained through action and for action, with the scientific endeavour focused on developing genuinely well-informed or transformative - action (Reason & Torbet 2001). However, researchers must be mindful of: i) allowing the research questions to become too loose as part of a "let's wait and see how this turns out" approach; ii) pleading a cause in a way that impedes openness and uptake of opinions that conflict with one's own; and iii) unsettling vested interests which may, in turn, try to 'hit back' to discredit the research (Naess 2008).

This task therefore calls upon the researcher to open to multiple perspectives on reality, multiple actors within reality and an appreciation that they may all provide some truth or part solution to the bigger question at hand. This may require the researcher to take on the role of 'enabler' in order to facilitate shared learning, help persons transcend disciplinary barriers and fixed worldviews and to foster greater appreciation for how epistemological boundaries can constrain understandings of social-ecological complexity (Waltner-Toews et al. 2003; Naess 2008). Such an approach begins to step up to the challenge of transdisciplinarity as a three-step shift from:

i) Science as curiosity-driven only discipline; to
ii) Science as a simple research process which provides a solution; to
iii) Science as a social process resolving a problem through participation, mutual learning and stakeholder empowerment (Walttner-Toews et al. 2003; Hirsch Hadorn et al. 2006).

As Funtowicz et al. (1998: 104) state:

> The objective of scientific endeavor in this new context may well be to enhance the process of the social resolution of the problem, including participation and mutual learning among stakeholders, rather than a definitive 'solution' or technological implementation. This is an important change in the relation between the problem identification and the prospects of science-based solutions.

In this regard, it is necessary to employ frameworks and methods which attempt to overcome - or at least address - epistemological and ethical conflicts, high levels of uncertainty, diverse perceptions and the growing sense of urgency that 'something needs to be done' (Waltner-Toews et al. 2003). This means finding ways to make sense of multiple types of information and to synthesize it into a narrative which can be used as a basis for decision-making and action (Waltner-Toews et al. 2003).

An increasing number of real-world examples highlight how transdisciplinary approaches can make tangible contributions toward solving societal problems (e.g. see Bergmann & Jahn 2008; Brown et al. 2013 and Haire-Joshu & McBride 2013). Internationally, the Swiss Federal Institute of Technology Zurich (ETH) has been a leading proponent and innovator of transdisciplinary case studies across fields ranging from river restoration to sustainable agriculture and from transport solutions to radioactive waste disposal [51]. Locally, Stellenbosch University's involvement in the Enkanini settlement case study illustrates transdisciplinarity in action (e.g. Keller 2011; Von Der Heyde 2014). However, these examples seem to differ from this study in: i) usually being collaborative (team) efforts as part of a broader research project; and ii) adhering less to the transdisciplinary philosophies of Max-Neef (2005) and Nicolescu (2002: 68) (and from which this study draws inspiration) that are more forthcoming in acknowledging other 'ways of knowing', e.g. creative arts, intuition, imagination and the role of 'the sacred' as an "integral part of a new rationality". Locating case studies that make such elements explicit is difficult, although a current ETH project investigating Indiengous Mayan concepts of cancer and its diagnosis and treatment wikk seemingly tap into 'other ways knowing'.[49]

In adopting transdisciplinarity approaches, one needs to avoid becoming lost in diversity, complication and variability: researchers must instead learn how to focus on selected problems that arise *within* complexity and keep it understandable (Hirsch Hadorn et al. 2006; Naess 2008). This requires speaking a language which is both understood outside of epistemic divisions and within the broader populace. In the context of this research, it requires communicating in a way which enables audiences to not only be given a map but, through rich descriptions and narrative, be given the opportunity to 'live into' the subtle territories that are the domain of meaningful nature experience (Senge in Jaworski 1996).

Effective integration within transdisciplinary research involves overlap between scientific questions and societal problems alongside the perpetual crossing of borders between disciplines and departments and scientific knowledge and everyday knowledge (Jahn 2008). This demands a changing role of the researcher:

[51] View the following links for a full list of current (http://www.tdlab.usys.ethz.ch/casestudy/cs_actual) and completed (http://www.uns.ethz.ch/translab/cs_former) ETH case studies as well as Mayan and Contemporary Conceptions of Cancer project: http://www.uns.ethz.ch/res/models/macocc. For further examples, see also current and completed projects by the Institute for Social-Ecological Research: http://www.isoe.de/en/projects/ (*Retrieved 18 December 2013*). Kueffer's (2010) arguments for how transdisciplinary research is necessary in effectively predicting the future spread of invasive plants in an era of global change also resonates with this (my) study's approach / research questions.

a shift from being an arbiter of a definitive 'Truth' to any of either a 'reflective scientist', 'intermediary', 'facilitator' (cf. Pohl et al. 2010) or 'storyteller' (cf. van Maanen 1988) which humbly recognizes that the knowledge produced is a transient 'truth' (Waltner-Toews et al. 2003; Johnson & Onwuegbuzie 2004).

3.1.3.3 Progress in transdisciplinarity

How does one measure progress in transdisciplinary research? The answer is dependent on the type of transdisciplinary research with which one is engaged and how one is engaged. To begin, the multiple perspectives need to be translated into action and learning; the narrative woven must be directed toward future progress and understanding as measured by indicators (Waltner-Toews et al. 2003).

Secondly, Pohl (2011) seeks to address the question of progress in transdisciplinary research by, initially, defining it as the framing, analyzing and processing of an issue such that the:

i) Issue's complexity is grasped;
ii) Diverse perspectives on the issue are taken into account;
iii) Abstract and case-specific knowledge are linked; and
iv) Common-good-oriented descriptive, normative, and practical knowledge to address the issue is developed.

Pohl (2011) also assumes that in transdisciplinary research representatives from different disciplines and from the public and the private sector and civil society collaborate. Together, all involved would consider progress to be made if better approaches, 'thought-styles' (including their internalization in education and training) and management of research supported or better fulfilled the above criteria (1-4) (Pohl 2011).

Transdisciplinarity presents itself as a complimentary approach to studying complex systems with a view toward social-ecological sustainability. Whilst some, possibly counter-productively, conceive it as a new discipline, it may be better viewed as a 'new science' which:

> …does not suppress disciplines but connects them, and consequently makes them fertile, a science which can at the same time distinguish and connect and where the transdisciplinarity is inseparable from complexity… as much as the compartmentalisation of disciplines disintegrates the natural fabric of complexity, as much a transdisciplinary vision is capable of restoring it (Morin 2007: 23).

3.1.3.4 Transdisciplinarity, action research and this study

This doctoral endeavour has pursued the stated aims of transdisciplinarity and action research through the following ways:

- Recognizing human disconnectedness from nature as a major societal problem as identified across a range of scientific and popular literature and in other public fora;
- Researching outside of standard disciplinary and scientific boundaries;
- Utilizing non-scientific information, knowledge and wisdom (e.g. Eastern, Indigenous);
- Conducting field research within and alongside (*in situ*) real life education processes;

- Sharing stories, results and learning accumulated during the research process, i.e. disseminating such information through online and social media (i.e. eyes4earth.org), preparing a periodic newsletter for stakeholders and subscribers and intermittently uploading (to eyes4earth.org) PowerPoint presentations and posters prepared for respective conferences (Appendix 9.23);
- Presenting results at interdisciplinary scientific conferences or at scientific conferences which do not usually engage with such topics e.g. Healthy Parks Healthy People Congress, Fynbos Forum, World Conference on Ecological Restoration, International Congress for Conservation Biology;
- Organizing wilderness trails, camping weekends, training workshops and funding to empower and learn with youth involved in the nascent Baviaanskloof Nature Awareness Group(Appendix 9.23.3);
- Submitting a creative essay 'Connection through Contemplation' as a contribution to a book (Contemplation with Nature) aimed at general international scholarly readership (Appendix 9.24);
- Leading the Wildlands Studies (WS) six-week field course for undergraduate students;
- Producing a dissertation which integrates and transcends diverse disciplinary knowledge and engages with diverse disciplinary styles;
- Proposing a workshop to disseminate, build upon and operationalize research findings; and
- Drawing upon my own lived experiences as a legitimate form of knowing and understanding.

3.1.3.5 Complexity theory

Transdisciplinarity is intimately tied to understanding and solving problems within complex social-ecological systems. Equally, meaningful nature experience (MNE) involves complex and dynamic interactions between living human (social) and natural (ecological) systems. It is therefore essential to frame - with a view to describe and understand - these dimensions in terms of *complexity theory*. Complexity is derived from the Latin *complexus* which means "what is woven together" (Morin 2007: 6). Complex systems therefore represent the connection, interaction and overlap of multiple unique subjectivities (Allen 2001). This is the real world: a world of interactive subjectivity consisting of connected entities that have their own perceptions, inner worlds, and possibilities of action (Allen 2001).

Complexity theory finds a place in this research because an understanding of MNE demands an f understanding o connected social-ecological systems which co-evolve as each changes and adapts with the other. Acknowledging that humans *participate* with nature - through layers of perceptions, experience, context and meaning – are characteristics of complexity (see Cilliers (2005) for a listing of characteristics / criteria of complexity). Complex systems are open to flows of energy, matter and information across defined boundaries but with shifting interconnections between the elements and the system(s) under study (Allen 2001). It is suggested that the 'flows' found in complex systems:

> ...do not obey simple, fixed laws but instead result from the internal "sense-making" going on inside them, as experience conjectures, and experiments are used to modify the interpretive frameworks within. Because of this, the behaviour of the systems with which each system is coevolving are necessarily uncertain and creative, and is best not represented by some predictable fixed trajectory (Allen 2001: 39-40).

Whilst Allen (2001) refers to complex systems in general, the passage takes on added meaning when we consider individuals themselves as complex changing systems embedded within a dynamic natural landscape of manifold stimuli. Just as the landscape responds to our presence, our behaviours are continuously affected by our present experiences and changing knowledge.

Complexity theory therefore recognizes the importance of human experience in the systems under study whereby, "behaviour reflects the different beliefs of an individual based on past experience, and it is the interaction of these behaviours that actually creates the future" (Allen 2001: 41). From an evolutionary standpoint, this subsequently creates an "imperfect learning process" which is fuelled by the difference between human expectation and experience but yet rarely provides enough information for a complete understanding (Allen 2001). The changes in behaviour which are an external manifestation of that learning induce fresh uncertainties in the behaviour of the system, and therefore new ignorance, new questions and new curiosity: in other words, knowledge begins to lose its value as soon as it is acted upon (Allen 2001).

Reality is constantly changing and, with it therefore, our experience and knowledge of it (Allen 2001).This understanding is critical since the research process itself must always be applied to a forever changing reality. Meaning and knowledge cannot be fixed in any representational way but is always contingent and contextual, whereby the shifting non-transparent context itself needs to be interpreted at an arbitrary point in time (Cilliers & Hofmeyr 2010). *Complexity theory* therefore demands constant critical reflection to question the nature and limits of our knowledge and understanding (Cilliers 2000b). These constraints, and indeed the malleable nature of 'truth' itself, must be made explicit. However, we should not feel depressed or constrained by these limits on truth and certainty of knowledge:

> Instead, we should understand that this is what makes life interesting and what life is, has always been, and will always be about (Allen 2001: 42).

In essence, complexity deals with a "multiplicity of subjectivities and intentions, fed by a web of imperfect information and diverse interpretive frameworks" (Allen 2001: 41). This provides a more realistic insight into the complex interplay at work in our world and which we must acknowledge in our quest to study, model, describe and interpret its interactions. Complexity therefore strives for "system transformation through multiple subjective experiences, and their accompanying diversity of interpretative, meaning-giving frameworks" (Allen 2001: 42).

3.1.3.6 Models of complex systems

Models are a form of meaning-giving framework and *complexity theory* holds that models are our only way of understanding the world. Models in the context of complexity may include any kind of scientific statement, concept, law and any description of a phenomenon which tries to reflect phenomena in the external world at an arbitrary point in time (Khalil & Boulding 1996 in Cilliers 2001). Complexity models should explore possible futures and (qualitatively or quantitatively) address "what might be" rather than "what is" and

"what will be" (Allen 2001: 41). This approach aligns with this study's knowledge interest of *understanding* rather than conventional knowledge interests of *prediction and control*. Fundamentally, complex models can be any symbolical representations reducing complexity in order to generate understanding (e.g. dance, art, algorithms) (Cilliers & Hofmeyr 2010). The constant challenge is to ensure that excessive richness and contextualization (of e.g. MNEs) is not lost throughout the process (Cilliers 2001). Cilliers (2000a, 2005) stresses the importance of the creative arts in both stimulating imagination and attempting to find new ways of portraying and understanding the complexities of the world.

> Under certain conditions, a good novel may teach us more about human nature than mathematical models of the brain, or the theories of cognitive psychology. And engagement with the arts should not be a luxury in which we indulge after "work," it should be intertwined with our work in order to assist us in facing the complexities of this world (Cilliers 2000a: 32).

Therefore, the choice of rich phenomenological descriptions which seek to convey both the complexities of our lived experienced within the world is based on these understandings of models in *complexity theory*. Creative writing included in this dissertation (e.g. Appendix 9.24) similarly aims to find alternative ways of portraying system complexities and interconnectedness which move beyond accepted boundaries.

3.1.3.7 Boundaries of complex systems

Scientific method requires the researcher to place arbitrary boundaries around the system to be studied. However, defining a boundary in any complex system is fraught with difficulty (Cilliers 2001). In the context of this research, an obvious distinction which can be made is between the system of the human body and the system of the natural environment. Further, we might conceive that these two systems interface within a transient system which is the temporary situational context (fusion) of an MNE. However, what makes these distinctions problematic is that a defining feature of MNE itself is that it often facilitates a *collapsing of boundaries* between 'human' and 'nature' (or, specifically psyche/mind and physical/matter) (Jaworski 1996). So any attempt to bind the systems under study immediately appears contrary - and possibly acts as an impediment to - emergent understandings of the interconnected human-nature relationship.

Conventional approaches might attempt to examine MNEs as separate human (personal variables) and nature (situational variables) systems. However, the phenomenological approach adopted in this study acknowledges the participatory character of the human-nature of exchange (Section 0) and therefore seeks to partly overcome those constructions by describing MNE as a complex system in its own right. Nevertheless, analysis for this research (Chapter 4) pragmatically blends phenomenological description and more conventional distinctions between personal and situational variables. Cilliers (2001:141) asserts that:

> A boundary should not necessarily be thought of as something which separates one thing from another; rather, a boundary should be something which constitutes that which is bounded (Cilliers 2001: 141).

From this perspective, the concept of 'boundary' becomes enabling rather than confining (Cilliers 2001). In our human system, it is the senses which constitute that which is bounded. The senses continuously interplay with the rich stimuli of the natural environment system, e.g. the eyes as they capture the

spectacular geology of the Baviaanskloof, the distinctive scent of an invasive *Acacia* stand, or the contracting skin as it responds with goosebumps to the reverberation of a leopard's midnight roar in the depths of a *kloof* (gorge). Yet, during an intense and meaningful encounter with nature, there is a possibility that these boundaries become permeable, shift or collapse altogether for the observer and possibly even for the observed. Zeleny (in Khalil & Boulding 1996: 133) states:

> All social systems, and thus all living systems, create, maintain and degrade their own boundaries. These boundaries do not separate but intimately connect the system with its environment...[they] are primarily functional, behavioural and communicational...not "perimeters" but functional constitutive components of a given system.

This concept is of further interest if we look at *synchronicity as a MNE* (Sections 2.4; 4.3.6). During synchronistic events, boundaries may appear to shift in such a way that there not may be any clear spatial links. This can be a feature of complex systems and, as noted by Cilliers (2001), the spatial reference point of boundaries can pose difficulties – part of the system may exist in a totally different spatial location. Letting go of this spatial understanding would imply that "we are never far away from the boundary" – and thus assumes that the components of the system are richly interconnected (Cilliers 2001: 142). It is also helps with conceptualizing MNEs which - momentarily or otherwise – distort usually spatial boundaries through perception and feelings of interconnectedness, wholeness or oneness.

In this light, we may come to experience that "everything is always interacting and interfacing with others and with the environment" and where the notions of "inside" and "outside" are never simple or uncontested (Cilliers 2001:142). Taking a historical view of humans' interaction with nature, it can be seen that human society has always had a tendency to form, construct and label boundaries where none may have actually ever existed. This inevitably hampers our understanding of the complexity of the human-nature interface. Indeed, the concept of *radical openness* (as one of six generators of complexity as identified by Chu et al. (2003)) recognizes that by drawing boundaries one cuts off important connections which, left intact, could extend until the universal level.[52]

Do we need to draw boundaries in order to understand phenomena? Are we capable of shifting from rational conceptual understandings of the *parts* to more felt intuitive understandings of the *whole*?

> …Pascal said, we should conceive the circular relation: 'one cannot know the parts if the whole is not known, but one cannot know the whole if the parts are not known' (Morin 2007: 12).

At present, Western scientific understanding is bounded by that which can be grasped intellectually and inducted logically. Yet intuitive insight provides experiential evidence that there are limits to the 'truth' of any scientific explanation - that there may be more subtle complex forms of reality in co-existence (M. Bateson in Riley-Taylor 2002). Finding the balance between rational and intuitive understanding is critical for transdisciplinary and complexity science, education and the chosen avenues through which we must

[52] Chu et al (2003) also identify *contextuality* as another important and relevant generator of complexity, i.e. some elements of a system can play different roles in different systems. This has relevance to this research in that different elements of nature assume alternate roles – through their ascribed meanings - across various human cultural systems. For example, a dragonfly may be a family totem for a Xhosa person; a sign of transformation and rebirth for a neo-pagan / New Ager and an indicator species for aquatic ecosystem health species for the Western scientist.

communicate related results and insights garnished. Max-Neef (2005) was not the first to call for the integration of knowledge and intuition as a way of understanding (Wilhelm-Rechmann & Cowling 2008). Albert Einstein (in Max-Neef 2005: 11) also declared that the:

> ...intuitive mind is a sacred gift, and the rational mind is a faithful servant. We have created a society in which we honor the servant and have forgotten the gift.

Similarly, we may embrace the *complexity theory* concept of *emergent properties* which holds that the whole (e.g. consciousness) is only present through an interaction of the separate parts (e.g. body-mind-spirit). In recognizing the presence or absence of emergent properties, we may come to know the parts which manifest the whole or the whole as reliant on the parts. Equally, an understanding of emergent properties may also assist in our formulation of boundaries: is MNE a temporary complex system in itself (as earlier conceived) or, more accurately, is MNE an emergent property arising from interactions between the human (social) and nature (ecological) systems? Chu et al. (2003) who offer a reminder that the intellectual challenge is to focus less on claims of universality based on detailed studies of system mechanics and instead focus more on the properties emerging from the interaction of complex systems.

3.1.3.8 Complexity and transdisciplinarity

Complexity heals disciplinary divisions and the lack of disciplinary communication (Bradshaw & Bekoff 2001; Morin 2007). Allen (2001) postulates that the science of complex systems is important for societal relevance, since only with an integrated, multidimensional approach will advice be related successfully to the real-world situation. *Complexity theory* is inherently transdisciplinary: the strong philosophical connections to the scientific art of thinking about what it is exactly one is doing means that complexity finds critical relevance amongst a wide range of epistemologies (Morin 2007). In this context, Emmeche (1997: 43) stresses studies of complexity should not be conceived as a new "synthetic theory" but as:

> …a cross-disciplinary field of research and a meeting place for dialogue between specialised groups of people such as biologists, physicists, philosophers, mathematicians, computer scientists and … science writers.

It follows that an appreciation of *complexity theory* is also necessary in enriching the science, education and practice of emerging understandings of the dynamics of interconnected social-ecological systems.

3.1.4 Conceptual frameworks

Conceptual frameworks are needed for the purposes of understanding and classifying research but they should not become an end in themselves. However, when viewed in the context of complexity, we find that they may also represent a type of model, which forms a lens through which one views the research, its purpose and the dimensions which need to be included in order to achieve (transdisciplinary) objectives.[53] Three conceptual frameworks have designed for this research with the aim to illustrate the:

[53] It is imperative that researchers use discoveries of the world to inform their models rather than inadvertently constructing the world to conform with their models (e.g. based on tacit belief systems of how the world ought to work) (P. Cilliers pers. comm.)

i) Research questions (themes) addressed and their interactions between each other and the disciplines through which they are informed, embedded or may be linked to (
Figure 8);

ii) Research questions (themes) as issues in their transdisciplinary context with relations to relevant disciplines and stakeholders in the process of co-production of knowledge (Figure 9);

iii) Hypothetical vision of how MNE may interplay with secondary themes of perception and consciousness to stimulate education and lifelong learning (Figure 10).

MNE explored through phenomenology is central to this research which endeavours to examine the interplay between MNE and connectedness with nature (CWN), invasive alien species (IAS) and education for sustainability (EfS). Each of these themes has been enriched by knowledge and insight from various disciplines. Whilst all listed disciplines informed all themes, the themes tended to be grounded - or most advanced – through the knowledge found in the disciplines of ecology, psychology and education (Figure 8).

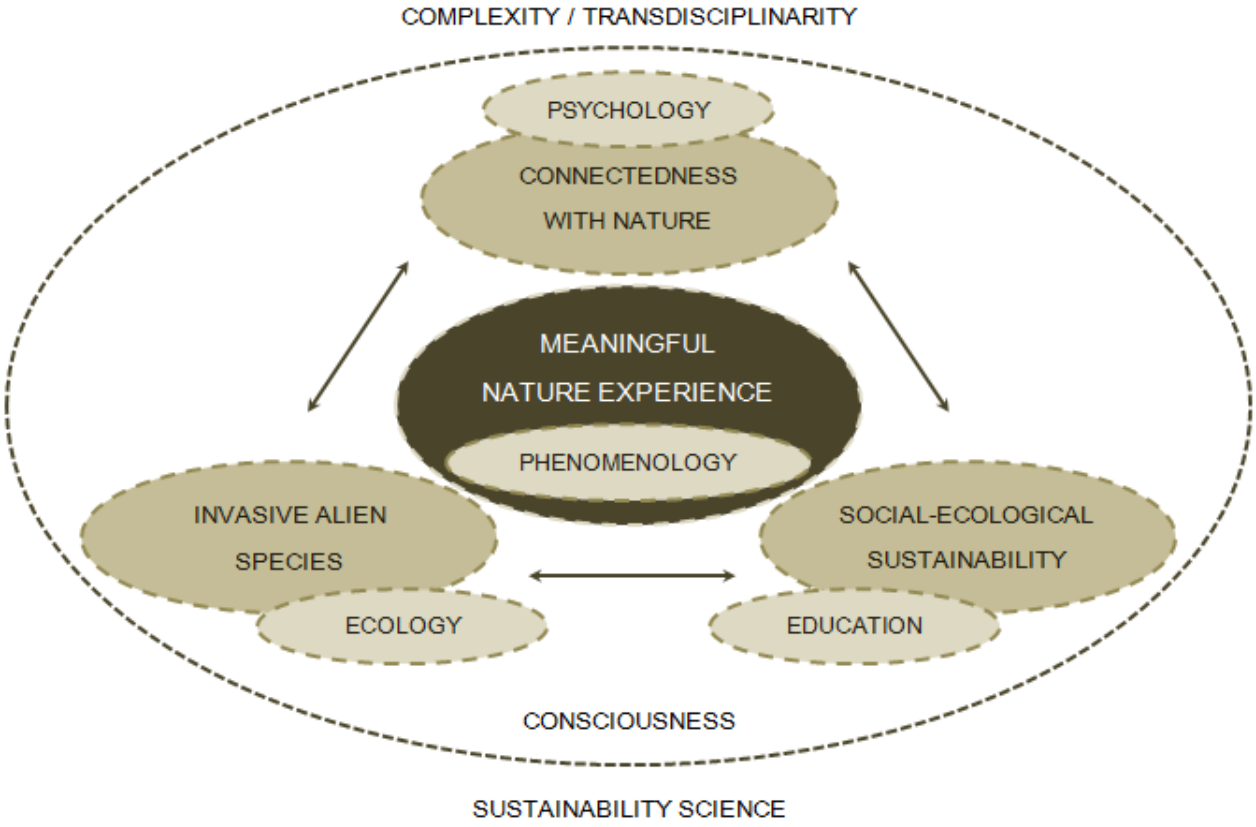

Figure 8: Conceptual framework linking research themes with most relevant disciplines

The ***disciplinary*** underpinnings (Figure 9) find synergy in contributing to sustainability science: the pillar of transdisciplinary (action) research. Together this defines the philosophy, methodology and existing knowledge base which have been used to approach the research. The ***issues*** (Figure 9) are directly linked to the research questions which find their basis in a societal problem of which central is how to address (lack of) connectedness with nature. Four ***stakeholder*** groups (Figure 9) have been broadly identified as being relevant to this research and can be further classified into two sub-groups:

i) *Primary stakeholders:* Undergraduate university students and Baviaanskloof community youth have been more directly and closely involved in informing understandings of the issues and acting as a 'testing ground' for trialling and transmitting new knowledge, whereby feedback enabled new understandings to form.

ii) *Secondary stakeholders:* Academic and research institutes and interested members of civil society have interacted with this research through scientific conferences, workshops, presentations and online media (eyes4earth.org) to further knowledge and understanding tied to the research.

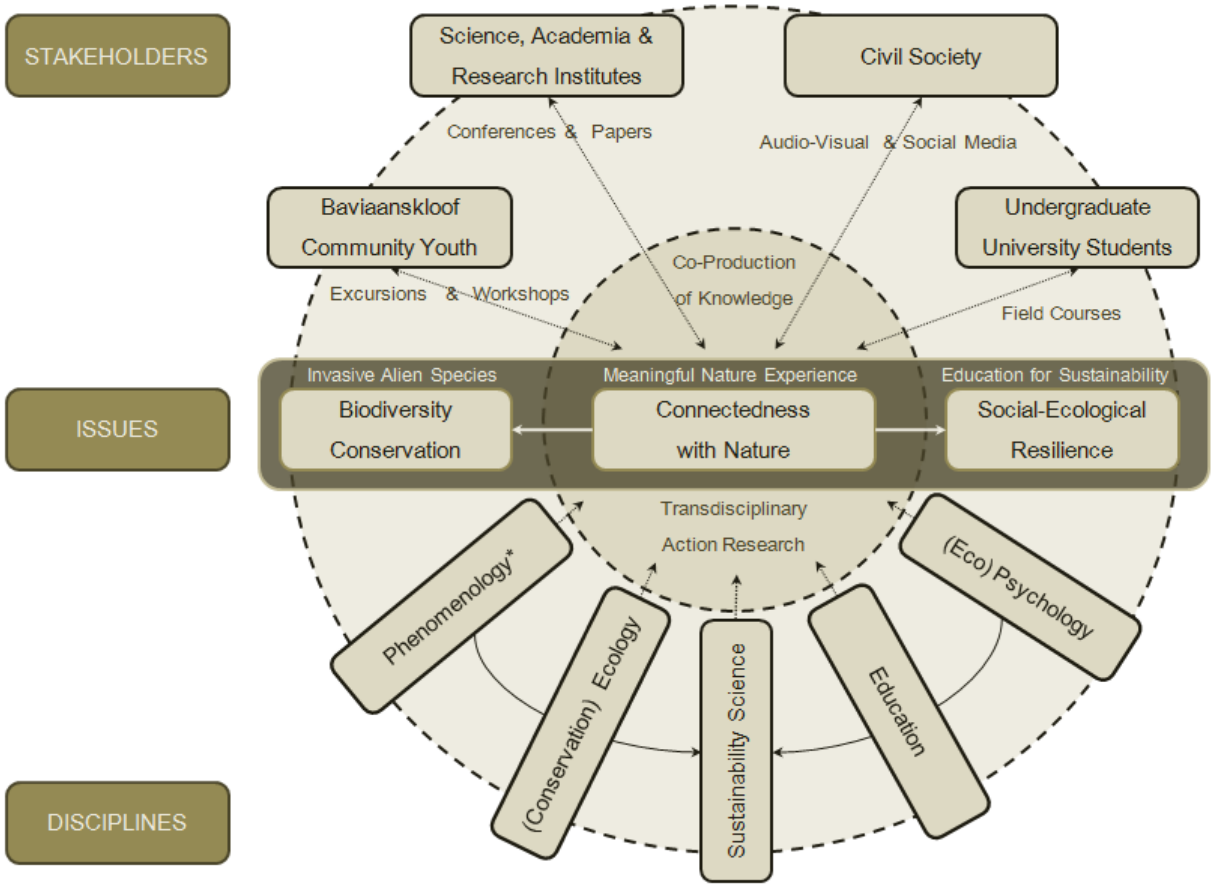

Figure 9: Relational framework linking research questions (issues), disciplines and stakeholders for the transdisciplinary co-production of knowledge (Adapted from Pohl & Hirsch Hadorn 2008)

* Phenomenology is more than a discipline – it is also a philosophical movement and method and feeds this research in both ways accordingly.

A fundamental question motivating this research concerns the broader impact of MNEs within a person's life, which includes CWN and the benefits that they are purported to bring, as well as the effect on one's awareness and a perceived ability to influence the realities around them. It is understood that there are many factors which may feed a *consciousness of connectedness* characterized by awakened perception and empowerment in being able to influence one's own circumstances. Nevertheless, this complex model (Figure 10) serves as a loose hypothetical conceptual framework as to what might be possible when MNEs (particularly synchronicity) are used to affect changes in thinking and seeing (brain patterning) and become embedded in a cycle of learning which places emphasis on the process of individuation and the feeling of 'coming alive.' Whilst hypothetical, the philosophical and paradigmatic underpinnings of this research

restrict systematic testing of the model (Figure 10) as a hypothesis. Nevertheless, the model (Figure 10) captured the status of my thinking at the outset of this research and may be conceived as a complexity model which both simplifies a reality involving MNE as well as potentially orienting future research directions, which may arise through expanded investigations of this field of study.

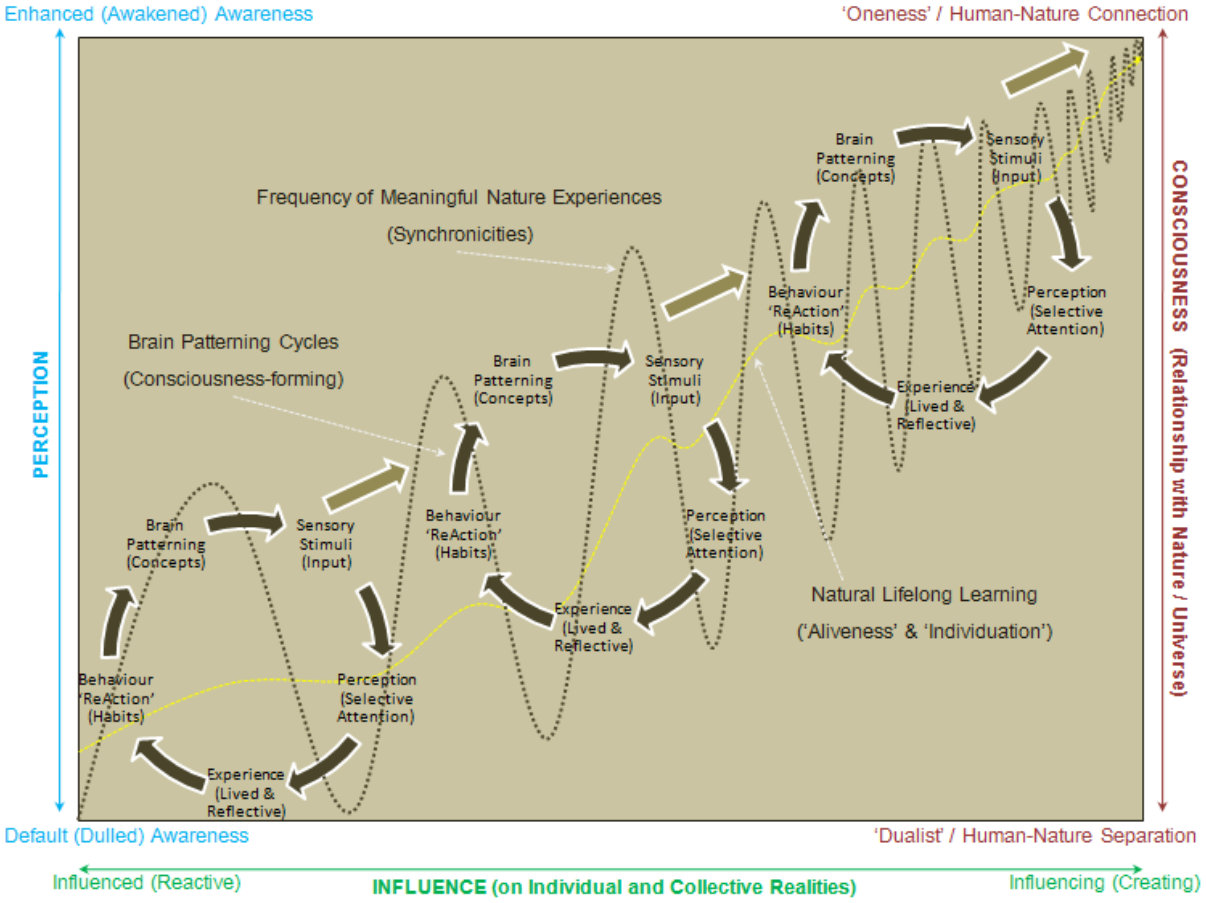

Figure 10: Complex model of MNEs in supporting lifelong learning and linked to changing perception, influence and consciousness through moment-to-moment brain patterning cycles.
(Brain patterning cycles adapted from Jacobs 2006 and Young et al. 2010)

The *x-axis* (Figure 10) represents the perceived *influence* a person may have over their individual and collective realities: does it feel like we are in a position where we are constantly influenced by - and thus need to react to - the circumstances surrounding us? Or do we feel empowered to the extent where we can influence our circumstances such that we co-create our own everyday reality (Section 6.3)?

The left-hand *y-axis* (Figure 10) represents our states of *perception*. In contemporary Western society, the normal mode of perception is considered to be relatively dulled, such that it edits out a substantial amount of phenomena arising in nature (Taylor 2010). The alternative is an enhanced and awakened awareness where we perceive a much broader spectrum of phenomena in our surrounding environment (Taylor 2010). It should be noted that it would likely be too demanding on our attention or too overwhelming for our brain to be in a constant state of enhanced sensory awareness - it thus appears that one function of the brain is to act as a filter to help humans 'cope' in a multi-sensorial environment (Kaplan 1995; Section 2.2).

The right-hand *y-axis (*Figure 10) represents a spectrum of *consciousness*, with respect to our relationship with nature. At one end of the continuum, there is a consciousness grounded in dualisms, where one sees and acts as though they are separated from nature. At the opposite end of the spectrum, there exist more unified states of consciousness, which reflect intimate, reciprocal and participatory understandings human-nature interconnectedness which may embody feelings of oneness and love.

The model's graph (Figure 10) depicts three trajectories: frequency of MNEs; brain patterning cycles; and lifelong learning. The *frequency of meaningful nature experiences* represents experiences of profundity or synchronicity with/in nature. It is hypothesized that these may increase in frequency as an individual moves along a fluid trajectory, finding greater appreciation for - and harmonization between - oneself and nature.

The *brain patterning cycles* (Figure 10) represent the continous stream of receiving incoming sensory stimuli, perceiving it according to where our attention is directed, having the actual experience (before and after reflection), taking action (or reaction) and then drawing on learning to reinforce or change existing brain patterning / mental habits. The cycle follows our perception, consciousness and learning trajectories.

Through and across all of these dimensions, we are involved in a *lifelong learning* process, albeit one characterized by peaks (flows), troughs (ebbs) and cycles (something a linear model is unable to capture). An awareness of such changes - whether tied to the type, frequency and deepening of personal experiences and/or the simultaneous changes increasingly perceived in nature is integral to this process (Figure 10). This culminates in learning that supports the quest to become better or more 'enlivened' persons attuned to - and appreciative of - change, meaning and purpose as part of a process of *individuation* (Chapter 6).

3.2 Phenomenology: philosophy and methodology

Within a pragmatist and post-paradigmatic context, the philosophical roots of phenomenology underpin the orientation of this research. Whilst phenomenology is now commonly considered as an alternative qualitative research methodology, it is also a term that carries different meanings depending on theoretical and practical contexts (Adams & van Manen 2008). Phenomenology is both a movement as part of the philosophical tradition *and* a methodological approach, providing a framework through which to research, describe, reflect and interpret lived experience (Morse 2011).

Phenomenology originally referred to the influential philosophical and humanities movement which spread though continental Europe during the 20th century and which is sometimes attributed to spawning philosophical movements such as existentialism, post-structuralism, postmodernism, feminism and various forms of new analytical theory (van Manen 2011). The writings of prominent contemporary scholars such as Foucault, Derrida and Rorty are often inspired by earlier phenomenological works by Husserl, Heidegger, Merleau-Ponty and others (van Manen 2011).

In recent times, phenomenology has also acquired broader meaning with its application as a human science (Section 3.1.1) method for initiating profound reflective inquiry into how human's make or find meaning in the world (Adams & van Manen 2008; van Manen 2011). In the century after its 'discovery', phenomenology spread its way across countries, continents, cultures and disciplines, in what might be considered – in terms of its continual development and geographic spread – the most significant philosophical movement of the 20th century (CARP 2010).[54] Phenomenology's most recent notable arrival was to Great Britain in the 1980s and 1990s where the approach began to gain traction with ecology, ethnology, medicine, and nursing (CARP 2010). By this time, phenomenology had already reached many other parts of the world and was being utilized by diverse disciplines for studies in education, health sciences, psychology, law, religion, architecture, literature, geography, music, theatre and film (Adams & van Manen 2008; CARP 2010). Phenomenology reached South Africa just after World War II and was applied to issues pertaining to ethnicity, gender, and politics before gaining a foothold in Rhodes University during the 1970s through phenomenological psychology (Kruger 2001). For example, Rob Schweitzer used phenomenological psychology to carry out pioneering work on Black diviners (*amagqira*) for his PhD thesis (Kruger 2001). Founded in March 2013, the South African Centre of Phenomenology:

> …promotes phenomenological research of a theoretical nature as well as with a practical focus on social issues such as diversity, injustice, inequality, racism, poverty, discrimination, criminality, anxiety, identity, sexism arising in a country like South Africa.[55]

Phenomenology, as both a philosophical tradition and a methodological application, therefore requires a comprehensive introduction in order to provide necessary understandings and distinctions of its tenure as a philosophical tradition, methodological application and why it was the preferred choice for this research.

> *In selecting a methodological framework from within which to operate, priority was given to finding an integrity and consistency between the research questions, my own view of the world and the intended contribution of the research. A phenomenological approach offers that integrity by mandating a qualitative approach that privileges personal experience, is descriptive, searches for common essences and is consistent with a pedagogy informed by constructivism.*(Morse 2011: 66)

3.2.1 As a philosophical tradition

Phenomenology is the reflective study of structures of direct lived experience, consciousness or simply phenomena: the appearances of 'things' in the life-world (*Lebenswelt*). Life-world is understood as the world of our immediate lived experience as we live it, the direct reality which engages us before analyzing, conceptualizing, theorizing and categorizing (Abram 1996; Adams & van Manen 2008; SEP 2009). It is a reminder that as we explain the world conceptually we overlook our active (and culturally-dependent) perception of - and participation within - the world (Abram 1996). Phenomenology thus attempts to describe the unique meanings that 'things' have in our experience; the way that they emerge and are shaped by consciousness, language, cognition and presuppositions (Adams & van Manen 2008; SEP 2009).

Phenomenology is usually understood as being either a:

[54] For an account of phenomenology's history, refer to CARP: http://www.phenomenologycenter.org/
[55] See *South African Centre for Phenomenology*: https://saphenomenology.wordpress.com/about/

i) Disciplinary field in philosophy; or a
ii) Movement in the history of philosophy (SEP 2009).

In considering the traditional disciplines of philosophy, it is postured that phenomenology could be included as a unique - but related - philosophical field of study in its own right, i.e.:

- *Cosmology:* the study of, and assumptions about, views of the universe – reality;
- *Ontology:* the study of, and assumptions about, beings or their being — what is;
- *Epistemology*: the study of, and assumptions about, knowledge — how we know;
- *Logic:* the study of, and assumptions about, valid reasoning and logical coherency regarding our knowledge statements about the world — how we reason;
- *Methodology:* the study of, and assumptions about methodologies used to acquire knowledge – how we research;
- *Ethics*: the study of, and assumptions about right and wrong — how we should act;
  and a 'new' and additional category of:
- *Phenomenology:* the study of, and assumptions about, lived experience — how we experience.
  (van Breda 2008; SEP 2009)

Despite phenomenology only coming into its own as a discipline during the early 20th century, it is notable that the basic philosophical premises of phenomenology, have, in essence, been practiced in various ways for many centuries. Grounded in Heidegger's hermeneutics, this ontological concern of describing what it is to experience the world, and derive meaning from it, was essentially being practiced when:

- Hindu and Buddhist philosophers reflected on states of consciousness achieved in a variety of meditative states;
- Descartes, Hume, and Kant characterized states of perception, thought and imagination;
- Brentano classified mental phenomena (defined by the directedness of consciousness);
- William James appraised kinds of mental activity in the stream of consciousness (including their embodiment and dependence on habit);
- Analytic philosophers of mind addressed issues of consciousness and intentionality, including understanding modes of being (e.g. Heidegger's *Dasein* and Gadamer's *Wahrheit und Methode*).

(SEP 2009)

3.2.1.1 Husserl: a science of experience

Phenomenology as a distinct discipline was inaugurated with the philosophical reflections and writings of German mathematician Edmund Husserl (1859-1938) during the 1890s and early 1900s (Abram 1996; CARP 2010). Whilst Husserl is rightly viewed as the founding father of phenomenology, "he sits within a continuum of philosophers and researchers concerned to describe what it is to experience the world and to study what it is to make meaning from our world" (Morse 2011: 67). Husserl saw phenomenology as the study of phenomena as they appear through consciousness and experience though active reflection, including imaginative manipulation and intuitive grasping (Benner 2008).

Husserl harboured growing frustration with assumptions inherent in the Galilean and Cartesian models of the world (i.e. those perceptual qualities that are illusory, ambiguous or indeterminable (Abram 1996)). In suggesting there was a crisis of European science, Husserl argued that scientists had developed extremely sophisticated means to know the external objects, but little means to know themselves (Morin 2007).

Whilst the emergence of psychology as a discipline promised an avenue through which humans may know themselves, it too initially followed in these positivist footsteps by trying to solidify 'mind' as another mechanized object (Abram 1996). As Husserl understood it, both subject and object existed it the realm of experience and overcomes persistent mind-body dualisms. Husserl therefore presented phenomenology as a way of turning toward the world as it is experienced in its felt immediacy: it would not seek to explain the world but rather to describe it as close as possible to how it makes itself spontaneously evident to awareness in direct sensorial experience (Abram 1996). Husserl termed the awareness of a phenomenon as *Anschauung* - the realization of the insight (Benner 2008). This realm of subjective, emotional, intuitive and phenomenal experience was said to be the domain – the vital "dark ground" - of all observation and thus the basis of knowledge itself (Abram 1996: 34). Phenomenology - as a *science of experience* - would therefore be the foundational underpinning for both science and philosophy (Abram 1996; Morse 2011). This would not be as firm and fixed as the 'objective' grounding upon which other sciences pretended to stand, but it would provide the basis for a knowledge that emerges from the fluidity of direct experience spontaneous experience with the world (Abram 1996). Husserl was not seeking to reject science but rather to offer

> …a plea that science, for its own integrity and meaningfulness, must acknowledge that it is rooted in the same world that we all engage in our everyday lives and with our unaided senses – that, for all its technological refinements, quantitative science remains an expression of, and hence must be guided by, the qualitative world of our common experience (Abram 1996: 43).

Phenomenological scholar Max van Manen reiterates this premise by suggesting that truth and understanding in the human sciences requires broadening - not subverting – the idea of scientific rationality:

> …to reject the standard of rationality would mean that one assumes that there is no basis upon which human beings can come to a common understandings; it tends to assume as well that there is no standard in the human sciences to which one needs to orient oneself in a self-reflective and disciplined manner (van Manen 1990: 16).

Rational human science therefore assumes that our lives and experiences may be made more intelligible in a broader embodied sense, but equally understands that human experience is infinitely more complex than any one attempt to describe or reduce (van Manen 1990:16). A certain level of mystery remains, but that does not imply that one becomes a scholarly mystic (van Manen 1990:16). However, it would be "naïve rationalism" to believe that all phenomena in life can be completely reduced into terms which have intellectual clarity or theoretical transparency (van Manen 1990: 17).

Husserl's ideas evolved throughout his life, moving from a transcendent focus on ego and consciousness to the pre-reflective life-world of experiences (Morse 2011). Husserl was primarily concerned with *invariant*

structure - the study of phenomena as constituents of meaning and knowledge as they present themselves in one's consciousness (Morse 2011).

> While Descartes sought to move out from a known point towards the world and gain knowledge deductively, Husserl sought to begin from an inseparable interaction with the world and intuit knowledge as it originally occurs to us (Moustakas, 1994) (in Morse 2011: 68).

For Husserl, consciousness was the seamless dialogue between a person and the world; the only portal through which we may come to grasp phenomena (Valle et al. 1989; Abram 1996). The fundamental structure of any experience is that "what" is seen and "how" it is seen are always, necessarily, correlated (Bortroft 1996: 280). This correlation provided the foundation for one of the major themes in Husserl's writings: *intentionality* (Section 2.2; 2.3). The central structure of any experience is its intentionality - directed attention toward something from the first person perspective with a given meaning and context (relevant conditions of experience) (SEP 2009). Husserl did not see the relationship between the way 'something' appears in consciousness and the 'something' itself as contradicting our inseparability with the world; rather, consciousness becomes embodied in the world and, equally, body is infused with consciousness and cognition of the world (SEP 2009; Morse 2011). In other words, there is phenomena or content appearing in consciousness ('what' we pay attention to - *noema*) and there is the process or act of interpretation ('how' we pay attention – *noesis*) whereby the essence of the phenomenon is the blend of each illuminated in consciousness (the *noesis-noema* correlation) (Bortroft 1996; Morse 2011)

Whilst humans tend to selectively view phenomena in isolation, this separatist approach overlooks the ways in which phenomena already belong together in their real nature, in relation to the whole (Bortroft 1996). However, this inseparability is problematic when attempting to describe phenomena as they initially appear to consciousness since we cannot study them as we experience them but rather only through reflection do they became available for descriptive analysis (Morse 2011). This prompted Husserl to develop phenomenological *reduction*: the deliberate methodological attempt to suspend preconceptions and focus on the phenomena as it appears pre-reflectively in order to reveal its *invariant structure* (Morse 2011).

Husserl was increasingly criticized over his insistence that phenomenal reality was cognitive in character; that one is sealed inside his or her own solitary experience, unable to recognize phenomena outside their own mind (Abram 1996). To counter this shortcoming, it was necessary to understand how subjective experience allows us to recognize the reality of ourselves and other beings (Abram 1996). The solution seemed to implicate the body - our own and another's – such that through an "associative empathy" the "embodied subject comes to recognize these other bodies as other centres of experience, other subjects"[56] (Abram 1996: 37). The concept of *intersubjectivity* was subsequently proposed whereby:

> The field of appearances, while still a thoroughly subjective realm, was now seen to be inhabited by multiple subjectivities; the phenomenal field was no longer the isolate haunt of a solitary ego, but a collective landscape, constituted by other experiencing subjects as well as by oneself (Abram 1996: 37).

[56] See Section 6.4.1 on how neurological discoveries of 'mirror neurons' in the human and primate provides an important physiological basis for associative empathy as achieved through intersubjectivity.

We can therefore recognize two spheres of the experiential field: phenomena which are not collective or commonly shared and which unfold entirely for the sole observer (e.g. internal mental images, such as daydreaming and emotions such as fear); and phenomena which respond to and are experienced by other embodied subjects as well as by the observer (e.g. external natural phenomena, such as the pounding of waves on the beach) (Abram 1996). The latter may be viewed as *intersubjective* whereby phenomena are "experienced by a multiplicity of sensing subjects" (Abram 1996: 38). This subsequently presented a radical new interpretation of the 'objective world', as conventional contrasts of 'subject- object' could now be recast as a contrasts within the subjective field of experience itself (Abram 1996).

3.2.1.2 Heidegger: a sense of being

German philosopher Martin Heidegger took Husserl's work a step further and moved the search beyond more theoretical and conceptual notions of consciousness as lying in a transcendent realm and explored it in the life-world of everyday experience - the essence of phenomena as we live it and experience it before reflection (Morse 2011). Heidegger's search was primarily centred on the question of a 'sense of being', i.e. the terms by which something becomes intelligible as something (Heidegger 1977). An understanding of this sense of being precedes any other way of knowing – such as through the use of logic, theory or reflection - since it is pre-conceptual and thus pre-scientific. It therefore constitutes a fundamental ontology which can only be truly accessed by asking a being about its being (Heidegger 1977). But, as Heidegger asks in the introduction of *Sein und Zeit* (*Being and Time*): what is the being that will give access to the question of the meaning of being? It can only be that being for whom the question of being is important, the being for whom being matters (Heidegger 1977).

Heidegger expanded this central question with a focus on what it is that makes the 'is-ness' of being. What is it like to be or exist in a world of meaning? What is the experience of perceiving things as meaningful in our world (Morse 2011)? Establishing an understanding requires repetitive and progressive interpretive enquiry - *a hermeneutic circle.* This provided a basis for a *hermeneutical phenomenology* which was oriented toward interpreting the 'texts' of life (hermeneutical) and lived experiences (phenomenology), whereby any form of human awareness of description is viewed as already interpretative (van Manen 2011). These questions also transported the search for the essence of the phenomenon from Husserl's transcendent realm of consciousness to the realm of lived experience, of which consciousness was a part, and thus opened up greater understanding of what it means to *be* in this world (Morse 2011). Heidegger also departed with Husserl on his concept of *intentionality* – as a directedness of all thought. Rather than a cognitive uni-directional application of attention, Heidegger saw an equal non-separatist relationship:

> ...whereby we are impacting upon the object and the object is impacting upon us as we experience it. The arrow of causation is multi-directional – the interaction takes place in both directions – we are in the world and our experience is inseparable from our world (Seamon, 2000[b]). We are the creators of our world, and our world creates us (Heidegger, 1962) (Morse 2011: 69-70).

Heidegger viewed theoretical knowledge as only presenting one of kind of intention behaviour. He argued that there are more fundamental modes of engaging with the life-world which might be otherwise obscured by theoretical knowledge. For example, at the onset of a sudden rain shower, we run for cover under a nearby tree. At that moment, our response fulfils our need to seek shelter – only later may we reflect on the tree as an object with such functions. This resembles the Husserlian idea of suspending certain taken-for-granted understandings in order to experience beings and phenomena as they appear in the world.

3.2.1.3 Merleau-Ponty: perception and participation

> Insofar as, when I reflect on the essence of subjectivity, I find it bound up with that of the body and that of the world, this is because my existence as subjectivity is merely one with my existence as a body and with the existence of the world, and because the subject that I am, when taken concretely, is inseparable from this body and this world (Merleau-Ponty 1962: 475).

French phenomenologist Maurice Merleau-Ponty both extended, transformed and radicalized Husserl and Heidegger's phenomenology to explicitly include the way we implicitly exist in the world through our bodies (Abram 1996; Morse 2011). Merleau-Ponty employed a fluid concrete style of language which by virtue of its "carnal resonance" infused phenomenology with a certain power and relevance to the ecological domain (Abram 1996: 44). Merleau-Ponty rejected a number of assumptions held both by Cartesian adherents as well as phenomenological forerunners such as Husserl. Rejections included ideas of:

- A self-subsistent, disembodied transcendental ego that was a pure-thinker only (Abram 1996; Ashwell 2010);
- Consciousness as a psychic entity encased in a machine-like brain (Ashwell 2010);
- The positivist conception of the neutral observer (Ashwell 2010);
- A mental construction of reality, which otherwise ignores the meaning imbued in bodily existence itself (Ashwell 2010);
- An experiencing self, or mind, as being independent of the body (Abram 1996); and
- The body as an object governed by a mechanistic "stimulus-response" physiology (Ashwell 2010).

Instead, Merleau-Ponty provided a *philosophy of situation* which recognized that the sensuous and sentient life of the body itself as it experiences the world is central to the unity which humans share with their surroundings (Mallin 1979; Abram 1996; Ashwell 2010).

Merleau-Ponty expanded the idea of *intentionality* to include the sensing body-subject. This acknowledges that the body is capable of directing itself toward the perceived world before preverbal thought or active personal reflection (Ashwell 2010; Morse 2011). This bodily sensing is neither "a passive registering nor an active imposing of a meaning" (Langer 1989 in Ashwell 2010: 64) but rather a communing which creates the vital connection between the sensing body-subject and the world (Ashwell 2010).

Rather than being in the mind, consciousness as Merleau-Ponty conceived it, is in the world as it opens up around us though our orientation, but is equally the activity of the world as it expresses itself in human consciousness (Moss & Keen 1981; Morse 2011). Neither subject nor object has primacy: within this unified view - the *phenomenal field* - any such distinctions are abstractions (Mallin 1979; Ashwell 2010). The perpetual sensual interplay - the *living dialogue* - between the individual and the environment precludes any possibility of viewing the world from an external vantage point (Morse 2011). This feeds Merleau-Ponty's radical interpretation of *intersubjectivity* whereby the senses are not in possession of an individual but exist as something pre-personal, as a dimension of being itself (Ashwell 2010). Merleau-Ponty therefore presents "a compelling, non-idealist case for the inseparability of the non-transcendental mind, carnal body, and its intimate spatio-temporal connections of I and life-world" (Payne in Ashwell 2010: 66). In other words:

> …humankind and nature are two different yet inseparable sides' or participants in an inter-subjective community, always presencing together - intertwining, inter-permeating, inter-being - and always already interrelating with one another in intimate conversation (Adams 2007: 49 in Ashwell 2010: 66).

Merleau-Ponty's work suggests that *participation* is inseparable from perception. This idea has been borne out of the early work of French anthropologist Lévy-Bruhl who used participation to characterize the animist logic of Indigenous peoples who engaged with animate and inanimate objects with reciprocity and a belief that they were capable of influencing and being influenced by phenomena such as places, persons, animals and unseen forces (Abram 1996). Merleau-Ponty's writings point to the idea that:

> ...participation is a defining attribute of perception itself. By asserting that perception, phenomenologically considered, is inherently participatory, we mean that perception always involves, at its most intimate level, the experience of an active interplay, or coupling, between the perceiving body and that which is perceived (Abram, 1996: 57).

The implications are that dualistic reductionist views of the world cannot suffice: we must view any of our interactions with the world as being one of intimate and reciprocated relationship where each permeates and infuses the other. This idea that we live in a participatory universe has also been reaffirmed through new understandings and interpretations of the quantum world (Box 13).

Box 13: Quantum physics and a participatory universe

Referring to late 20th century experiments which showed how observation influences properties at a quantum level, John Wheeler, a former Princeton physicist and colleague of Albert Einstein, says (in Braden 2007: xi):

> We had this old idea, that there was a universe *out there*, and here is man, the observer, safely protected from the universe by a six-inch slab of plate glass…Now we learn from the quantum world that even to observe so minuscule an object as an electron we have to shatter that plate glass: we have to reach in there…So the old word *observer* simply has to be crossed off the books, and we must put in the new word – *participator.*

Informed by quantum theory, this participatory interconnected universe (also envisaged by, e.g. Bohr and Heisenberg) poses a very different worldview to that of Newtonian mechanisms of cause-effort relationships. However, despite these recent theoretical and empirical understandings within physics, the Newtonian and Cartesian worldviews (paradigms) - continue to dominate how humans (in Western society) relate to nature. We still tend to cling steadfast to the idea of an objective reality that is external and independent of ourselves. It seems many scientists are still to fully grasp the deeper implications of their (peer's) own discoveries. It is because that, collectively, we have had insufficient *personal experience* with a reality which appeals or conforms to a participatory vision of the world and which aligns with these quantum understandings. *Can MNE provide that experiential avenue?*

Abram (1996: 31) believes that phenomenology is the Western (European / Anglo-American) philosophical tradition that has "most forcefully called into question the modern assumption of a single, wholly determinable, objective reality." Merleau-Ponty (1962: xv) concurs that "the most important lesson that the [phenomenological] reduction teaches is the impossibility of a complete reduction". In other words, we cannot escape our lived experience becoming an embodied subjective experience (Morse 2011). Phenomenology, therefore, is the *study of essences* and we are drawn toward studying and uncovering the phenomenal essences through "thoughtful and empathetic reflections on embodied lived experience" (Morse 2011: 70). According to Abram (1996: xi), phenomenology was originally intended to provide a solid foundation for the empirical sciences; however, what came to evolve was that the:

> ...careful study of perceptual experience began to make evident the hidden centrality of the earth in all human experience; indeed, phenomenological research began to suggest that the human mind was thoroughly dependent upon (and thoroughly influenced by) our forgotten relation with the encompassing earth.

3.2.1.4 Traditions and transdisciplinary hermeneutics

The recurring theme across these classical phenomenologists is the ambition to plumb the depths of conscious experience as it is (pre-reflectively) lived and embodied. Lived experience defines conscious experience, and that allows a first-person perspective on the object of study which characterizes phenomenology (SEP 2009). It is this awareness-of-experience with its matrix of sensation and perception which is lived collectively though different angles or worldviews (Abram 1996).

Phenomenology seeks to understand the entwined relationship of the perceived and the perceiver in an effort to reveal ontological dimensions of what it means to *be* in the world. Within phenomenological philosophy, various schools and traditions may be identified and are often associated with renowned phenomenological scholars (Adams & van Manen 2008). These branches may be viewed as existing on a continuum – including the major traditions of *transcendental* (descriptive), *hermeneutical* (interpretative) and *existential* – and are connected by their intent to seek the essence of lived experience and therefore deliver insight into the meaning of the phenomena under study (Morse 2011).

The *descriptive* approach focuses more on descriptions of participants' experiences. However, by the end of his career, Husserl himself had turned phenomenological analysis away from the more descriptive focus on the *transcendental* ego and consciousness and toward the pre-reflective life-world of everyday experience (Adams & van Manen 2008). For Heidegger, who was more concerned with being as an ontology rather than an epistemology, all descriptions and forms of understanding are already *interpretative* (*hermeneutical*): that is the nature of the human condition and we have no capacity to be completely 'free' of the world (Adams & van Manen 2008; Benner 2008). Therefore, the interpretive approach is the quest to understand and interpret structures of embodied experience and how we engage with all things (including ourselves and others) in the practical world (Adams & van Manen 2008; SEP 2009). Merleau-Ponty further radicalized the turn away from the *transcendental* by focusing on the *existential* as we live, perceive and experience it; whereby the body is central to how we access the world (Adams & van Manen 2008; Benner 2008).

> *The word 'hermeneutics' is named after the Greek god 'Hermes' whose task it was to interpret the messages of the gods and make them understandable to the people – in essence a 'messenger' figure, translating what the gods have 'spoken' into meaningful and humanly understandable language.* (van Breda 2008: 19)

Post-modern thinker Jacques Derrida critiques and dismisses hermeneutics by arguing that is too closely tied to the idea of deciphering and revealing hidden meaning and tasking the researcher, as a hermeneutic interpreter, to translate 'messages' for a given context (van Breda 2008; Footnote181). In acknowledging the logical impossibility of 'presupposition-less' value-free thinking, interpretation and understanding, van Breda (2008: 8) suggests the challenge is instead to integrate hermeneutics *and* transdisciplinarity "in a way that demonstrates the ability to 'think the complex' whilst engaging with complex real-world problems":

> 'Transdisciplinary hermeneutics' is an attempt to investigate the possibilities of … what happens when we cross disciplinary boundaries [and] how this can happen…(van Breda 2008: 9).

Rather than suppressing (disciplinary) assumptions, transdisciplinary hermeneutics would make assumptions transparent, examine and explore, and then 'suspend' assumptions to create an intellectual space which facilitates open and rigorous exploration of new ideas, multi-dimensional processes of understanding and a consensus based on the "fusion of disciplinary horizons" (van Breda 2008). This dissertation is an attempt to honour transdisciplinary hermeneutics' fusion of horizons. Whilst this study aligns itself more with a *hermeneutical* approach, it is important to recognize that "the true test of the approach is situated within the method used" (Morse 2011: 71). Phenomenology as a method in the context of MNE is now addressed.

3.2.2 As a methodological application

"To the things themselves" was Husserl's (1911/1964:116) mantra for orienting a phenomenological approach. "Things" is understood as being the objects and phenomena which arise through our everyday lived experiences. By turning to these things themselves, we attend to the very thing itself, as it appears, and is structured and interpreted within the bounds of human consciousness. What makes a 'thing' what it is? This question, central to phenomenology, orients the endeavour so it is concerned with revealing the unique and irreplaceable themes, structures and essences of a particular experience that, without which, the experience would not exist as such (van Manen 1990; Morse 2011).

When applied to an individual, the primary aim of phenomenology is to reduce their experiences associated with a phenomenon to a description of their nature or essence as they are 'lived through' (Creswell 2007). It prioritizes the investigation of how we experience the world but, of particular interest, is how things appear in our consciousness pre-reflectively, i.e. how things become known and made aware to us through immediate experience (Adams & van Manen 2008). In this sense, phenomenology as a method is also the exploration of the structures of consciousness as experienced from the first-person individual and interiorized point of view, along with the conditions and context of the experience (SEP 2009). As an embodied and reflexive practice, it urges one (e.g. the researcher) to re-learn how they look at the world by reawakening to their own basic experience of the world (Merleau-Ponty 1962).

Box 14: Goethe's phenomenology of the natural sciences

The work of German writer, poet and playwright Johann Wolfgang von Goethe (1749 - 1832) seems to be rarely mentioned in popular writings on phenomenology or even its influence on other fields of qualitative research[57]. This is somewhat surprising given Goethe's efforts in developing a hermeneutical phenomenology for the natural sciences. As Max-Neef (2005:10) notes, it seems Goethe's "scientific contributions have been unjustly overshadowed because of his colossal achievements in literature and the arts…"

Goethe's science was all about the phenomenon - the phenomenality of the nature and natural phenomena itself, as opposed to the phenomena as it appears freed from the "lethal generality" of theory and the "fallacy of misplaced concreteness" (Whitehead 1925/1967 in Holdrege 2005: 49-50). The quest of Goethe's hermeneutical phenomenology was, like Husserl articulated, to let that which shows itself be seen from itself in the very way in which it shows itself from itself – or, simply, to bring to light that which is at first hidden, without imposing subjective mental constructs (Bortroft 1996).

Goethe did this by developing a sense-based natural science which dwells in the sensory realm instead of going immediately beyond it to, for example, the intellectual realm (Bortroft 1996). Attention is directed toward sensory experience and followed by the practice of exact sensorial imagination. Everything (e.g. insight, information, knowledge, and understanding) was sought from within the phenomenon, to come to know it from as many perspectives as possible. Experiments were varied methodically to build up a rich picture rather than proving or falsifying a hypothesis (Ribe & Steinle 2002; Holdrege 2005).

The process of exact picture building intensifies our experience of what has been experienced, such that practitioners find that their "observing and perceiving becomes dynamic and full of life… following inwardly the shapes, colors, smells, or tones… to see more intensely…to enter more deeply into the phenomenal world" (Holdrege 2005: 49). The connectedness of such details within the organism itself also establishes a connectedness within the practitioner (Holdrege 2005). One is kept close to the phenomena as observation extends beyond normal perception and immerses one's whole intention and attention within the phenomenal world, dissolving set ideas and assumptions through mental re-moulding (Holdrege 2005).

Goethe's practice was ultimately aimed at revealing the whole – the experience of perceiving and seeing unifying relations as they are observed (Bortroft 1996):

> When it occurs, it fills you with the greatest joy and you realize: 'now I am knowing'. We can use the word intuition here as long as we don't think of something vague, but rather a nondiscursive form of seeing connections that is comparable to the experience one can have most purely in mathematical insight (Holdrege 2005: 50).

What is encountered is the organisation or unity of the world - what this means depends on the mode of consciousness (Bortroft 1996). Yet this finding is both completion of a process and the beginning of another:

> As an end, it brings us full circle to a more conscious glimpse of the being - the riddle - that formed the starting point of the investigation. As a beginning, it is the soil for further work and vital new insights. Goethe's approach to science is itself a fertile idea that still has ample life to unfold (Holdrege 2005: 51).

One fertile idea which is ripe for unfolding is how Goethe's science as a phenomenology of nature might foster a deeper sense of responsibility, care and connectedness with nature (Seamon 2005). Goethian science offers a conceptual and lived means for encountering "qualities by which the natural world remains alive, dynamic, undivided – itself" (Bortroft 1996; Seamon 2005: 99). In this intimate exchange, nature does the speaking.

[57] Based on a keyword search carried out on a number of phenomenological texts as well as PhD theses dealing with phenomenology. In particular, a search of Vol.1 and Vol. 2 of the 1010 pages of the *SAGE encyclopaedia of Qualitative Research* (Given 2008) (which deals extensively with phenomenology), returned only one 'hit' for Goethe which simply noted him (in a bracketed phrase) as being an Enlightenment philosopher who advocated for the positive influences of subjectivity in research.

Phenomenology is an active process of reflection on a particular experience such that *phenomenological reflection* is about grasping the essential meaning of the experience (van Manen 1990). It involves 'mining' the experience to identify core themes, relationships and invariant structures: ultimately, it is a search for patterns (Morse 2011). In contrast to conventional content analysis, does not specify *a-priori* the particular elements it wishes to abstract from the text (van Manen 1990).

Phenomenology is sometimes characterized by its philosophical acceptance of 'no one method', yet there remains methodological impulses and exploratory 'roadmaps' which can be used to guide phenomenological analysis and writing - both of which are intertwined; in fact, it is posited that phenomenological method is the act of writing and re-writing (van Manen 1990). This rests on the intimate ways in which one comes to know the subject matter such that one can deliver an accurate account of the meanings and essences which form the structure and the context of the experience (e.g. MNE). However, a broad characterization of the phenomenological method is that it begins with lived experience and the *life-world*, moves to the *reduction* and concludes with a description of the *essence.*

3.2.2.1 Lived experience and life-world

> *Just as our body needs to breathe, our soul requires the fulfilment and expansion of its existence in the reverberations of emotional life.* (Dilthey 1985: 59 in van Manen 1990: 36)

Lived experience is the "breathing of meaning…the heaving between the inner and outer, made concrete…in my reflexive consciousness…" (van Manen 1990: 36). It is this explicit pursuit of meaning in the experience within the unity of a significant whole which gives phenomenology its ontological power (Gadamer 1975; van Manen 1990; Bortroft 1996). What is the nature of the phenomena as meaningfully experienced? In answering this question, we are drawn into fulfilling our human nature: to become more fully who we are (van Manen 1990). This aspiration is vital to both reflexive life-long learning and an empowering pedagogy.

The term 'lived experience' derives from the German *erlebnis* – experience as we live through it (Adams & van Manen 2008). In phenomenology, lived experience is often used synonymously with *life-world* to refer to the 'already there' world of immediate experience, the continuous stream of spontaneous 'happenings' which arise in everyday life before theorizing (Adams & van Manen 2008; Morse 2011). It is both the starting and end point of phenomenological research (van Manen 1990). The phenomenologist aims to transform raw naturally occurring lived experience into structures, e.g. a textual (the how) and structural (the what) description, of its essence. This is done in such a way that

> …the effect of the text is at once a reflexive reliving and a reflective appropriation of something meaningful: a notion by which a reader is powerfully animated in his or her own lived experience (van Manen 1990: 36).

The practice emphasizes the importance of individual experiences of people as conscious human beings (Creswell 2007) and signals an intent to directly explore the pre-reflective dimensions of human existence (Adams & van Manen 2008). The experience may be ordinary or non-ordinary but a distinguishing factor is

that they are usually experiences which we may not always explicitly reflect upon: it is the world as it is naturally "there-for-me" in its original setting (Dilthey 1985 in Morse 2011).

The task therefore is to study the world as immediately experienced, before reverting to default modes of conceptualizing, categorizing, classifying, taxonimizing, reflecting or abstracting (van Manen 1990). This is to understand that the practice - the experience, the *quali* or 'whatness' of life - always precedes subsequent reflection or its quantitative measurement (van Manen 1990; Abram 1996; Maiteny 2004). The researcher must be sensitive to the subtleties of participants' experiences as it is 'there-for-them' without bringing to bear other possible interpretations, generalizations or theories. As Adams & van Manen (2008: 617) stress:

> The phenomenological attitude keeps us reflectively attentive to the ways human beings live through experiences in the immediacy of the present that is only recoverable as an elusive past.

In the context of this research, it demands a sensitivity allowing participants to recall memories without influence or judgement and, in the case of field observation, to allow events to unfold without interference or vocalized expectations (Morse 2011) (See also Box 17; Section 3.3.6)

3.2.2.2 The reduction

Reduction is a defining characteristic of a phenomenological method which aims to study the life-world. The term 'reduction' is somewhat misleading as its ambition – "to make reflection emulate the unreflective life of consciousness" - is paradoxically a project against reductionism in the sense of minimization and abstraction (Adams & van Manen 2008: 617). 'Reduction' is derived from *re-ducere*, meaning to 'lead back to' so, from a phenomenological perspective, it is an attempt to lead back to the pure phenomenon and, in doing so, reconnect with, in this case, essential meaningful nature experience (Morse 2011).

'Reduction' is a technical term which describes the use of 'bracketing' (*épochè*). Bracketing is considered the first step in phenomenological reduction and is the process whereby the researcher sets aside, as far as is possible, preconceived ideas and empirically derived assumptions so as to best understand the experiences of the participants in the study and the "experiential surge of the life-world" (Moustakas 1994; Adams & van Manen 2008: 617; Rolfe 2008). For more ontologically oriented phenomenologists, the purpose of the reduction is not to bracket the phenomena away from the world, but rather to restore the contextual and meaningfulness of the world (Adams & van Manen 2008). In bracketing, the preconceptions held about a phenomenon are disclosed so to allow a deeper understanding of the world as it appears (Section 1.3).

However, what might appear simple is in fact a profoundly complex concept (Gearing 2008). There exist many philosophical investigations and applications of 'the reduction' across various qualitative research approaches that can make the topic complex and confusing (Adams & van Manen 2008). This is unsurprising given that phenomenology can be understood in a variety of ways; it is therefore essential to understand various interpretations of the reduction. For example, Gearing (2008: 63) suggests can be seen as:

> ...a scientific process where a researcher suspends or holds in abeyance..presuppositions, biases, assumptions, theories, or previous experiences to see and describe the essence of a specific phenomenon. This process allows a focused researcher to observe the unfiltered phenomenon as it is at its essence, without the influence of our natural attitude - individual and societal constructions, presumptions, and assumptions.

Critics point out that this method is regularly misunderstood or misapplied: i.e. when phenomenology is employed as social research method, the reduction or bracketing is often applied to the verbal accounts of experiences told by the participants of the study rather than directly on the experiences themselves (Rolfe 2008). The charge is that researchers accept the experiences of their participants and only apply reduction or bracketing to their own perceptions of the participants' accounts of their experiences (Rolfe 2008). This is said not to be the phenomenological reduction as Husserl conceived but rather a form of positivist objectivity disguised as subjective social science (Rolfe 2008).[58] This practice shifts the object of study away from the inner experiences of the researcher to solely those of subjects under investigation (Rolfe 2008).

Bracketing does not have a universal form so its rigor is determined by how the researcher operationalizes elements comprising the concept (Gearing 2008). Following Gearing (2008), this study proceeds as follows:

i) *Nature of the bracketing:* the bracketing is somewhat porous: whilst the suspicions of the subject's internal personal variables (assumptions, beliefs and theories) and external situational variables (context, time, space) are often made explicit, it is recognized that these may inevitably distort the dimension of the phenomenon in its natural state;

ii) *Nature of internal and external suppositions:* the bracketing identifies my suppositions (Section 1.3) and makes explicit the history, definitions and existing research related to MNE (Chapter 2);

iii) *Temporal structure of the bracketing:* bracketing has been applied to the data collection (specifically in-depth interviews), analysis and discussion. However, in recreating the essences (invariant structure) of the experiences, the brackets were porous in the sense they allowed my own inner lived experience to substantiate and animate the 'is-ness' of MNE. Bracketing was not applied to elements such as study conceptualization, literature reviews or results discussions (e.g. Chapter 5).

iv) *Unbracketing and reintegration:* the reintegration of that which was suspended in the bracketing (internal and external variables, prior suppositions) has been re-integrated in the essences and final chapters (i.e. Chapters 6 and 7) and for reflective narratives throughout the research process.[59]

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[58] Bracketing should not be confused with 'situatedness' in qualitative research which refers to the researcher's involvement or social interaction within a specific context - either material / physical / symbolical involvement on site or with the various social processes occurring in those domains (Vannini 2008). Bracketing does, however, find some parallels with the concept of 'situated objectivity' which acknowledges, as Max Weber did, that there is inherent difficulty in separating personal values and their influence from scientific investigation (Williams 2005). Since objectivity is a desirable precondition for social science investigation, objectivity should, like other values which the researcher may bring to bear on a study, be acknowledged as a value in itself and nested with other values along a continuum of investigation (Williams 2005). In this sense, 'bracketing' also aims to acknowledge key (value-forming) experiences / beliefs but, in striving for a measure of objectivity and transparency, aims to set these aside during the research itself.

[59] In contrast to Moustakas (1994) which encourages the exclusive bracketing of the researcher's experience, this study follows van Manen's (1990) approach since my experiences during the research tended to reflect and participate with the material being studied. Such experiences supported my deepening understanding of the role of intentionality (selective attention) in consciousness and its intimate ties to synchronicity.

Finally, it has been acknowledged that a characteristic of MNE is that it is difficult to describe: "Our spontaneous experience [in the world] is so rich and deep that we can never give a complete description of it any language, be it mathematics, science, music or art." (Drengson in Naess 2008: 20; Section 2.3.5). However, this apparent impasse may assist the practical application of phenomenological reduction:

> Noticing the ineffable helps us wonder at the world in which we live; consequently, it assists us in our execution of the phenomenological reduction. Then the awareness re-emerges that our reflective life is situated entirely within the unreflected life, and again we realize that everything verbal has its roots in the non-verbal (Dienske 1985: 8 in Morse 2011: 73-74).

3.2.2.3 The essence

The essence refers to how phenomena reveal itself as encountered through pre-reflective lived experience:

> Phenomenology asks for the very nature of a phenomenon, for that which makes a some-'thing' what it is – and without which it could not be what it is... The essence of phenomenon is a universal which can be described through a study of the structure that governs the instances or particular manifestations of the essence of that phenomenon (van Manen 1990: 10).

Finding the *essence* is about finding those unique and distinctive elements which are needed for MNE to exist and without which it would not remain 'what it is' (Morse 2011). Essences, like reduction, are more complex than they first appear: we are not simply focusing on the commonalities of an object but rather, in the unity of the subject (person) - object (as Merleau-Ponty envisaged), seeking to understand the essence of an *interaction* in a given space-time context (Morse 2011). The meaning or essence of a phenomenon is never uni-dimensional; it is always multi-dimensional and multi-layered. The researcher is therefore required to reflect on the totality of experiences, as reassembled after the articulation and reduction (Figure 11). From a Husserlian perspective, this involves describing the essences through imaginative manipulation (i.e. intuitively grasping what is essential about the phenomena) and sifting through contingencies and variables to perceive the essential character of an experience (Costantino 2008). Arriving at the essence is what Goethe termed *Anschauung* - the realization of insight (Costantino 2008).

3.2.2.4 Recreating lived experience

> *This dissection and categorisation of recalled individual experience, can only be an imperfect replication of the original lived experience, however, the phenomenological method aims to make use of such recollections in order to capture the common essence of a phenomenon.* (Seamon 2002 in Morse 2011: 177)

Despite its attentive orientation toward the essence of the experience, the phenomenological process will never return us to the lived experience itself (Figure 11). Comprising feelings rather than a predominantly intellectual process, MNEs often defy description (James 1902; Morse 2011). The moment MNE is exacted through oral or written language it immediately loses a dimension of its 'is-ness' (cf. Abram 1996). The experiencer may be able to replace this *experiential leakage* with the residues of their memories; however, for the researcher, the articulated experience can never be considered a true duplicate of the real thing.

As the process moves to *reduction* through identifying significant statements, codes, themes, and relationships which are at the core of the process, it is inevitable that more *leakage* (of meaning, of experiential 'is-ness') will occur (Figure 12). In the analysis, the researcher employs an adaptive and interactive approach which considers the incoming data as it emerges for the researcher during the analysis and, in defining *thematic families and relationships*, invites sensitive reflection on how continued data collection can be used to take one closer to finding the essence of the phenomena under study (Morse 2011). As the researcher embarks on the *assemblage*, there is again a risk of losing more of the ineffability which gave the experience its meaningfulness (Figure 12). However, during the *re-creation*, as the researcher writes rich textual and structural *descriptions* and proceeds to distil the *essence*, there is an opportunity to limit the leakage by cross-checking descriptions with interviewees alongside the deepening of one's own personal experience with the phenomena (i.e. the 'porous bracketing' which allows for the interweaving of the researcher's own experiences). The researcher may arrive at an essence which finds close relation to the initial retelling, yet is enhanced through its embodiment of the thematic qualities of other MNEs, lived by other subjects. However, a synthesis of the essence will never reproduce the primacy of one individual's uniquely lived MNE. This *phenomenological differential* may therefore be seen as both an individual subjective loss due to analytical reduction or a collective intersubjective gain in drawing out and distilling the essence of a shared experience of the human condition across a multiplicity of contexts (Figure 11).

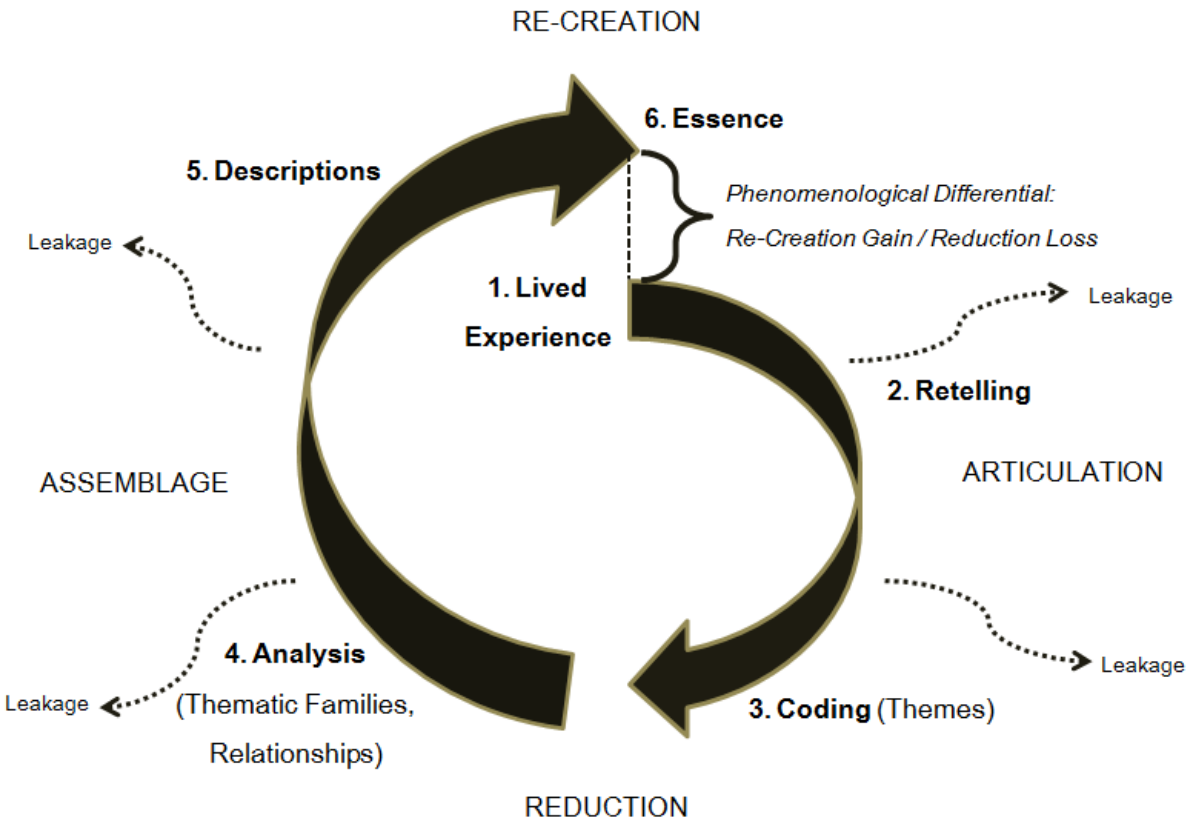

Figure 11: The phenomenological analytical process
This process captures my understanding of the phenomenological process as applied in the context of this research.

3.2.2.5 Heuristic inquiry

Pioneered by Moustakas (1990), *heuristic inquiry* is an exploratory research approach concerned with direct human knowing and in particular, self inquiry and discovery as part of an inner search for knowledge (Hiles 2008). Complementary to the philosophical underpinnings of this transdisciplinary study (i.e. interpretivism, pragmatism and phenomenology), heuristic inquiry does not preoccupy itself with forming theories or testing hypotheses but rather, in explicitly acknowledging the involvement of the researcher, turns its attention toward discovering the nature and meaning of the phenomena under study by using processes of reflection, exploration, and elucidation as pertaining to the researcher's own lived experiences (Hiles 2008; Djuraskovic & Arthur 2010). Heuristic inquiry is complementary with phenomenological method since it makes explicit the self-inquiry largely implicit in phenomenology. In privileging one's experience, heuristic inquiry "is deeply rooted in tacit knowledge that leads to a deeply subjective and creative connection between the researcher and phenomenon" (Sela-Smith 2002 in Djuraskovic & Arthur 2010: 1572).

Beyond acknowledging that the 'self' of the researcher is present and involved throughout the research process, heuristic inquiry requires the researcher to have direct experience of the phenomenon in question (Moustakas 1990; Hiles 2001; Djuraskovic & Arthur 2010). This cultivates the researcher's self-awareness and self-knowledge through self-dialogue and self-reflection (Hiles 2008).

> In effect, it is the salience of the research topic and research question for the researcher that is being acknowledged. Indeed, what explicitly can be the focus of the approach is the transformative effect of HI [heuristic inquiry] on the researcher's own experience (Hiles 2008: 390).

Hiles (2008: 391) points out that, since research questions may be deeply personal in origin, it is often "not the researcher who chooses the research question, but the research question that chooses them!" This resonates acutely with my own path in arriving at this study and whilst my research questions were shaped to align with transdisciplinary aims / ideals and disciplinary obligations, their essence reflects "a major preoccupation that has been around for a significantly long time" (Hiles 2008: 391). The researcher therefore needs to feel a passion for the research questions being asked (Hiles 2001).

Heuristic inquiry's method is largely instinctual (Hiles 2008) which, in my case, translated as that which was defined by profound and/or repeated synchronicity. Such an approach therefore requires discernment as well as high levels of transparency and thoroughness throughout an analytical process, particularly given the absence of clear temporal-spatial research boundaries (Hiles 2008). Heuristic inquiry promotes discovery and reflexivity at every stage of the research process (e.g. question formulation, ethics clearance (Image 5) data collection / production / analysis, results discussion and dissemination) (Hiles 2008). The explicit focus of the approach is the transformative effect of the inquiry on the researcher's experience (Hiles 2001). In following the seven phases of heuristic research (Appendix 9.4), there is potential that:

> …some of the most significant, exciting, and urgent life events and extraordinary human experiences might be researched more closely (Hiles 2008: 392).

3.3 Research design, methods and procedures

3.3.1 Research framework and process

This section describes the design, application and analysis of the research. Given the mixed methods approach adopted, each sub-section is categorized according to the type of qualitative or qualitative method undertaken: literature review; questionnaires; interviews; and field-based activities, as part of the 'headwork', 'textwork' and 'fieldwork' which should comprise research (L. Le Grange pers. comm.).

Built around the methodological framework (Figure 6), the iterative research process (Figure 12) begins with the intended contribution of the research (Section 1.2), the researcher's perspectives (Section 1.3 and the research questions (Section 1.4). Transdisciplinary processes begin with a societal question: a perceived problem which relevant stakeholders identify as needing to be addressed. Whilst the research questions for this research were not explicitly articulated by a defined group of stakeholders from a specific geographical area, they were grounded in sentiments which pervade scientific and popular literature with an environmental and, increasingly, social (e.g. health and well-being) fields and disciplines, i.e. how does / can reconnecting with nature promote social-ecological sustainability and human wellbeing?

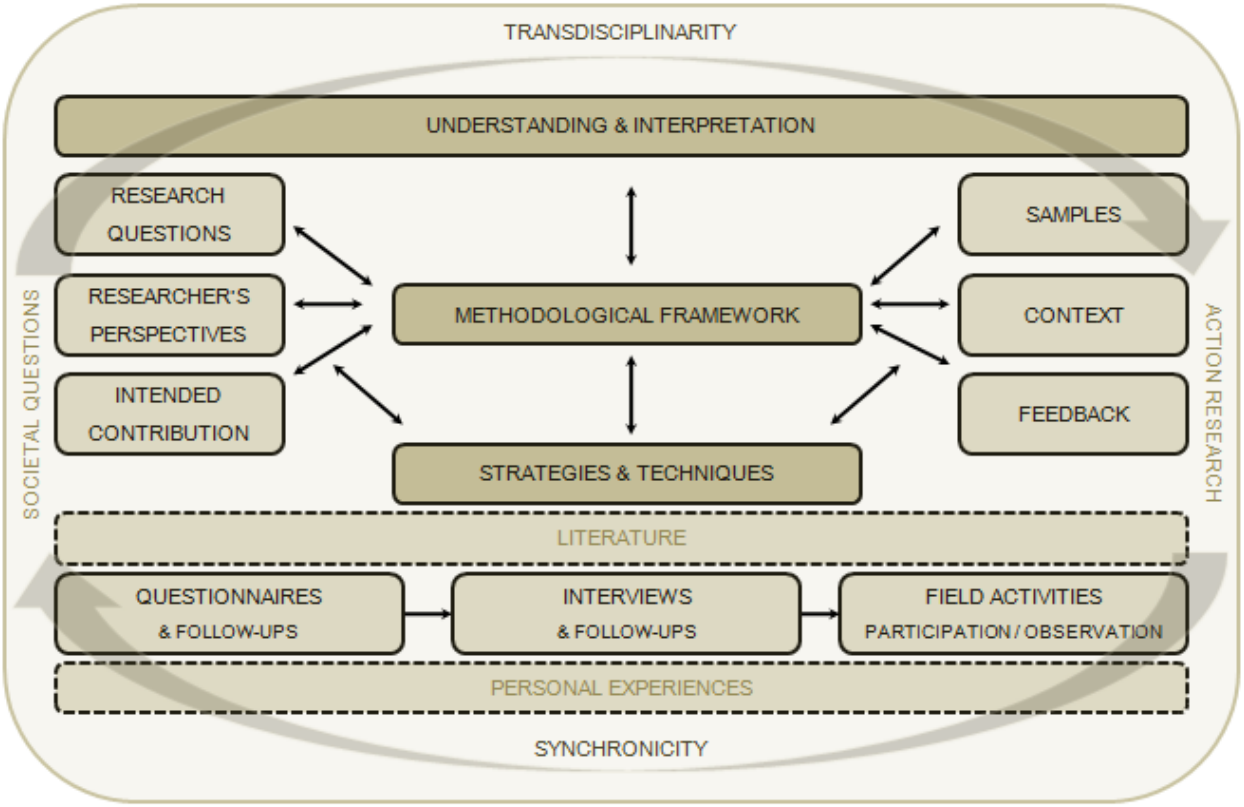

Figure 12: Concept map of the research design process (adapted from Morse 2011)

These questions fed into the methodological framework, and, in turn, were nuanced by the relevant philosophical and methodological parameters. The methodological framework (Figure 6) also determined the choice of strategies and techniques which were employed to address the research questions. The strategies and techniques were of three types: i) *questionnaires* (online and public); ii) *interviews* (in-depth and semi-structured); iii) *field activities* (university courses, experimental exercises and nature trails) but framed and continually informed by *literature* and *personal experiences*. Importantly, personal experiences included instances of *synchronicity*, which provided valuable guidance and opportunism at critical moments, in terms of informing components of research design and execution (Figure 12). These various dimensions were ultimately mediated by the methodological framework (Figure 6), to inform the overarching knowledge interest guiding the research, i.e. *understanding and interpretation* (Figure 12). All research activities and associated timeframes were plotted in a Gantt chart to guide research planning (Appendix 9.5).

3.3.2 Site selection and personal research situation

The nature of this study, with its various methods employed, did not require specific site selection according to ecological and/or social characteristics. Given the purpose of the research questions, both the questionnaire and interview portions of this study were largely site-independent. The choice of physical site gained greater importance when it came to engaging with participation and observation of MNEs in order to complement and inform other forms of data production. Whilst MNEs can occur anywhere, anecdotal evidence suggested that they were more likely to occur in areas more ecologically healthy, intact and/or which are classified as 'wilderness' (Section 2.3.6.1). Site selection obtained further relevance when considering transdisciplinary action research (outreach) – and seeking to engage at a community level.

I was primarily based within the Baviaanskloof Mega-Reserve (BMR), South Africa, from 2009 until end 2011 (Appendix 9.6). From early 2012 until mid-2013, the dissertation write-up was done from Australia, except for a short period in early 2013 when based in Costa Rica. Finalization was carried out in South Africa from mid- to late-2013. These locations are specified because they all uniquely contributed to understandings of the topic. It was impossible to separate the research and writing process from the rhythms, moods and sense of place cultivated in these areas. Being based at diverse locations also enabled interaction with people who shared respective sources of inspiration, encouragement and data (e.g. their own MNEs).

Image 5: No clearance from lived experience

The entanglement of research and lived experience was made lucid during the drawn out process of obtaining ethics clearance. I realized there would be - as there were – numerous unforeseen opportunities (e.g. Image 3) and spontaneous life events (e.g. conversing with people randomly about their MNEs) that would feed phenomenological and heuristic explorations but which could not easily sit in any application for ethics clearance. The result was uncertainty about where / if one can draw the line and an uneasiness about embracing 'life' as 'research'. On 11/01/2011, wearied by another ethics resubmission, this mantis on the window instilled hope and a fresh resolve to retain patience.

Box 15: The Baviaanskloof Mega-Reserve (BMR)

Located in the western part of the Eastern Cape (Appendix 9.6), the BMR is a cluster of protected areas (including the UNESCO World Heritage-listed Baviaanskloof Nature Reserve, an IUCN protected area category 1a – Strict Nature Reserve) within a network of multiple-use private, public and communal lands. With all of South Africa's seven biomes represented in the area (BGIS 2013), the BMR is one of southern Africa's most diverse areas. The BMR's purpose is to conserve large-scale ecological processes which are deemed essential for conservation at a landscape level (BGIS 2013), as well as unique heritage including:

- Exceptional natural beauty; remarkable geology; extensive wilderness landscapes;
- Convergence of two global biodiversity hotspots; the Cape Floristic Region and the Succulent Karoo with the important Subtropical Thicket biome also present;
- UNESCO World Heritage listing; and
- Provision of key ecosystem services (e.g. water supply) to support vulnerable ecosystems, rural livelihoods, various agricultural sectors, tourism and in meeting growing downstream urban demands.

The BMR faces land degradation; spread of invasive alien species (IAS); water scarcity; extreme weather events (e.g. flooding, erosion) and livelihood vulnerability. In some areas, social and human capital is also in decline with marginal agricultural returns and resident youth leaving the region in search for employment in larger urban centres. IAS such as the black wattle (*Acacia mearnsii*) are a threat to both biodiversity conservation and water security across catchments within the BMR. River channels and watercourses are adversely affected through reduced stability and blockages from fallen trees. In addition, native vegetation is subject to 'crowding out', and aquatic fauna and flora species suffer the impacts of shading and habitat transformation, once IAS take hold along riparian zones. These monocultures also increase fuel loads resulting in more frequent and intense fires (Boshoff 2005). In some parts of the BMR, IAS present severe threats as they encroach upon sensitive ecosystems and disrupt normal ecosystem function in inaccessible areas. If left unchecked, current pockets and distributions of invasive species will seriously threaten the region's globally significant biodiversity, wilderness character and agricultural landscapes.

Image 6: Introduced *Acacia spp.* 'invade' waterways in the Kouga catchment

Being situated in remote locations (particularly in the BMR), close to wilder nature, afforded exceptional opportunities to *participate* with the surrounding environment and develop an empathetic understanding of respondents' MNEs occurring in similar settings (noting that this area also had large infestations of invasive alien species (IAS) - mainly *Acacia spp.*). Critically, this area afforded an opportunity to test and implement emerging insights and practices toward cultivating CWN. I relished the chance to live a year in a cottage without electricity or running water and reflect fondly upon my days with this land (Image 7). The silence accompanied by the fascination and companionship of resident wildlife provided much poetic inspiration (Appendix 9.23.5) and burgeoning curiosity for ecology and the book of nature. Having lived abroad in numerous locations for short periods since 1999, I finally began to forge an appreciation of 'sense of place'.

Some of my most profound wildlife encounters were experienced here, particularly when venturing into the foothills to stay multiple days at caves formerly utilized by the Khoisan. This thoroughly enhanced my phenomenological and pedagogical insight into the value of MNEs (Appendix 9.24). The subsequent time spent in Australia and a rural area in Costa Rica deepened my understanding of *synchronicity as a MNE* as instances multiplied. Of particular note, there were a few MNEs which, in transcending fixed time-space boundaries, felt like a fluid extension of the content of MNEs I had experienced in South Africa (Image 18). Regular journaling was therefore also critical in order to adhere to the heuristic inquiry forming part of the research process. In recording personal MNEs as they occurred, the intent was to tap into prereflective aspects whilst ensuring that the MNEs avoided the fallibility and unreliability of memory recall (Box 17).

Image 7: Remote veld [field] cottage in the BMR

This cottage set in an inspirational location adjacent to the Baviaanskloof Wilderness Area (within the BMR) served as a research / writing base for over 12 months. Whilst here, I had some of my most significant MNEs (e.g. Image 3; Image 5; Image 9; Image 21); dialogued on invasive alien species (IAS) with WS students and local community (e.g. Image 20; Image 24) and journeyed solo as basis for creative (heuristic) writing (Appendix 9.24).

3.3.3 Online questionnaire

Questionnaires are a formal and rigid way of producing data and serve as an efficient way to capture views of large groups of people within a short period of time, available for quantitative and qualitative analysis (Given 2008). This study used an online and face-to-face (public) questionnaire; the online is addressed first.

3.3.3.1 Design

An *online questionnaire (OQ)* was the first research method formally administered. The OQ contained a mix of five-point Likert-scale (e.g. eliciting levels of agreement to listed statements), ranking and ordering questions, and short open-ended questions across multiple themed sections pertaining to MNE, IAS, education and demographics (Appendix 9.8.2). Importantly, it contained the five-point Connectedness to Nature Scale (CNS) consisting of 14 statements designed to measure an individual's perception and emotional affinity with the natural world (Mayer & Frantz 2004: Section 2.2.7, Appendix 9.8.1). It also included questions which invited respondents to recount their most memorable MNE (one involving fauna and one with flora/landscape), identify impacts on if / how IAS affected their MNE; provide self-report reflections on if/how respondents' MNEs changed them as people; and added a number of additional statements with the CNS to elicit levels of agreement on, e.g. the frequency of synchronicity and gratitude in their life (but these statements were *not* tallied / scored with the CNS statements). The customizable software *LimeSurvey* was used to design the OQ and was hosted at http://eyes4earth.org. Responses were stored on secure password encrypted servers. Respondents were unidentifiable unless voluntarily choosing to leave their email address for follow-up contact, in which case confidentiality was assured.

3.3.3.2 Inviting respondents

A call for participation was advertised through various channels (Table 9). Notice of the OQ was initially disseminated through personal and professional mailing lists/online forums which had national and international reach. The OQ was also advertised with the use of posters in public spaces in locations along the southern Cape of South Africa, such as in universities (Stellenbosch and Port Elizabeth), tourist venues (Garden Route and Baviaanskloof), and supermarkets (Grahamstown) (Appendix 9.9.3). An advertisement was additionally placed in the national magazine *Simply Green* (Appendix 9.9.4) and on the eco-marketplace webpage *Going Green* (Appendix 9.9.5).[60] This initial OQ was open to the public between April 2010 and April 2011. Publicity efforts were concentrated on two periods: June-July 2010 and January-February 2011. Respondents were notified of the URL for the OQ where they could enter and submit their responses.

In order to identify participants, each of the media employed questions or criteria to both capture attention and screen/select participants. Emails to special interest electronic mailing lists (listservs) included introductory text which accompanied the link to the OQ. Following the question "*Should I take the survey?*", three bullet-points with criteria were listed to help participants decide if they should participate in the OQ (Appendix 9.9.1), with the first and most important criteria stating:

> You have had what you consider to be (a) meaningful experience(s) with nature and/or a profound encounter with wildlife (plant, animal, insect, bird, reptile, marine life....) anywhere on the globe.

The remaining two criteria concerned an invitation to express opinions regarding IAS and EfS. Theoretically, the OQ has the advantage of being open to anyone from any geographic or demographic. However, in practice, factors like interest in the topic, internet access, computer literacy, time availability and channels through which notice of the OQ is received influences the type of respondents recruited.

Table 9: Distribution of notices inviting participation for the online questionnaire

Notice	*Name / Location*	*Estimated Reach*
Electronic notices	*Comprising of standardized text for e-announcements*	
Special interest listservs	Dept. Conservation Ecology & Entomology (Stellenbosch University)	Local / Regional
	Fynbos Forum	Regional / National
	Fostering Sustainable Behaviour	International
	Foundation for Natural Leadership (NL) (*Revised OQ only*)	International (NL)
E-Newsletters	Seasonal Supplement (EarthCollective)	International
Websites	GoingGreen.co.za	National
	EarthCollective.net	International
	eyes4earth.org	International
	Experience Project (Synchronicity forum)[61] (*Revised OQ only*)	International
Email	Researcher's personal and professional networks	Local/International
	Supervisors' personal and professional networks	Local/International
Public notices	*Comprising of advertisements and posters*	
Magazines	Simply Green (February 2011)	National

[60] The efficacy of any of these physical notifications is questionable –based on demographic data, it appears that most respondents arrived at the OQ via the e-notifications and recipients' subsequent 'forwarding' of these notices to colleagues or groups in their social and professional networks.
[61] The Experience Project: http://www.experienceproject.com/groups/Believe-In-Synchronicity/28543

Table 9 cont'd: Distribution of notices inviting participation for the online questionnaire

Notice	*Name / Location*	*Estimated Reach*
Universities	Stellenbosch University (US) (SA)	Local/Regional
	Nelson Mandela Metropolitan University (NMMU) (SA)	Local/Regional
	Wageningen University (WUR) (NL)	International
Tourist Information	Gamtoos Valley Tourist Information ('Tolbos')	Local/Regional
	Baviaanskloof Tourist Information ('Rietrivier')	Local/Regional
	Sewefontein Tourism, Baviaanskloof ('Sewefontein')	Local/Regional
	Tsitsikamma Tourist Information ('Storms River')	Local/International
Tourist Accomm.	Plettenberg Bay Backpackers ('Albergo')	Regional/International
	Nature's Valley Backpackers ('Wild Spirit')	Regional/International
	Kouga catchment wilderness ('TerraPi')	Regional/International
	Stellenbosch Backpackers ('Stumble Inn')	Regional/International
	Basil Kent Research Centre, Great Fish River Reserve	Regional/International
Conferences	Healthy Parks, Healthy People Congress (Melbourne, AU)	International
	Fynbos Forum (Citrusdaal, Western Cape, SA)	Regional/National
	PRESENCE Workshop (Baviaanskloof, Eastern Cape, SA)	Local/Regional
	4th World Conference on Ecological Restoration	International
	25th International Congress for Conservation Biology	International
Lectures/Classes	Environmental Psychology (WUR) (*Revised OQ only*)	International
Supermarkets	Pick 'n' Pay Grahamstown	Local/Regional

3.3.3.3 Revised online questionnaire

A *revised version of the OQ* (r/OQ) was prepared in early 2011 to explicitly target *synchronicity as a MNE* (Section 2.4). In terms of OQ design, this largely meant replacing the term 'MNE' with 'synchronicity', since it is simply one type of MNE (Appendix 9.8.3). Other minor adjustments (e.g. abbreviating the OQ, improving readability by changing screen colours) were made based on feedback elicited from the original OQ. Questions were not altered in a way which would affect the comparability between the two OQs.

Through contacts, I had learned that the Dutch-based *Foundation for Natural Leadership (FNL)* [62] was partly inspired by Jaworski's (1996) book *Synchronicity: The inner path of leadership* and members participated in facilitated wilderness trails in southern Africa (e.g. iMfolozi, Okavango) and Europe. Therefore, members were likely to be familiar with the type of experience that this study specifically sought to investigate. FNL members mainly comprised of senior business professionals, corporate executives and managers based in The Netherlands. This distinct focus group therefore served in achieving multiple aims in relation to sampling demographics by being able to broaden the existing sample by including persons with:

i) Residency outside of large wild nature-rich countries (e.g. South Africa, Australia, U.S.A);
ii) Occupations not directly aligned with natural science (ecology) or environmental interests;
iii) Familiarity with the concept of *synchronicity as a MNE*.

This r/OQ URL was forwarded to the FNL coordinator and dispersed through their membership email list and open to FNL respondents between May - July 2011. [63]

[62] For more information on FNL see: http://www.naturalleadership.eu. Current research investigating the impact of FNL members' wilderness experiences is being carried out by Boy van Druffelar: http://www.boy-phd.com

[63] The r/OQ was slightly adapted again in order to be sent to tertiary students participating in an introductory environmental psychology course (master's level) at Wageningen University. The aim was to test whether (*overleaf*):

Box 16: 'Data collection' or 'data production'?

We are more commonly and traditionally accustomed to referring to these processes as 'data collection'. However, in accordance with the earlier constructivist arguments made in this chapter, 'data collection' is an inaccurate depiction. Data - even before it becomes information and knowledge - is itself produced and constructed as it is filtered through our methods and our perception. Data is rarely sitting there waiting to be picked up, gathered or collected, as if we were trawling with a magnet. Rather, it is always constructed and produced through the act of human will, intention and attention, as primarily determined by the research questions. In other words, the formulation of the problem shapes how the researcher views, obtains and *produces* data. This does not mean that there is no independent world existing independently of humans, but it is a reminder that we must always be acutely aware of our human lens – our *powerscapes* and *mindscapes* - when applying a range of methods (Le Grange 2010). (*These insights are based on the Td Core Module convened by Prof. Le Grange in January 2010, with additional perspectives supplemented by John van Breda (TsamaHUB coordinator).*

3.3.4 Public questionnaire

3.3.4.1 Design

The *public questionnaire (PQ),* as an abbreviated version of the OQ, also contained a mix of Likert-scale questions, short-open ended questions, rank and order as well as the CNS. Since respondents to the OQ form a biased sample given that their voluntarily participation in the survey on the basis of having had an MNE, the PQ was designed to be provide a necessary control or comparative sample to the OQ. It therefore only included those questions deemed to be essential to the research questions and particularly in testing whether people who had MNEs exhibited greater CWN. For example, common to both the OQ and PQ were questions pertaining to the frequency of MNEs, the extent of childhood and current contact with nature, as well as standard demographic questions. All questionnaires included the 14 statements of the CNS (Mayer & Frantz 2004) which was expanded to include additional statements related to perception of synchronicity and expressions of gratitude toward nature.

The PQ was also designed to be completed within just a few minutes therefore it did not ask participants to recall a story of their MNE, but only the frequency (however, an initial pilot of the PQ did ask for the MNE to be documented and these stories were included in Chapter 4). The PQ was prepared as hard copy and, in most cases, was completed by the respondents themselves in the presence of one of the two research assistants performing this part of the research. In cases when respondents were unable to complete the PQ for themselves, the research assistants would read the PQ to the participant and then record their verbal responses, verifying answers with the participant when necessary. The research assistants were given the necessary protocols for administering the PQ as well as an opportunity to pilot test it and report on feedback as a basis for further revisions/adaptations.

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i) an international class of tertiary students were familiar with *synchronicity as a MNE*; ii) if they had had such experiences; and iii) if they considered such experiences or discussions of relevant and of added value to their current education. Adaptations only required minor adjustments concerning the education section of the r/OQ. The r/OQ hyperlink was sent to the course lecturer to advertise to students. However, given the low response rate and number of unusable answers, responses to this r/OQ were insufficient to form a distinct focus group worthy of comparative analysis; however, a few stories and reported impacts of MNEs were able to be included in the qualitative analyses.

3.3.4.2 Identifying respondents

The PQ was administered across four locales of South Africa: Cape Town; Plettenberg Bay; Jeffreys Bay; and the greater Durban region between May and June 2011. These areas were selected largely for convenience - the most important aspect was to ensure relative cross-representation from various urban areas. Respondents were approached in various locations: outside supermarkets, inside retail outlets, cafes, backpacker venues or on the footpath. Due to timeframe and concerns over response rate, postal questionnaires were eliminated, despite their recognized benefits.

In contrast to the purposive sampling used for the OQ and in-depth interviews, participants for the PQ were more randomly identified from a predefined demographic subset. Preliminary results from the OQ had ascertained that respondents were almost entirely Anglo-European descent (i.e. White). Therefore, in order to form a statistically comparable control sample (noting that language and cultural frame of reference may be influential variables), the PQ also approached persons of Anglo-European descent. Remaining persons comprising the PQ and OQ samples (in equal proportions), were of Coloured ethnicity.

Several critical dimensions must be noted here. This demarcation was done in order to: i) comply with the broader aims of the study which was focused on the disconnectedness from nature inherent to the Western worldview (i.e. Eurocentric and influenced by early Christianity and the Enlightenment) – and the process of encountering CWN in this particular cultural context; ii) obtain a consistent and statistically comparative sample to that which was elicited through the OQ; and iii) respect feedback from pilot testing and literature (Section 2.2) which questioned the appropriateness and reliability of the CNS (cf. Mayer & Frantz 2004) when administered to cultural groups which are not primarily socialized to a Western worldview. However, in the pluralistic South African context where ideals of Western culture pervade and influence much of society, future research should explore these aspects (e.g. appropriateness of the CNS and commonalities of MNE) across Black, Coloured (e.g. Khoisan descendent) and Asian ethnic groups. For reasons of time, scope, research setup and the further research ethics clearances required, these elements were, regrettably, unable to be effectively covered by this research (see also Limitations, Section 7.1.4)

3.3.5 In-depth interviews

The purpose of the in-depth interview is to capture a range of subjective assessments in order to unfold the meaning and impact of peoples' experiences and their perceptions on related or intertwined themes (Kvale 1996; Smith 2007; Smith et al. 2011; Morse 2011). In-depth interviewing is therefore the preferred research method when dealing with subject matter that demands the researcher to position himself as close to the lived experience as possible (i.e. prior to scientific explanations) or, alternatively to encourage reflection on specific emergent themes relevant to the research. In-depth interviewing also requires the researcher to select a particular theme and keep working on that theme with from various angles and questioning in order to go progressively deeper into shared exploration with the interviewee.

3.3.5.1 Identifying respondents

Purposeful sampling was used to select information-rich cases which would enable greater in-depth understanding of the questions standing central to this research, rather than trying to test statistical hypothesis about relationships in the data (Patton 2002 in Morse 2011; Smith et al. 2011). Four strategies were employed for identifying participants for in-depth interviews:

i) Persons already known to the researcher;
ii) Persons previously referred or recommended to the researcher;
iii) Additional persons identified via snowball sampling during the interviews; and
iv) Additional persons identified through synchronistic events alongside the formal research process.

Adapting Smith (2007), the initial question needed to screen interviewees as suitable subjects was: *Have you ever had, what you consider to be, a meaningful nature experience?* Participants were then further screened (but not directly questioned) according to their known involvement and expertise with matters concerning MNE. Finally, they were asked to complete the CNS in fulfilment of the final criteria that all interviewees should have a CNS score well above the average of OQ and PQ respondents. This was found in all cases. All interviewees had spent extensive time in natural areas in their professional capacity as anthropologists, artists, biodiversity managers, ecologists, environmental educators, intuitives, naturalists, rites of passage facilitators, students, traditional healers and wilderness guides.

Table 10: Overview of in-depth interviewees

*Pseudonym**	*Primary occupation(s) / Fields of expertise*
Anna	Animal communicator, training facilitator
Bridget	Process facilitator, consultant (leadership development, communication, reconciliation)
Chris **	Senior wilderness guide, group facilitator
Craig **	Filmmaker, photographer, artist
Fiona	Horticulturalist
Galeo	Conservation adventurer, poet, photographer
Graham	Senior university academic / scientific researcher (ecology, conservation)
Greg	Land manager / implementer (for invasive alien plant clearing)
Jeremy	Outdoor environmental educator
Joy **	Environmental educator, nature-based coach
Kate	Senior university academic / researcher (anthropology)
Markus	Senior ecologist, biodiversity manager / strategist, wilderness guide
Mavo	Park ranger (with traditional healer / *sangoma* lineage)
Patrick	Environmental activist, researcher, writer
Scott	Senior ecologist / scientific researcher (large mammals)
Sheena **	Doctoral researcher / student (environmental sciences), photographer
Sonya	Physiotherapist, counsellor, writer
Sue	Retired artist, farm owner / caretaker
Tony	Senior wilderness guide, craftsman
Trevor	Sailor / yachtsman

* A few interviewees specifically requested their real name be used instead of a pseudonym
** Persons with whom follow-up interviews were conducted

Twenty persons - eight females and twelve males - were interviewed between January and June 2011 (Table 10). Follow-up interviews with deeper phenomenological questioning were conducted with four individuals - two male and two female - in late 2011. Sixteen interviewees were aged over 35 years of age. All were South African; four were born overseas but were long-term residents of the nation. Interviewees were White English-speaking (17), White Afrikaans-speaking (1), Coloured (1) and Xhosa (1). The number of interviewees (sample size) was not fixed prior to commencing the research or even immediately prior to the interview processes itself. Instead, the sample size was determined through constant reflection on the research questions, evolving phenomenological understanding and the extent to which accounts from each additional interviewee added to insights of MNE as elicited through other interviews (Morse 2011).

3.3.5.2 Implementation

In-depth interviews were mostly carried at the interviewees' home residences. This decision was partly based on the fact that memory recall is enhanced in when individuals are relaxed and at ease (Morse 2011). Interviewees were based in various locations across South Africa's southern Cape: Grahamstown, Port Elizabeth, Knysna and the broader Cape Town / Southern Cape region. One interview was held in a café in Johannesburg and two telephone interviews were carried out with individuals based in KwaZulu Natal. The MNEs reported by interviewees generally occurred in either relative proximity to where they lived and/or in protected areas, e.g. Table Mountain, Addo or Kruger National Parks (*IUCN category II*) or in the Baviaanskloof or Hluhluwe-iMfolozi provincial reserves (*IUCN category I & II respectively*). Some reported experiences from Namibia and Botswana, and a few persons gave accounts from periods spent abroad in North America, England and Australia, or when spending extended time in or on the ocean.

Interviewees were asked to read and sign a consent form to participant in the research which outlined specific details concerning the nature of the research and confidentiality agreement (Appendix 9.7.5). The interviews were semi-structured but flexible in allowing the conversation to gravitate according to dimensions of importance to the interviewee. The overarching question used to orient the interviews was *"What was the experience like?"* coupled with questions about how it feels to have MNEs, how interviewees came to have their MNEs and how the experience came to have meaning. In addition to being asked about their MNEs (Section 4.2), interviewees were also asked about their perspectives on how IAS might affect – or did/does affect - their MNEs (Section 5.3.4.3) and, finally, questions related to the relevance of these two thematic dimensions to education (EfS) (Section 5.5). Interviews were recorded with a digital audio recorder and, at the same time, extensive notes were taken as interviewees were speaking.

3.3.6 Field activities

Various field exercises were performed during this research. These included pilot studies, experimental research (not included in this dissertation but yielding significant insight nevertheless), nature-based (wilderness) excursions and leading Wildlands Studies (WS) – an annual (conservation ecology oriented) field-studies program for undergraduate students from North America, primarily the USA.

The factors influencing site selection for field activities and phenomenological exploration were:

- *Accessibility:* Being already based in the BMR (Box 15), I had good contact with relevant stakeholders and interested local community and had attended a stakeholder workshop discussing plans to create wilderness hiking trails in the BMR. The PRESENCE Learning Village and TerraPi (Appendix 9.6) provided access to students and volunteers respectively who willingly made themselves available for pilot studies, discussions, hikes and other related exercises. TerraPi also afforded ready access to infestations of various invasive alien species (IAS) (mostly *Acacia spp*.). Therefore, the choice to use the BMR as both a base experimental and experiential site was logical and convenient.
- *Opportunism (1):* Being based in the BMR presented relevant opportunities to participate in diverse activities, e.g. IAS removal, wilderness trails, EE activities and stakeholder workshops.
- *Opportunism (2):* This research allowed for opportunity to participate in various activities in areas outside of the BMR [within which the Baviaanskloof Nature Reserve is listed under *IUCN protected area category Ia – Strict Nature Reserve*]: nature-based courses (e.g. Bergplaas Nature Reserve, Karoo [Private]), wilderness trails (e.g. Kalahari NP [*IUCN category II - National Park*]), wildlife interaction (e.g. Great Fish River Reserve [Provincial, *IUCN category Ia – Strict Nature Reserve*]). Participating in these unforeseen activities afforded consummate opportunity to observe - *in-situ* - MNE as it happened for others and enabled better access to the pre-reflective component of MNE.
- *Future action:* Both my growing connection to the BMR and my continued (peripheral) involvement with ongoing conservation in the region motivated me to prioritize this area for further and future action and outreach which may arise from this research.

Pilot studies, experimental research on the experience of IAS as well as nature-based excursions were all carried out in the BMR: PRESENCE Learning Village (Gamtoos catchment); TerraPi (Kouga catchment) and Sewefontein (Baviaans catchment). Participant observation of nature-based excursions in wilderness or in clearing IAS occurred at Riverside and Rooihoek in the Nature Reserve's within the BMR, and in partnership with Eastern Cape Parks & Tourism Agency (ECPTA) and the Friends of the Baviaanskloof Wilderness Area (FOBWA). The WS-South Africa field course I was involved with during 2009-2011 was carried out in the BMR (including at aforementioned locations) and in the Great Fish River Reserve (GFRR), east of Grahamstown. The WS-Australia course in early 2012 was based in north Queensland.

Participant observation provides the ideal way of accessing lived experience. For example, Morse (2011) accompanied participants on multiple wilderness river rafting trips. Being so close to the actual experience allows for an unparalleled research perspective in terms of exploring MNE as it happens pre-reflectively. However, such an approach can only be realistically administered if the objective is to explore a particular type of experience within a pre-defined setting or with pre-defined situational variables. A broad-scale *in-situ* exploration of spontaneous MNEs would be impractical and possibly fruitless from a research design perspective. Participant observation may also bring potential disadvantages such as introducing bias or being intrusive. However, whilst not formally explicated in the research design process, I readily involved myself

in field exercises which allowed for participant observation of MNEs *as they spontaneously happened*. On these occasions, it was possible to sensitively engage with the individuals involved soon after the event. However, their stories were not included in this research unless express voluntary consent was provided.

Initial field activities largely involved unobtrusive participation and observation in order to assist myself as researcher in immersing myself in the topic and gaining more rapid familiarity with the breadth of MNE as encountered by others. These activities also assisted with research scoping and, in some cases, piloting questions and practicing interviewing technique. For all these events, fellow attendees (facilitators and participants) were made aware of the nature and purpose of the research, the reason for my involvement and, where appropriate, were presented with formal documentation, such as the Letter of Ethics Clearance (Appendix 9.7.2). People were usually willing to engage given their shared conviction that such a topic should be given greater attention in scientific and education discourse. A list and explanation of the key field activities which provided opportunities for participant observation is included in Appendix 9.10).

3.3.7 Data analysis

Data analysis varied according to the research questions under investigation (Section 1.4). The OQ and PQ contained quantitative and qualitative data; in-depth interviews contained qualitative data only. Data analysis procedures for each are introduced here with specifics detailed in the respective chapters to follow. Phenomenological methods and analysis are described separately in Chapter 0.

Quantitative data were captured in the OQ using *LimeSurvey* and allowed tallied responses to be exported to a *Microsoft Excel* file suitable for further analysis through the statistical software program *STATISTICA*. Quantitative data captured in the PQ were transferred manually to *Microsoft Excel* template. My research assistant and I proofed the process of transposing data. The respective OQ and PQ *Microsoft Excel* files were then uploaded and analysed with *STATISTICA*.

Internal reliability tests were performed on collated data using Crombach's α (alpha). ANOVA and Spearman's correlation analysis on relevant variables was also carried out. For example, the Spearman's test was employed using the CNS score as independent variable and correlated with other dependent variables included in the OQ and PQ e.g. MNE frequency, contact with nature and engagement in specific life practices. ANOVA was performed on the relationship between gender and CNS scores as well as on the frequency of the two types of MNEs (i.e. with and without an animal involvement). Descriptive statistics were carried out on other remaining variables of interest, e.g. country of residence. Statistical analysis was performed by Prof. Martin Kidd from the Centre for Statistical Consultation at Stellenbosch University. Prof. Kidd was also available for liaison concerning primary interpretations of the data analysis.

Qualitative analysis was used for written responses to short open-ended questions in the OQ and PQ as well as for some parts of the in-depth interviews. For the OQ, transcription of short-answers was not required since they were captured electronically through the online process (using *LimeSurvey* software). PQ responses were hand-written and therefore required electronic transcription. This was a simple process of entering data into *Microsoft Word/Excel*. In-depth interviews were transcribed using *Dragon Natural Speaking 10.0* voice recognition software. This required intent listening to portions of an interview followed by immediate dictation and then re-listening to the portion to ensure the transcription was accurately captured. During this process, notes were made of themes and connections which presented themselves in their immediacy. Resultant files from the OQ, PQ and in-depth interview transcription process were uploaded as (pdf) source files ('*primary documents*') to *atlas.ti v6* qualitative analysis software.

Conventional content analysis was used to analyse the data captured through the various formats.

> Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use (Krippendorf 2004:18)

When applied, content analysis is an empirically grounded interpretative research method employing a systematic classification process of coding certain words or concepts within the content of texts or sets of texts, in order to identify the presence of themes, patterns, meanings and relationships as a basis for further inference (CSU n.d.; Krippendorf 2004; McDonald et al. 2009). For this research, content analysis was used to develop inductive themes with respect to MNEs, IAS, EfS and their interactions.

atlas.ti v6 supported the content analysis. Specifically, it served as a versatile and effective tool for assigning and keeping record of large amounts of codes in the process of identifying themes, thematic families and network relationships between themes, i.e. how codes or thematic families were related/linked (McDonald et al. 2009). Functions of *atlas.ti v6* also allowed insertion of notes ('memos') linked to the appropriate text and perform co-occurrence and network analysis. Co-occurrence analysis looks at the strength of association between different codes in a text, in terms of how often they appear next or near to each other in a text. Network analysis uses schematic diagrams to represent the type of relationships between themes. *atlas.ti v6* allows the import of neighbouring or co-occurring codes as part of the network analysis.

Whilst content analysis is largely a subjective process, a level of reliability is sought through 'intercoder agreement', i.e. a procedure whereby an independent third party reviews how researcher's codes and themes are purported to represent participants' experiences or responses (McDonald et al. 2009). In this case, a student independent to this research was invited to verify coding to ensure that it was being carried out in a way consistent with alternative interpretations. This involved the student being sent a number of example respondents' stories and statements which she was asked to 'free code', i.e. assign codes without being given a pre-defined list. She was subsequently sent another set of stories and statements and asked to assign codes according to a pre-defined list of codes developed by myself. The results were returned and cross-checked with my own coding progress. With only minor variations it was judged that the coding was suitable. This coding provided the basis for the ensuing classifying and identifying of thematic relationships.

Box 17: How reliable is memory? Retrospective research in the context of phenomenology

Research into MNE can only be as valid and reliable as the autobiographical memory upon which it is based (Chawla 2006). Memory is the basis for all studies which require people to reflect on their life experiences. However, there is debate and conflicting evidence on how accurate memory is and under which contexts it is more reliable than others. A detailed review of 'memory' is beyond the scope of this research but some key points need to be made.

Kahneman (2010) observes that we have two 'selves': our *experiencing self* and our *remembering self* – the latter largely colouring past experiences and dictating our desire to pursue future experiences. Memories represent not only a recollection of experiences but also our dreams of how those experiences want to be lived prior and want to be remembered after the event (Curtin 2006). In other words, people do not choose between experiences but between memories of experiences (Kahneman 2010). Recall may be selective, imaginative and memories might therefore become either embellished or diminished depending on reflective interpretations and subsequent experiences after the event (Curtin 2006). Memories are therefore not static and can evolve with time (although time itself may have very little impact on the story being told by the *remembering self* (cf. Kahneman 2010)).

Some research suggests that memory is unreliable, deceptive and reconstructed whenever new information is made available and are thus highly malleable to present influences (Loftus 2003; McRaney 2011). This is accentuated when people are required to recall details of events which are sudden, unexpected or occurred at the periphery of their attention (Chawla 2006). Research conditions also influence the accuracy of recall: it is more difficult to for subjects to accurately recall if they are forced to recall under time pressures, when the event is not of meaning to them and if they are unable to access prompts, cues or conditions related to the original event (e.g. sounds, smells, or a return to the physical location (Chawla 2006)). People who are motivated to possess a particular trait are more likely to access memories of experiences and behaviours which are consistent with that trait as well as more readily shaping their memories to their prevailing beliefs, interests and expectations (Chawla 2006). Whilst measures may be taken to minimize these effects, the tendency of respondents to give researcher-desired responses and socially acceptable answers can be difficult to eliminate from the interview process (Fontana and Frey 2005; Morse 2011).

However, research shows that memory is far more reliable when it comes to: the broad outline and general course of events; the significance of events; events of high personal importance; and events which are rare or unique (Chawla 2006). In addition person's memories fare much better under free recall: "when autobiographical memory is unconstrained and it can avail itself of multiple cues, it is durable and roughly accurate" (Chawla 2006: 364). An important distinction may also be whether we choose to focus on 'verity' of memory (i.e. the degree to which it mirrors more objective measures of the past – 'true in facts") or 'utility' of memory (i.e. how we interpret and use the past in meeting the challenges of the present and future - "true in character") (Neisser 1988; Chawla 2006).

For phenomenological research, particularly in this context, we are concerned with both the purity of the present moment as well as the interpretation of memories and structure of experiences. So whilst phenomenology "is interested in recovering the living moment of the now - even before we put language to it or describe it in words", it also "tries to show how our words, concepts, and theories always shape (distort) and give structure to our experiences as we live them" (Adams & van Manen 2008: 617). Ideally, the researcher needs to position themselves closely to the event as it is lived in order to access the untouched experiences before the colouring of memory and rational reflection sets in (Morse 2011). Yet true pre-reflection does not exist outside the moment of the immediate experience since "the living moment of the present is always already absent in our effort to return to it" (Adams & van Manen 2008: 617). Experiences are both formed and, at the same time 'tainted' the moment they are filtered through an individual's perceptual and conceptual lens and attempts to recall or convey in language. Conversely, it must also be recognized that MNEs cannot always be fully grasped in their immediacy (Curtin 2006)

Consciousness is our only way of being in the world so whatever is not contained in our consciousness is not part of our lived experience (van Manen 1990). Whilst we must seek to apply strategies which enable to us to explore people's memories and recollections of experience as accurately as possible (Morse 2011), we should equally acknowledge that grasping the complexities and meanings of life requires an interpretivist approach which, in recognizing that identities can never be objectively fixed or quantified, embraces ambiguity, uncertainty and narratives of place and experience as the fabric of human existence (Curtin 2006; and also for further references).

Summary and key messages for Chapter 3

This chapter outlined the methodological impulses underpinning this doctoral research:

- Deterministic positivist philosophy still pervades much of our approach to scientific research and this invites a *21st century Enlightenment* which utilizes embodied methods which reflect the fluidity of human experience in a changing world which is complex, textured and deeply interconnected;
- *Phenomenology* is the philosophical foundation orienting the entire research endeavour;
- This research acknowledges the equal importance of the human, social and natural sciences and seeks to integrate them in pursuing *interpretive research* with *pragmatic* post-paradigmatic approach and which guides a *methodological framework* embracing diversity and flexibility in its methods;
- *Pragmatism* places a high regard on the influence of the inner world of human experience and sees knowledge as being both constructed and based on the reality of the outer world we experience;
- *Mixed methods* is the approach most suited to the pragmatic worldview – quantitative and qualitative analysis which are ultimately guided by the research questions;
- *Transdisciplinarity* and *complexity theory* are two core theoretical frameworks which encase this research. In moving beyond fragmented disciplinary thinking, these approaches seek integration, synthesis and holism;
- *Sustainability science* includes the above but moves beyond theory to *action research*: an understanding that knowledge is to benefit science *and* society through transformative action.

- The *conceptual framework* illustrates the interconnections between the disciplines of ecology, education and psychology circulating around the phenomenology of MNE, which is embedded in consciousness (human experience). The outcomes of these interactions (as guided by the research questions) serve the aims of sustainability science (transdisciplinarity/complexity);
- The *relational framework* reflects the core issues of CWN, IAS and EfS and how they are informed by multiple disciplines as well through interactions with multiple stakeholder groups;
- *Phenomenology* has both a rich philosophical tradition and methodological application. It focuses on experience as it is lived and gathers meaning in consciousness – a study of essences. It is complemented by *heuristic inquiry* which is the entwined exploration of the researcher's own self-awareness and learning.

- The *research design* uses the methodological framework to integrate *literature*, online (OQ) and face-to-face (public) (PQ) *questionnaire***s**, in-depth *interview*s, field activities (participant observation) and *personal experience* in moving from societal questions to informed action research. Transdisciplinarity and synchronicity guide and entwine with the process;
- *Data analysis* employed *quantitative analysis* (ANOVA and Spearman's correlation analysis) using *STATISTICA* software and *qualitative analysis* (conventional content analysis and phenomenological analysis – *see Chapter 4*) using *atlas.ti v6/v7* software;
- The research was based out of the *Baviaanskloof Mega-Reserve*, Eastern Cape, South Africa, with PQs conducted in towns in the Eastern Cape, Western Cape and KwaZulu Natal; interviews conducted mostly with persons working/residing along the Southern Cape; and participation-observation activities primarily carried out in the Eastern Cape, specifically the Baviaanskloof Mega-Reserve and Great Fish River Reserve and in northeast Queensland (Australia) in the Wet Tropics region and Boodjamulla National Park.

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The body is our general medium for having a world...

The world is...the natural setting of, and field for, all my thoughts and all my explicit perceptions. Truth does not inhabit only the inner man, or more accurately, there is no inner man, man is in the world, and only in the world does he know himself.

Because we are in the world, we are condemned to meaning, and we cannot do or say anything without its acquiring a name in history.

~ Maurice Merleau-Ponty

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4 Phenomenology of MNE

Through the application of phenomenological analysis, this chapter addresses the second research question in seeking to unearth the dimensions which constitute meaningful nature experience (MNE). It explores the types and forms of MNE and distils the common and significant themes, conditions, characteristics and structures which comprise MNE and which makes it what it is. After an introduction and overview of preliminary results, the chapter focuses on the phenomenological analysis of MNE (all types: involving an animal, not involving an animal and synchronicity), highlights interesting and unexpected themes to emerge, describes a detailed case study and concludes with discussion and dialogue.

4.1 Introduction

Direct nature experience appears fundamental in calibrating human orientations toward environmentally responsible behaviours (ERB) (Chawla 2006; Nisbet et al. 2009; De Lange et al. 2010). Further, as documented in Section 2.3, MNEs, in all their forms, appear to hold a range of benefits at both personal and societal levels. Yet, very few efforts aim to understand what makes these experiences significant for the individual concerned. Besides reluctance to address phenomena which may be cast as overly subjective, non-quantifiable or even 'supernatural' (see Section 2.3.8), another possible reason for this lack of attention the lack of appropriate methods to support a thorough exploration of MNE.

Without such exploration, we miss insight into what qualities or characteristics define these experiences and make them so unique and important for the person involved. What is it like to have a MNE? What do people feel and gain from MNEs? We would assume there must be some compelling elements as persons actively seek out such experiences by travelling to wilderness areas, engaging in regular nature-based activities or, alternatively, partake in transpersonal practice (e.g. ceremony) in the belief that they may be rewarded with MNEs that enrich or inspire their lives. However, for others, MNE is seemingly spontaneous and unsolicited. Are there common qualities to *what* comprises MNE for individuals and *how* they experience them? Locating and drawing out the essential themes of MNE would allow for better application in other contexts, such as in education for sustainability (EfS).

Section 2.2 highlighted the need for direct nature experience and, specifically, what types of *meaningful* experience might foster an increased sense of *connectedness with nature* (CWN), community and self. It was recommended that CWN become more prominent in conservation programs and EfS curricula. If it is repeatedly argued in literature that direct experience must become central to such endeavours (Section 2.2), then practitioners need to have a more complete understanding of 'the experience' and the associated philosophy to orient their actions (Morse 2011).

Sections 2.2 and 2.3 found that MNE is as much about the inner *mindscape* (especially perception, emotion), as it is about the outer experience of *matterscape* (natural phenomena). How do the 'inner' and 'outer' meet, participate and entwine? Clearly, any experience takes place under a complex blend of biophysical, socio-cultural and psychological contexts (Morse 2011). For conservation purposes, greater emphasis might be on the ways in which biodiversity and the natural environment (*matterscape*) influence experience. For education, an additional imperative might be to understand how socio-cultural (*powerscape*) and psychological (*mindscape*) factors might influence and be influenced by MNE.

More fundamentally, there is no significant evidence base for MNE. As outlined (Section 2.3.8), many published studies draw on only limited accounts or sample sizes. With specific regard to synchronicity as a MNE, this problem is amplified: evidence is scant and largely anecdotal (Section 2.4). Literature on synchronicity often hastily moves toward examining underlying principles of psychology and physics to provide explanations. The actual meaningful lived experience of synchronistic events is largely overlooked.

Finally, it is noted that both CWN (Section 2.2) and MNE (Section 2.3.3) may contain transpersonal (e.g. spiritual, transcendent) content (Frederickson & Anderson 1999; Williams & Harvey 2001; de Pater et al. 2008; Morse 2011). Nature appears to play a pivotal role in evoking such experiences (Section 2.3.4) yet our understanding of the traits of nature, which really 'trigger' these experiences to make them what they are and imbue the experience with profound meaning, is lacking. Equally, the psychological (e.g. emotional) context remains largely speculative and, given the complexity of psyche and consciousness, it is much more difficult to access. A better approach is to identify the traits perceived to have been integral to the MNE and its latent capacity to imprint upon one's life. Phenomenology is a method potentially capable of tackling this complex endeavour.

4.2 Methods

In pursuing "the things themselves" (Husserl 1911:116), we remain attentive to phenomena arising in lived experience. By turning to the phenomenon of MNE, we attempt to attend to this very thing itself; focused on how it appears, is structured and interpreted within the bounds of human consciousness. We seek to get close to the point where human perception meets the stimuli arising in the natural world.

Whilst phenomenology has a rich and long tradition, its application to nature-oriented disciplines appears scant. This may be unsurprising given that some of its philosophical underpinnings contrast more dominant and prevailing philosophies of the natural sciences. Since phenomenology does not set out to solve a problem *per se*, this may inhibit the approach's broader take-up with studies in the natural and social sciences that seek to formulate a new model or theory of causation. However, by encouraging thoughtful reflection on what it is to be human in a given context, phenomenological analysis seeks to cultivate an empathetic relation with problems shaped by human by perception. Whilst phenomenology does not aim

to draw generalizations or present new theory, it delves deeper into lived experience such that common themes are revealed to form a picture of the essence of an experience – in this case MNE - in a particular context (van Manen 1990; Morse 2011). However, this depth of exploration may nevertheless reveal new insights /concepts and impel the researcher toward presenting that as a form of theory (see Chapter 6).

Being a thorough and involved process, phenomenology does not readily lend itself to larger sample sizes, which might otherwise purport to establish universal dimensions of the phenomena. Therefore, studies which have adopted phenomenology (e.g. DeMares & Krycka 1998; Curtin 2006; Morse 2011) or other comprehensive qualitative content analysis approaches (e.g. Smith 2007; McDonald et al. 2008) in investigating MNE (e.g. profound encounters with wildlife) are generally constrained by small sample sizes. Studies (e.g. (Curtin 2006) have noted that this limits the extent to which generalisations can be drawn:

> …the small and purposive sample make it inappropriate to draw firm conclusions about the nature and magnitude of such impacts…it is unlikely the thirteen interviews [in this study] have uncovered the universe of potential impacts or the ways in which each might be manifested in cognitive, affective, and behavioral outcomes. Toward this end, **additional phenomenological explorations** of such impacts seem urgently needed if we are going to advance this important area of research to the stages of theory development and empirical testing. (Smith et al. 2011: 61-62) [*emphasis added*]

This analysis therefore aims to broaden the sample size and evidence base upon which analysis can be performed. This still does not allow for generalisations, but instead opens the door to a greater dimension of universality through a 'resonance of meaning' conveyed through analysis and writing in a more structured and tangible way (van Manen 1990). The universality subsequently emerges though phenomenological descriptions which collect and recollect lived experience and which validates - and is validated by - lived experience (van Manen 1990). Secondly, by grounding the phenomenological research within a conservation and EfS context, it is hoped that the realisation of insights emergent from the analysis will lend itself to applications in this domain.

This research synthesizes a number of accepted approaches to arrive at a method which could be practically applied to the diversity of data at hand. Primarily, it draws upon phenomenological theory as outlined by van Manen (1990) and Creswell (2007) and as applied by DeMares & Krycka (1998) and Morse (2011). However, the combination of approaches does not obscure the underlying aim: the process of transforming the respondents' lived experiences into a textual expression of its essence (van Manen 1990). This resulting aspiration is such that "the effect of the text is at once a reflexive reliving and a reflective appropriation of something meaningful…" (van Manen 1990: 36).

In summary, the overriding phenomenological question is: *What is the lived experience of MNEs like?* This question – and the questions it further invites - must be equally understood and 'lived' by the researcher (van Manen 1990): what is it really like to have a MNE as it appears through our personal experience of the world (Morse 2011)? What are the internal meaning structures and various expressions of MNE?

4.2.1 Data production

Phenomenology considers all sources of information to be valid in building a composite picture of the essence of MNE (van Manen 1990). Therefore, phenomenological enquiry searches for a variety of sources of meaning which may be elicited from natural, social and human science disciplines as well as from arts, humanities, language, autobiographical accounts and everyday life experience (van Manen 2011). Data collected for this analysis were sourced from all online questionnaires (OQ), some public questionnaires (PQ), all formal in-depth interviews as well as sporadic e-mail submissions (Section 3.3).[64]

The OQ used *purposive sampling,* the PQ *random sampling* within a pre-determined demographic, in-depth interviews were a mix of *purposive sampling*, *snowball sampling* and *synchronistic* leads. The majority of the respondents' accounts analysed have been derived from the OQ. However, given the nature of this survey instrument, the brevity of the responses provided do not easily usually lend themselves to true phenomenological analysis; rather, it calls for a more detailed and adapted form of *content analysis* within a phenomenological framework. However, this was complemented by phenomenological analysis performed on accounts of MNEs elicited through the 20 in-depth interviews. Existing studies containing accounts of MNE (e.g. DeMares & Krycka 1998; Smith 2007; Curtin 2006; McDonald et al. 2009; Morse 2011) were omitted from the phenomenological analysis but used as reference to gain further insight into the essence of MNE as found through other forms of analysis and contexts.

OQ respondents were asked their most meaningful or profound encounter with both nature (if they had indicated in the previous survey questions has having had a form of MNE, i.e. involving and animal or not involving an animal, Appendix 9.8.2). OQ respondents were specifically asked to recall and describe their most meaningful or profound experience (with animal and/or without an animal) as accurately as they can remember it. The initial OQ elicited MNEs in general. Even without systematic analysis, it was evident that a number of accounts appeared to have a synchronistic quality - even if not explicitly recognized or articulated as such. In order to 'mine' the experience of synchronicity, it was deemed necessary to locate individuals who were familiar with the concept, or knew how to identify the experience. A specific target group was subsequently identified as being able to respond to a modified OQ which invited respondents to specifically recall their most memorable *synchronicity as a MNE* (Section 3.3.3.3; Appendix 9.8.3).

Similarly, in-depth interviewees were asked to recall their most memorable MNE which stood out for its vividness and to describe the MNE as they recall living through it. The basic question used to orient this process was: *What was the experience like*? Following van Manen (1990), interviewees were then asked more specifically how it feels to have MNEs, how they came to have their MNEs and how the experience came to have meaning. Interviewees were asked to describe their state of mind, feelings, mood and emotions as well as bodily and sensory sensations. Interviewees were encouraged to recall their account without trying to

[64] MNEs were identified across various scholarly and popular literature sources as well as through *in situ* observation and personal experiences. These sources were not included in the formal analysis but instead helped inform the compilation of the rich textural descriptions and essences which conclude this chapter.

beautify it with flowery language or explaining it through detailed analysis and reflection, but rather to stay as close to the experience as they lived through it. A number of experiences elicited were either recognized by the interviewee as being an example of synchronicity as a MNE or were identified through subsequent analysis as containing necessary traits for it to be classified as such.

The act of drawing out descriptions from research participants involves deep refection and, in this regard, considerable effort is required to 'get back to' the specific experience being described (Morse 2011). During in-depth interviews, the recollection of the experience in its fullest and original sense is the desired goal - the interview allows for this reflexivity and deeper exploration which is why it has been married with the more inflexible OQ and PQ in the context of this research (Morse 2011). Additional MNEs were sporadically submitted to me via email, usually as a consequence of the respondent having heard about the research but electing not to take the OQ. Together with the OQ, PQ and in-depth interview transcriptions, most email submissions were included in the phenomenological analysis (Figure 13).

Box 18: Additional email submission examples

Examples of short email submissions sporadically received but which were unable to be included in the analysis for reasons pertaining to level of detail, timeliness or relevance.

> *I have had meaningful nature experiences, ESPECIALLY in the Baviaans* [catchment, Baviaanskloof] *where I worked on a leopard project in 1999 and lived in a shed within the core reserve for several weeks. Life-changing experience!* •
>
> *I just rode on a whales back, amazing experience. I called it in with deep sounds and soothing voice. It kept coming back to be touched repeatedly. I was on my surf kayak just beyond the waves at* [location]*, then I held its tail and it dragged me along then flipped the whole kayak into the air as it got a small fright. Kept following me around after that, putting its face right up against me. I feel so thankful, so grateful. Awesome.* •
>
> *I think I had this dream while I was living in England, in 2001 or 2002, but I'm not 100% sure. The only part of the dream I remember is that I was crawling along the ground, trying to get away from and escape detection by this huge male lion that had appeared some way behind me. I was in a natural area of some kind, possibly a game reserve, but I was approaching a house with a farm gate. I hid under a bush next to the gate, thinking that if I tried to get through the gate the lion would see me and get me before I could get through. But the lion kept coming closer, and eventually I knew that he'd seen me, and all I could do was keep still and try and be invisible under this bush (which wasn't very substantial), and eventually the lion came right up to me, and he was staring at me directly in the eyes. I knew that my time had come and there was nothing I could do any more. Then I woke up. I've always remembered that stare, that was so incredibly intense and just seemed to go on forever. There was a kind of stillness and acceptance in that moment, an acceptance that there was no point in struggling or worrying anymore, because this was it. That's all I can remember about the dream. I'm pretty sure I had the dream while I was in England, because I seem to remember that afterwards I thought it was a kind of call to come back to South Africa, or something like that. At the time I was thinking seriously about going back to become a wilderness trail guide, so it may have been something to do with that as well.* •

Finally, a few persons were encountered at workshops or during the course of 'life' and upon learning about my research indicated they had a MNE they were willing to share and have it recorded for the purposes of assisting my research. These accounts have also been included as *ad hoc* interviews

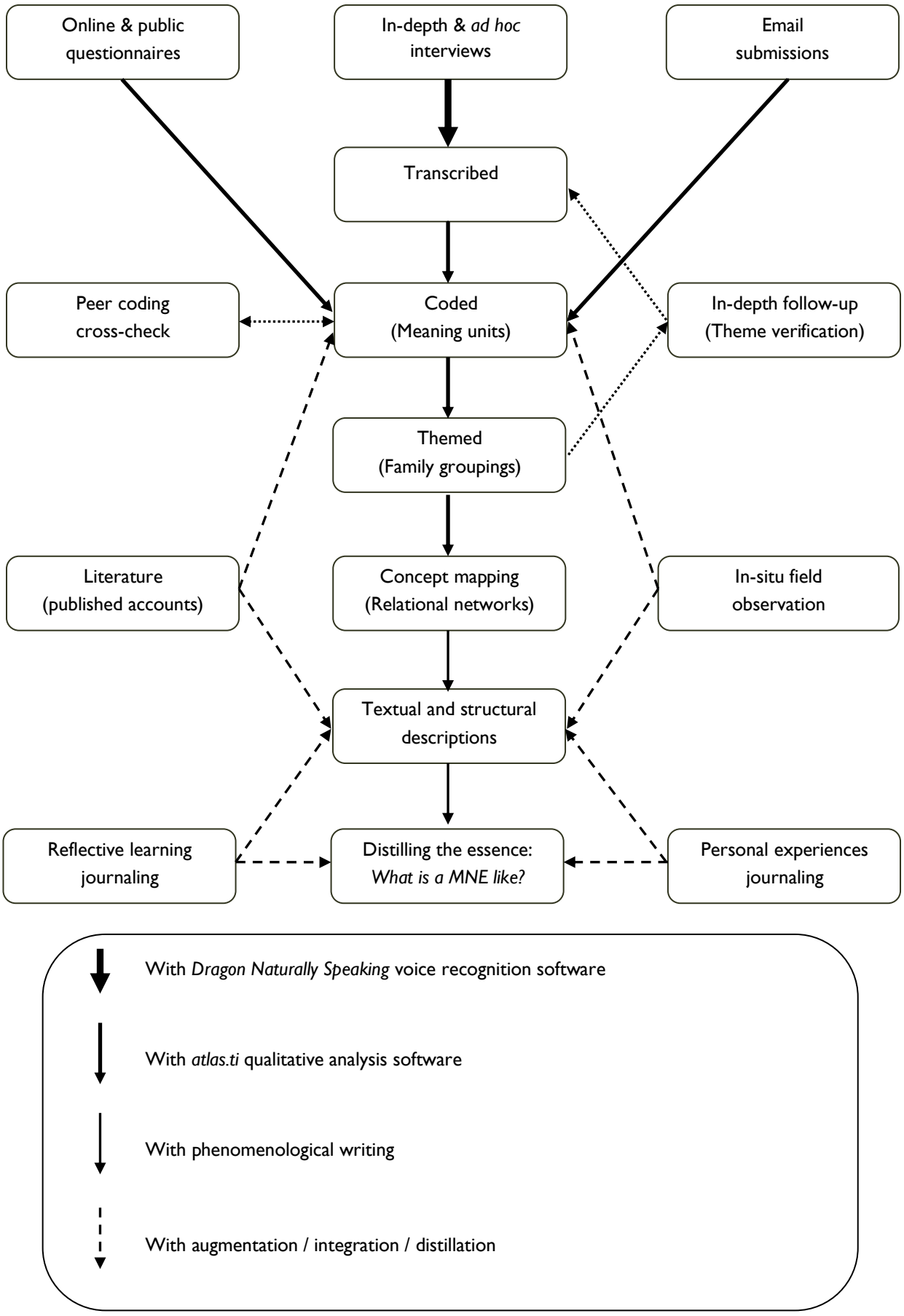

Figure 13: Data analysis flow chart (adapted from Morse 2011)

4.2.2 Data analysis

This phenomenological analysis was guided by van Manen's (1990) thematic approach and was oriented by questions such as: What are the aspects of MNEs? How do they manifest? What do MNEs do? How do MNEs do what they do and what is their significance? However, beyond these general forms of enquiry, phenomenology, unlike most standard content analysis, does not seek to specify *a-priori* the specific elements it wishes to abstract from the text (van Manen 1990).

> *Qualitative interpretation begins with elucidating meanings. The analyst examines a story, a case study, a set of interviews, or a collection of field notes and asks, What does this mean? What does this tell me about the nature of the phenomenon of interest? In asking these questions, the analyst works back and forth between the data or story (the evidence) and his or her own perspective and understanding to make sense of the evidence.* (Patton 2002: 477-478 in Morse 2011: 118)

The data analysis followed a number of detailed procedures (Figure 13) which applied phenomenology as a method. As outlined (Section 3.2.2), 'lived experience' is both the beginning and end point for phenomenological analysis. This undertaking involves deconstructing (enquiring) and reconstructing (writing) the experience – a process of "radical reflection" which is driven by two "methodological impulses" (van Manen 2011):

i) *Reduction:* bracketing (suspending) our everyday 'natural attitude' and preconceived ideas; and
ii) *Vocation:* emulating the experience through writing (language) in order to produce textual portrayals that resonate with the kinds of meanings recognized in pre-reflective experience.

In-depth interviews were transcribed using *Dragon Natural Speaking 10.0* voice recognition software. This required intent listening to portions of an interview followed by immediate dictation and then re-listening to the portion to ensure the transcription was accurately captured. During this process, notes were made of themes and connections which presented themselves in their immediacy. This was complemented by a blend of reflective journaling and 'intuitive enquiry' to cultivate a degree of 'phenomenological familiarity' – i.e. thinking over and getting a feel for the MNEs at hand. Links were subsequently made with other literature, stories, theories and personal insights and experiences. Upon completion, the entire interview was re-listened to whilst reading the transcription and correcting any outstanding errors and simultaneously reflecting on essential themes of each interview as a whole.

For most in-depth interviews, informal de-briefing was carried out though post-interview reflection with one of my research assistants. This involved discussing interview details, contrasts and comparable notable themes, interpretations and key messages of importance. After completing all in-depth interviews and journaling immediately where possible, a reflective weblog postwas written (Appendix 9.23.6) to capture personal experiences of the interview sessions before commencing formal analytical work.

Written submissions of MNEs elicited through the OQ, PQ and via email do not require transcribing and were therefore ready for initial coding.

In-depth interview transcriptions and OQ, PQ and email submissions were uploaded as (pdf) source files to *atlas.ti v6* qualitative analysis software. The software was then used to code every submission. This process involved careful and thorough reading and marking keywords, topics and themes contained within the various source files to form a list consisting of codes which were classified as either textual (*what* types of experience) or structural (*how* experiences are encountered, e.g. places, settings, contexts) (Morse 2011). Following van Manen (1997: 90):

> …phenomenological themes are not objects or generalizations; metaphorically speaking they are more like knots in the webs of our experience, around which certain lived experiences are spun and thus lived through as meaningful wholes.

The phenomenological process of *horizontalization* was used to develop *meaning units*. This is a subjective procedure whereby all statements from all respondents are given equal value as a basis for breaking down responses into more manageable units of meaning as ascribed by the researcher (DeMares & Krycka 1998).[65] Qualitative analysis software *atlas.ti v6* was used to code these meaning units. Codes (meaning units) were then verified through a peer cross-check process. This involved sending a number of example submissions (MNEs) to two colleagues familiar with phenomenological analysis (a student and a third supervisor and inviting them to: i) free-code (i.e. no prior codes provided) five MNE submissions; and ii) code six more MNE submissions with the competed formulated coding list provided and classified according to textual and structural themes. The outcomes were in line with my own coding results.

Once meaning units were identified, *atlas.ti v6* was utilized to filter codes to extract key elements or 'flavours' of MNEs. Specifically, this process involved grouping meaning units (codes) as either textual or structural variables as well as classifying them into broader thematic families. Some in-depth interviewees were re-contacted in to verify that assigned coding and thematic classification resonated with their own recollections and interpretations. Meaning units (codes) could then be linked with *significant statements* – selected respondent statements which were considered to best represent or describe common themes.

Using features of *atlas.ti*, themes and concepts were organized into relational networks to reveal latent relationships and interconnections. This involved identifying codes which commonly occurred in tandem as well as investigating or testing other emergent thematic relationships either generated through analysis of suggested by other sources, e.g. literature, observation, personal experiences. In particular, concept maps were created for a number of interviews (see Case Study, Section 4.5). These schematics are designed to show the flow of the MNE as it is articulated and the way in which meaning units and themes are linked. As Morse (2011: 113) found, these conversational maps reflect thematic relationships and, at times, "inferred directionality in the way things appeared for participants or in the way meaningful experiences unfolded".

[65] It is important to note that a disproportionate number of codes may be attributed to one MNE submission if particular aspects are emphasized. Secondly, the diversity of methods used to elicit data for the analysis also biases the depth with which experiences are retold. Evidently, submissions gleaned from in-depth interviews will generate more codes than from the OQ; however, such instances were noted and only controlled for if they were likely to unduly influence the fundamental question of "what is an MNE like?"

Textual and structural descriptions of MNE were created primarily from the outcomes of concept mapping (relation networks) of codes (meaning units) and significant statements. Dissecting recollections from in-depth interviewees and examining the structure of their accounts (e.g. see case study, section 4.5) revealed patterns which helped "shed light on the common, repetitive or invariant qualities of such experiences" (Morse 2011: 176). Parallel processes of field observation, literature review and journaling on personal experiences and the recurring content encountered in respondents' experiences were valuable to this critical stage of writing and rewriting.

These same elements were reviewed and combined to 'distil the essence' of the phenomena: that is, to use written language to recreate the essence of what a MNE is like as we live through it in its immediacy. This process involved being attentive to the common and salient themes (explicit and implicit) to emerge throughout the phenomenological analysis. To this end, a degree of intuition was also required, i.e. the intense and prolonged immersion in the data assists in the developing 'a feel' for what is being conveyed both literally and 'behind the words'. Distilling the essence also involves extensive rewriting to arrive at text which might be considered "a reflective appropriation of something meaningful: a notion by which a reader is powerfully animated in his or her own lived experience" (van Manen 1990: 36). It is a process of reintegrating the reduction (i.e. analytical fragmentation and dissection) back into the whole. This requires switching between intuitive sensing and rational reflection as one continually sifts through the data and seeks to match that with the emotive dimension which was felt during interviews or sensed through written submissions. It is equally a process of reacquainting oneself such that one again finds personal resonance with the essential qualities of the diverse collection of stories, accounts, submissions, and conversations. The recreated whole will never supplant the experience itself (Figure 11); but it may evoke meaningful and emergent patterns, which are sufficiently malleable to 'fit' the shared experience.

Finally, the analytical process sought to pinpoint the *invariant structure* of MNE: the common, repetitive themes which present themselves as being necessary to the experience itself (Morse 2011). This task required searching 'beneath and beyond' the structures of individual accounts and even the collective thematic categorisations: it instead aimed to pinpoint the dimensions which pervaded and united MNEs throughout the analysis. This chapter therefore presents one possible interpretation of MNE with a view to inspire dialogue on how MNEs may resonate with our lives and aspirations in the context of EfS.

> *A phenomenological description is always one interpretation, and no single interpretation of human experience will ever exhaust the possibility of yet another complimentary, or even potentially richer or deeper description.* (van Manen 1990: 31)

4.3 Results

4.3.1 Preliminary patterns, codes and themes

An aggregated 221 unique accounts of MNEs were elicited through various data sources (Table 11) and submitted by approximately 130 different persons, since respondents often shared more than one MNE.

Table 11: Overview of sources and number of MNE accounts elicited

Source	*Written*	*Oral*
Online questionnaire (initial OQ targeting general (all) MNEs) of which	91	
Online questionnaire (amended OQ targeting synchronicity as a MNE)	24	
Public questionnaire (initial PQ which also invited MNE recollections)[66]	22	
In-depth face-to-face interviews (formal, extended)		59
Ad hoc interviews (abbreviated, MNE accounts only)		8
Telephone interviews (abbreviated, MNE accounts only)		10
Email submissions	7	
Total *	**144**	**77**

Note: Not all accounts were used in the analysis since some were generalizations rather than specific recollections.
* MNEs elicited from books, articles (18 sources), movies and documentaries (2 sources) were also analysed but not included in the formal results; they are instead used as supporting quotes and as insight into the essence of MNE.

Over 250 different codes were generated during the initial process of assigning them to themes. This list was subsequently condensed as redundant and overlapping themes became apparent. This outcome supports the notion that such experiences have an incredibly dynamic quality inherent to the individual experience and tied to context, as well as personal (inner) variables and the situational (outer) variables.

4.3.1.1 Code counts

Despite the tendency to seek out the quantitative, specific code counts were judged, for the purposes of this study, to be misleading and counterproductive for reasons as outlined earlier, i.e. heterogeneity of data sources with respect to both the quantity of each type of data source (e.g. more OQ submissions than in-depth interviews) as well as the differences submission detail (more detail given in in-depth interviews than in OQ accounts). This may result in a nullifying effect but this is not quantifiable. [67]

[66] Also includes stories elicited from pilot surveys. For the large-scale survey, the initial PQ was amended and abbreviated to facilitate quicker and higher response rate. The invitation to share MNEs was therefore removed.

[67] In reporting on code frequency, note that one respondent may allude to a certain theme multiple times, but possibly in different ways. Each of these meaning units are coded as being equal in weight. However, if one wishes to pay attention to the frequency of certain themes, then be mindful that this count does not imply that the frequency correlates to the amount of individuals who have reported a certain theme. In this research, because the sample size is largely dominated by the relatively short responses submitted in the OQ, we have a fairly reliable indication that the frequency of meaning units coded correlates well with the number of individuals who submitted it. This is because, in the OQ, respondents are less likely to mention things multiple times. However, for the in-depth (face-to-face) interviews, respondents were more likely to repeat certain statements, emotions or feelings multiple times. Indeed, the phenomenological approach calls for questions to be asked over and again but in slightly different ways, in order to be able to probe the nature of the experience in greater depth.

However, to provide a coarse impression, the highest scoring code of 'proximity' (i.e. to the animal or other natural phenomenon) was assigned 90 times. The five next highest scoring codes were between 60 and 80 counts; followed by 12 codes assigned 40 – 60 counts. However, code frequency does not necessarily imply significance. Some revealing codes subsequently included in the textual and structural descriptions were 'only' coded between 10 and 20 times. This may have been because they contained an important element which was implicit in a range of other experiences or potentially characteristic to the experience under different contexts. In addition, some high scoring codes corresponded to basic structural elements such as 'mammal'; 'bird'; 'ocean' and are not necessarily as insightful to the essential quality of MNEs as, for example, 'vulnerability', which was coded only half as many times as 'ocean'.

4.3.1.2 Thematic families

Codes were subsequently categorized into thematic families. These family classifications were developed according to the following thematic groupings:

- *textual* ('what') and *structural* ('how') themes;
- *personal /psychological* ('inner' - *mindscape*) and *situational / biophysical* ('outer' - *matterscape*) variables

These were specifically sub-classified as follows (based on Smith (2007) and Morse (2011):

Structural ('how')

- Social setting (family, solo, paired, shared)
- Activity setting
- State of being (prior to MNE)
- Environmental setting
- Ecosystem setting

Textual ('what')

- Inner experience (i.e. what is perceived and felt within the boundaries of the individuals' body and own consciousness, e.g. sensory (perceptual), emotional, physiological reactions)
- Outer experience (i.e. what is perceived and felt outside the boundaries of the individuals' body and own consciousness, e.g. characteristics of natural phenomena, e.g. animal behaviour)[68]

[68] Morse (2011) also includes "outcome" which is suitable in the context of his research design; however, in this study, it remains ambiguous at what temporal stage something can be considered an "outcome". In this study, I endeavoured to treat any outcomes not immediately tied to the lived experience as separate in Section 5.2.

4.3.1.3 Common code clustering

In addition to manual analysis, *atlas.ti* provides tools for quantitatively analyzing the co-occurrence of codes in order to establish relationships, i.e. codes which commonly occur together or near one another in the significant statements of the original qualitative text.[69]

Table 12: Correlated clustering of selected common codes

Selected code	*Clusters of codes commonly co-occurring (as correlated by atlas.ti v6)*
Amazement	Awe/Wonder; Beauty/Aesthetic; Curiosity; Fear; Impressed/Moved; *Interspecies communication*; Non-Ordinary; Open expanse; ***Proximity;*** Mixed emotions; Surprise.
Beauty / Aesthetic	**Amazement**; Awe/Wonder; Ambience; Calmness; Celestial; Evening; Land/Seascape Features; Large size; Magnificence; Ocean; Power; Something greater than myself.
Connection	Guidance/Companionship/Protection; Interconnectedness; ***Reciprocity of process;*** *Interspecies communication;* Meaning-making; Message from nature; Oneness; Something greater than myself; *Sign/Omen/Symbol.*
Diminishment	Awe/Wonder; Animal Calmness/Acceptance; Vulnerability; Respect/Reverence; Proximity; Mirroring/Metaphor; Revelation/Epiphany; Magnificence; Overwhelming.
(Emotional) Intensity	Emotional release; Emotionally turbulent period; Interconnectedness; Ocean; Overwhelming ; Period of Focus; Physiological reaction; Spontaneity; River.
Insight	Knowing/Conviction; Meaning-making; Message from nature; Revelation/Epiphany; *Sign/Omen/Symbol;* Self-confidence/Reassurance; Something greater than myself.
Proximity (to the phenomena)	**Amazement;** Animal behaviour (*Animal approach/Visitation*; Unusual); Bird*; Length of time*; Mammal; ***Reciprocity of process;*** Sensory awareness (of stimuli); Spontaneity.
Reciprocity of process	Animal behaviour (Calmness; *Animal approach / Visitation*); Curiosity; Appreciation of animal detail; **Connection;** *Interspecies communication*; *Length of time*; ***Proximity.***
Unusual behaviour	*Animal approach / Visitation*; Bird; *Length of time*; Non-ordinary; ***Proximity; Reciprocity of process;*** Sensory awareness (of stimuli); *Sign/Omen /Symbol.*

Key: Codes in **bold** highlight the 'selected code' (left-hand column) as reappearing in co-occurrence with other important selected codes. Codes in *italics* denote those codes occurring more than twice across all such analyses.

Caution should be taken in extracting too much from these purported relationships (Table 12). They provide initial orientation toward patterns, potential structures, themes and relationships which may be revealed through the phenomenological analysis to follow. Such analysis (Table 12) is not exhaustive and serves more as a detailed example than a definitive overview of the most important codes (e.g. some commonly occurring codes, e.g. (prior) 'physical activity', were omitted on the basis of being less relevant in forming preliminary understandings of the lived experience itself). Metaphorically, these clusters (Table 12) are dim candlelight in a dark cave awaiting the fire of phenomenological illumination.

[69] The *atlas.ti* heuristics/algorithms upon which these relationships were formed were not fully transparent nor was there certainty that I had coded in a way which would maximise the accuracy of this function. Therefore, I did not have full confidence to illustrate quantitative correlations or orders of magnitude concerning relationships. The results shown here are therefore the statistically strongest relationships as revealed by the software. In cases, where multiple codes had the same correlation and needed to be omitted for reasons of space, I passed judgment based on my familiarity with the data. There are some relationships which are notable by their absence: for example, it is difficult to explain the absence of correlation between 'diminishment' and 'humility'. Table 12 might also be better represented schematically to highlight links between common co-occurring codes.

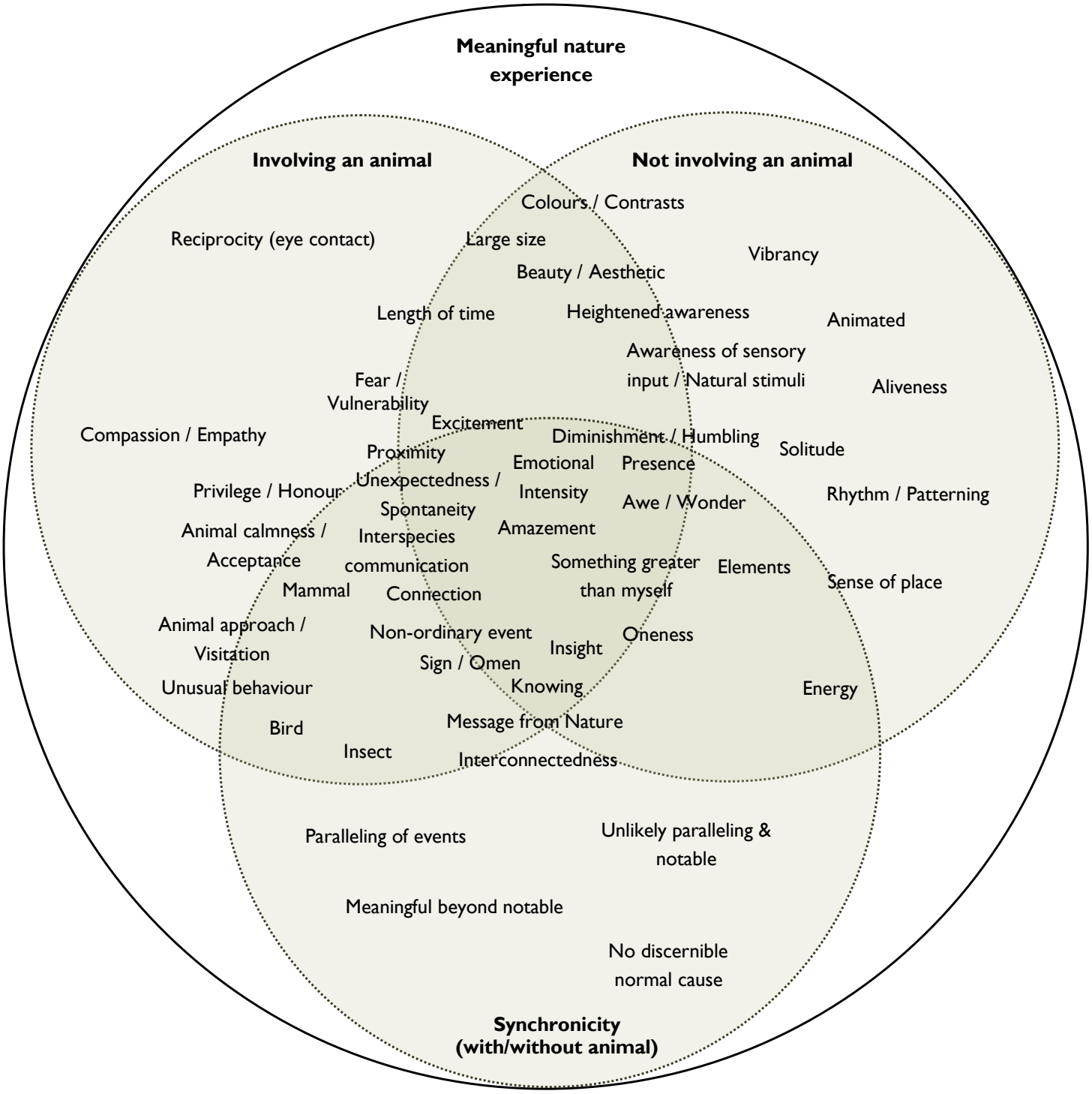

Figure 14: Preliminary classification of MNEs with key textual themes

Three distinct yet overlapping categories of MNE may be identified through preliminary code analysis (Figure 14): MNE involving an animal, MNE not involving an animal and MNE which has a synchronistic quality and which may or may not involve an animal. These types of MNE share certain themes between them and the most representative of these shared themes are illustrated in the overlapping areas of the circles in the Venn diagram (Figure 14). The placing of these key *textual* themes (*structural* themes have not been included in Figure 14) indicates how they may be more associated with particular types of MNE. The representation (Figure 14) is neither definitive nor quantitatively precise. This is merely one subjective interpretation emerging from the analysis and is also intended to provide an illustrative example of how emerging results may be conceptualized in order to provide additional clarity.

For the purposes of the phenomenological analysis to come, the following approach has been taken:

i) Section 4.3.2 analyses all MNEs submitted for this research (*general MNEs*) in order to provide necessary insight into *what an MNE is like*. However, the prime focus of this first and most detailed analysis will be on *MNEs involving an animal*. Where notable common (overlapping) themes are identified, this section will also include respondents' significant statements from the categories: *MNEs not involving an animal* and *MNEs as synchronicity*.

ii) Section 0 presents a brief yet specific analysis of *MNEs not involving an animal* since there are themes unique to this MNE which are not commonly occurring in the aggregated *general MNEs* or not identified with *MNEs involving an animal*: they have a slightly different quality.

iii) Section 4.3.6 focuses on *MNEs as synchronicity* and which may or may not involve an animal, since, as with Section 0, there are themes which give this MNE its own distinct quality.

Evidently, all three types of MNEs find significant overlap and the act of separating them and analyzing them individually is precarious and potentially repetitive; hence the decision to begin with the bundled *general MNEs* and to focus on identifying traits unique to the other MNEs in the subsequent sections.

A note on how to read this chapter:

This chapter is a structured mix of descriptive analysis (non-italics) coupled with relevant significant statements from research respondents (*italics*). Each theme forming part of the experience is stated in the subheading, followed by introductory text. Every significant statement from **respondents** is separated by a bullet " • " ; also implying that there are no two statements from the same participant in the same paragraph or under the same the thematic subheading. With submissions received via the OQ, careful judgement was used to correct obvious typographical or grammatical errors which might otherwise distract or confuse the reader. All other significant statements are verbatim as submitted online or as dictated during in-depth interviews. When necessary, non-italic text [in parentheses] is inserted by the researcher to provide clarification, context or enhance readability.

Additional relevant quotes sourced from **literature** are included in text boxes identical to this one.

4.3.2 General MNE and MNE involving an animal

This section describes what is experienced during any type of *general MNE* with specific attention given to *MNE involving an animal*. However, since the subsequent sections on MNE not involving an animal and MNE as synchronicity place emphasis on revealing unique themes, this section still contains relevant statements of *MNE not involving an animal* and *MNE as synchronicity* when the themes are common to all MNEs.

4.3.2.1 Textual description

Table 13: Outer experience: description of thematic families and themes identified in general MNE

Thematic families -Themes used for coding	*Summary description of themes* General MNE (i.e. involving animal, non-animal and synchronicity)
Animal behaviour - Close proximity - Unusual / Non-ordinary - Reciprocity - eye contact - physical interaction - Length of time (extended) - Visitation / Approach - Calmness / Acceptance - Striking but 'normal' - Emotion - Aggression	Animal behaviour is foundational to an MNE involving wildlife. Close-up encounters are overwhelmingly cited as integral to the specialness of the experience. The animal's behaviour is felt as out of the ordinary for reasons of proximity, interaction (e.g. eye contact), prolonged encounter, unsolicited approach or unanticipated calmness and acceptance toward the person. All these traits are commonly recalled as being memorable components of the experience. The animal's behaviour may alternatively be normal yet striking in its naturalness - and possibly unexpected given the nature of the situation, though this is less common. In a few cases, the animal appeared to exhibit aggression or another perceived emotion.
Beauty, aesthetics, stimuli - Animal features - appreciation of detail - magnificence, majesty, power - species (e.g. mammal) - size (e.g. large) - Landscape features - wildness, remoteness - colours, contrasts, - patterns, forms - power - Celestial features - weather - sun-, moon- rises/sets - Ambience (overall)	Perception of beauty is characteristic to the exceptionalness of MNEs. This may catalyse the experience or emerge throughout it. During the encounter, attention is drawn to notable or finer details of flora, fauna, landscapes or celestial formations. The sense of beauty may be dramatic or felt as perfection and may be prefixed by emphatic adverbs such as 'so', 'really' 'incredibly', 'amazingly'. Beauty may be experienced in a unifying way: a particular object or feature is not specifically regarded as beautiful, but the experience as a whole through its various layers is described as being beautiful. These may comprise any number of physical features: mammal's markings; majestic mountains; sunset colours; wild coastline, dramatic storm clouds; or an illuminating full moon. A combination of such attributes may form a beautiful and powerful ambience. Beauty is primarily a visual sensation.

The textual description focuses on 'the what' of the experience, i.e. what is felt or encountered during a MNE in terms of both the 'outer' experience (Table 13) and the 'inner' experience (Table 14). Thematic families for each are summarized and briefly described (Table 13 and Table 14) before being expanded upon with respondents' statements in the following section.

For the 'inner' experience, categorization of thematic families aligns closely with Ballantyne et al.'s (2011) analysis of tourism visitors' responses to wildlife experience, i.e. sensory impression, emotional affinity, reflective response and behavioural response. For this analysis, the most fitting categories were identified as: sensory response and/or impression; affective (emotional) response; physiological (bodily) response and consciousness response and/or impression. Two important aspects must be noted:

i) *Behavioural response* as identified by Ballantyne et al. (2011) refers to changes in behaviour after the experience. This more 'temporally distant' response falls outside of the immediate lived experience required for phenomenological analysis; it is instead covered in Section 5.2.

ii) *Consciousness response* is a diverse and 'cumulative' category comprising secondary reflective perception (as distinct from primary sensory perception, although unconscious archetypal perception may feature (Appendix 9.3, Figure 34), higher order emotional response and a degree of cognitive processing which may involve interpreting the experience alongside existing mental concepts and conditioning. This complex resonates with descriptions of consciousness outlined in Section 2.2 (Figure 1) whereby distinctions were made between sensory perception (phenomenal) and reflective perception (psychological). Whilst 'consciousness response' inevitably includes sensory perception, it is used here to refer to elements which may include more secondary cognitive (perceptual) processes and affective responses.

Using significant statements and verbatim examples from respondents, the themes (Table 14) are organized to provide a coherent *textual description* of what the experience was like in terms of feelings, senses and thoughts (DeMares & Krycka 1998). Only the most commonly expounded themes are covered; this is not to undermine the importance or significance of other themes but, given the range of themes covered, a focus on core themes intends to make descriptions more manageable in facilitating the process of finding the essence of that which makes an MNE that which it is.

It is difficult to avoid repetition of individuals' significant statements because a particular statement - or even a phrase or word - within the statement may contain multiple codes and could be illustrative of multiple themes. Efforts have been made to minimize duplication of statements or parts thereof. The reader is however invited to read laterally, and to remain alert to the presence of alternative themes and the connections between them when not already explicitly stated. The preliminary code co-occurrence (Table 12) provides a cursory snapshot of some key interconnections between major themes.

Table 14: Inner experience: description of thematic families and themes identified in general MNE

Thematic families -Themes used for coding	*Summary description of themes* General MNE (i.e. involving animal, non-animal and synchronicity)
Sensory impression & response (primary sensory perception) - Suddenness, spontaneity - Heightened awareness - Acute focus - Presence of being - Sense of time - Stillness, silence - Daze (overwhelmed)	The senses are acutely engaged with MNEs. Engagement is associated with unexpected spontaneity and heightened sensory survival awareness. Possible alertness and attentiveness toward incoming stimuli and intertwining with the outer aesthetic experience. The focus of the senses may result in an individual becoming absorbed in the present moment, non-distracted and possibly feeling an altered sense of time. Before, during, or after such states, one may experience a stilling of the senses which may extend to one's mind and body. Sensory overwhelming is possible during highly powerful experiences and one could feel dazed or overwhelmed as a result.
Affective (emotional) response - Intensity - Amazement, incredulity - Awe, wonder - Diminishment, humbling Sameness, vulnerability - Excitement, exhilaration - Elation, ecstasy, euphoria - Fear, scariness - Release, therapeutic, healing rejuvenation, uplifting - Happiness, joy, enjoyment - Peacefulness, relaxing - Kinship, bonding - Mixed emotions - Touched, moved - Gratitude, appreciation - Respect, reverence - Love, affinity - Compassion, empathy	The experience is meaningful primarily because of its ability to evoke an intense emotional response. Diverse emotions are recognized, potentially limited only by the extent to which they can be conveyed with language. High intensity desirable emotions are commonly experienced: amazement, awe, wonder, beauty, joy, excitement, exhilaration, ecstasy and euphoria. More calming yet equally powerful feelings such as deep peace and relaxation are also reported. This may trigger emotional release, rejuvenation or a bonding. Intense fear may alternatively be felt, possibly resulting from unfamiliarity, helplessness and vulnerability. Individuals might be sufficiently moved in the same series of moments to be humbled and feel a diminished sense of one's self importance or place in the natural ecosystem. On occasions, mixed, contrasting or contradictory emotions may be present during the same experience. Feelings of respect, love, compassion and empathy are also recalled (more so during subsequent rather than initial recollections). Gratitude and appreciation may arise across all circumstances but is usually more implicit.
Physiological (bodily) response - Adrenalin rush - Pain release - Temperature change - Nerve tingling, goosebumps - Lightness, expansion - Immobilization - Calmness, bliss - Ecstatic shaking - Fear trembling, sweating - Heartbeat, breathing rate	The experience is felt at the level of physical body sensation. Adrenaline rushes are commonly reported and linked to emotions ranging from fear to excitement. Increased heartbeat and breathing may result. The intensity of the moment may equally give rise to a physical as well is an emotional release, with a dissolution of pain or discomfort felt prior to the MNE. Individuals may experience a 'buzz'; a tingling sensation throughout the body's nervous system. One may feel a lightness, an expansion (e.g. in the chest) or a desire to leap (for joy) or, alternatively, an intense calmness and blissful feel in the body. In more extreme cases, individuals report an ecstatic shaking or, in contrast, a fear-based trembling and sweating.

Table 11 cont'd: Inner experience: thematic families and themes identified in general MNE

Consciousness response - Communication[70] - Non-verbal - Intelligence - Loss of separation - Oneness - Connection - Animal, place, self, other - Interconnectedness - Something greater than myself, spirituality - Insight, revelation, message - Gift, blessing - Curiosity, fascination - Meaningfulness - Other modes of perception	A sense of communication is commonly associated with close extended encounters with wildlife, whereby reciprocity of process is integral. Perceived communication ranges from direct to indirect, verbal and non-verbal and feedback is interpreted in multiple ways. Powerful experiences which draw one into relation with 'the other' (usually an animal), may be characterized by a loss of boundaries between the experiencer and 'the other'. This loss of separation leads to newfound connection and possible feelings of oneness with everything, the universe. Less intense feelings of connection may extend to animal, landscape (place), oneself, or another human being. More intense feelings of connection generate expansive feelings of interconnectedness with all beings, embedded in ecological and social systems, or all life, past, present and future. One may experience a force or power greater than themselves, sometimes labelled as God, creation, spirit, or divinity. These experiences are insightful, often delivering revelation or a message for personal growth and learning. When appreciated as such, they are considered to be a gift, blessing, honour, privilege. Curiosity and fascination is triggered; meaning is created.

4.3.2.1.1 Outer experience

Animal Behaviour

MNE is unusual, unexpected and unlikely, relative to one's knowledge and experiences at that point in time. The **non-ordinary** nature of the experience is felt in its immediacy, and subsequent reflection confirms the rarity or uniqueness of the encounter.

> *I had never seen anything like that • I had never before or since had the same experience… • It was a surreal, unusual, almost fairytale vision for me • It was an incredible experience… • …it was a chance encounter and unexpected or anticipated. • I wasn't expecting it to be such an emotional* [experience]. *• …out of the ordinary. • …a rare experience…• … the rarity of such an event (*[the] *sense of I will only experience this once in my lifetime). •*

When involving a wild animal, the closeness and ***proximity*** of the encounter is integral to the experience and was the most frequently coded theme to surface across all reported MNEs. It appears persons feel compelled to specify distance in order to support the experience's non-ordinariness and meaningfulness. 'Close' may be relative according to the species involved and one's expectations about what is considered natural behaviour and/or safe distance based on the survival instincts of both the human and the animal.

> *… to see* [the moose] *up that close, yeah… that experience comes right to the fore. • …to be so close to this unusual animal and to be on equal footing with it… • I have never been so close to a wild one* [bird of prey] *before and it was incredible. • I felt deeply honoured to have been so close to this animal* [eland]*… • I felt very excited and privileged that we had been able to be so close to wild dolphins. • … and* [the otter] *was so close that it was splashing me everywhere. • … I came within very close proximity to a tiger. • When I surfaced, I was face to face with a Southern Right whale. •… this jackal buzzard … literally almost touched my head… •*

[70] Categorisation of the 'communication' theme is difficult and debatable. One could argue that it should be placed under the category of 'animal behaviour' as an outer experience. However, the notion of communication rests on an individual's internal perception that some sort of non-verbal exchange is taking place: it is integral to an individual's lived experience, and is therefore treated as such. Whether an actual communication is taking place is, except in a few atypical circumstances, very difficult to determine objectively within current scientific understanding. Similarly, there is difficulty in categorising whether animal displays of aggression or other emotions should be classified as outer behaviour or as an inner perceptual interpretation (Section 4.5.2).

A southern right whale, giving birth 30m from me …• We sat in the vehicle ten metres from them [cheetah family] *•… a wolf crossed the dirt road about 15 ft ahead of me. •…about 5m from us two male African elephants were following us back to camp • The Rhino stopped approximately 5m from me and snorted… …• …only five meters before me there was the friendly head of a seal. •…the leopard was… 3m from the side of the road. • No more than 6 feet away • …an elephant was standing like 2 meters away… • …a male lion, only 2 meters away from me.... •* [The wolf] *was so close to me, like three or four feet away… •…an anteater on the tree right beside of us, about three feet away... • …lying in the grass in front of me (maybe 1m away) was…a beautiful, majestic reedbuck ram.*

…a boomslang circles back towards me several times, coming up close, but showing no hint of aggression. (Dalglish 2009)

She [the southern right whale] *slowly swims right under my board only about 2 or 3 feet down. Spooky but amazing.* (Sampson 2008)

The proximity draws one into relation with the other in that a person may perceive or even look for a sense of reciprocity on behalf of the animal. ***Reciprocity*** implies a mutual exchange, a shared interaction and is perceived when there is recognition by the animal. Eye contact was the most commonly recalled factor in respondents' stories. As DeMares & Krycka (1998) note, "eye contact is crucial to sensing the inner world of another being." Depending on the species and context, the eye contact may be perceived as inviting or threatening.

We [the kudu and I] *would both freeze and stare at each other for sometime… • It* [the puma] *just sat there watching us very calmly, panting with its mouth slightly agape. • For a brief moment I was looking into the eyes of one of the lioness… • We* [the deer and I] *both looked at each other curiously, me in awe, it presumably in caution. • As it looked up, it* [the lioness] *felt like it looked directly into my eyes. • I stared directly into its big eye as it* [the southern right whale] *stared into mine. • We* [the elephant and I] *looked each other in the eye for some time • …and it* [the wolf] *just stared at me we just sat there and we stared at each other… • We* [the seal and I] *looked each other in the eyes for moments … • One* [fur seal] *came up very close to me and looked me directly in the eye, stayed there for a while and then swam away. •… and it* [the snake] *tilted its head and looked up. And there was again that visual connection... • To look deep into the eyes of a wild cat for long moments and see that incredible other-world mystery is a most delightful and precious thing that I will never forget. •*

That same day, I was out on a boat near where I live and we were surrounded by a pod of dolphins. One of them just looked right through me. It's those sorts of things that make us feel more connected to something so much bigger than ourselves. For me, it's very personal and, of course, ongoing. (Julian Lennon in an interview with Nicole Holland, 2011)

For more than a minute it [the "huge alpha male" baboon] *gazes intently into our eyes from just centimetres away, seeming to decide we are OK.* (Dalglish 2009: 17)

The perceived ***length of time*** is a key characteristic of MNEs. Prolonged encounters are commonly noted because of their unlikely and unusual nature; a wild animal displays an unexpected calmness and acceptance of the person and the situation. Extended interaction may be also seen as a tacit sign of reciprocity. [71]

[71] Brief encounters were rarely mentioned: almost all are expressed in terms of their extended duration. Whilst some accounts are relatively brief, this does not appear to form part of the respondents lived experience as it is recalled. One must however remain open to the possibility that brief encounters may be highly meaningful, depending on the context within which they occurred. The concentration of diverse stimuli and intense emotions within one brief moment may still be a powerful experience. In reflecting on powerful experiences during the WS field course I taught in early 2012, a student noted: "*My most powerful experiences were events that happened briefly. One was watching the sunrise at* [National Park] *and another was seeing rare animals like the platypus and cassowary.*"

> *And there was this period, where there was like recognition… and it wasn't sort of panic or flight on their* [the otters] *part… it was like it was just a steady stare for what must have been like a couple of minutes. And just looking and engaging…. • a*[n] *Albatross came and spent quite some time circling me … • …and a swallowtail was fluttering around us for quite a while…. • …a beautiful, majestic reedbuck ram, for about 2 minutes we stared at one another. • So we stand there for about 20 to 25 minutes looking at each other and it felt very very peaceful and felt so natural • …butterfly circling around me and staying with me for more than an hour... • It* [the deer] *stayed longer than I thought it would. • …spending an hour just drifting with a pod of 6 dolphins. • …* [for] *two hours a pod of dolphins join us in surfing the great waves… • The whale submerged …under my kayak and while I was paddling away he seemed to follow me for ages. • They* [ragged-tooth sharks] *hunted me over this reef system continuously for half an hour •…and I thought, "How long are we going on with this?" She* [the bushbuck] *is going on forever. •*

> *The other guys had already gone in and so we* [whale and I] *spent about half an hour together, just us.* (Sampson 2008)

The behaviour of the wildlife is largely what defines the experience. An unexpected ***animal approach*** may be perceived as an indication of curiosity or a ***'visitation'*** which, in a solo or personal context, may be highly meaningful. Again, such approaches may also be interpreted as evidence for reciprocity.

> *…out of nowhere a beautiful fawn started following us. The fawn would run up to us, then run away a ways, then run up again, over and over. It followed us quite a ways, then disappeared into the brush. • The eagle followed me all night long, going from tree to tree, just watching me • …tracked by a whale cow and calf for more than 5km's…the pair of whales was very close inshore and basically followed us along the coast and spied watched us at each stop • I was visited by an owl. •…then a minute later it* [the shark] *came to me, then turned away, just before it got to me. • And it* [the otter] *came right towards me…*[and] *a few…weeks later…it approached me again. • He* [the blesbuck] *did approach us and he stands in front of us and looking at us he went away and came back again to look at us. •*

> *The curiosity of the animal* [the fur seal] *to check me out. In a world where we normally check out other animals, this time it felt the other way around. • With the river behind us, us standing on the bank and the lions watching us curiously it was like an inverted reserve - we were the attraction. •…a female* [sperm whale] *came slowly straight toward the back of the boat. It was a female with a 1 to 2-year-old juvenile. The juvenile kept its distance but the mother came towards the boat. I had never seen anything like that before, in all my years of studying whales and dolphins. We had the impression the whale was as curious about us as we were about them. •*

Animal behaviour may alternatively be perceived as ***normal, yet striking***. It is through this naturalness that the encounter becomes meaningful, either by marvelling at the nature of the animal behaviour or through surprise that the behaviour remained natural given the situation and individual's presence.

> *They* [huge shoals of small fish] *seemed oblivious to our presence and swam around us for a long time… •…I could see a snake coming towards me - a little snake. And it had a mouse in its jaw - the mouse was doing the squeaking. The snake was just cruising, you know, it was doing its job and then it came right up to my boot. And then it realized "This is not normal" and then tilted its head….•…and it* [the puma] *just walked slowly, not even acknowledging us, but just walking gracefully like it owned the place and that there was nothing which could slow it down. And it walked clear passed us and then tucked into the forest and took the same path that we had just walked down… •*

> *And they* [the baboons] *come close and bark at you and sort of try and* [say] *"What is this thing?" And then they become relaxed, because you are not threatening…and you can just actually sit a whole day just watching baboons* [laughs]… *when you spend so much time in the field that animals start knowing you and are more relaxed around you and they do their own thing and you are not interfering with their behaviour… That's a good experience. •*

Occasionally, the experience involves ***physical interaction***. This is perceived as the ultimate sense of reciprocity and signifies acceptance and a willingness to engage on behalf of the animal.

> *I once had a small sparrow come and land on my shoulder as I was walking from my car to the front door of my house. • So I very tentatively held out my arm and my hand, which was now about 30 cm away from him and he* [the white throated swallow] *hopped onto my hand, he hopped on to my finger. • Had an experience with butterflies (white) landing on my chest whenever I had an emotional feeling in the Forest… • …sitting on my shoulder was a praying mantis. • But after a few weeks of being with them* [the reef and tiger sharks], *you just completely relax, and then they approach you and allow you to touch them and they will even allow you to ride on their fins - holding their dorsal fin - and this massive animal is just pulling you through the water. •*

> *The next time she* [the whale] *comes back I reach out and touch her. She feels soft and smooth and squidgy. She feels funny. She feels wonderful. She came back to play with me a total of nine times, six of which involved touching. One time I lay floating on my back and she passed under me, brushing my legs with her back. The last three times she came in a circle to tempt me with her tail – hauling it in front of me so I could hold on for a ride. I left my board each time and hung on for a few metres. She was so gentle and slow, it was mind blowing. It was such an intimate and sensual experience…* (Sampson 2008)

Persons may be moved by perceived displays of ***animal emotion*** which range from aggression to joy.

> *…*[I was] *attacked by a pair of 3m ragged-tooth sharks, which was quite surprising as these sharks usually don't go for divers. • The female and sub-adult* [rhino] *turned towards us and charged. •…there was an elephant bull and as I stepped into the cutline, he sort of stood up and got a fright and started coming straight down to me. And I thought "Oh shit. What am I going to do now?" •*

> *I saw hurt in his* [reedbuck ram] *eyes… • I saw the sadness of this animal in this condition and I released this monkey* [from captivity] *with high motivation. • Whilst looking at the animal* [the elephant] *from the car I had a look at his eye and he looked sad. •*

> *…and then she* [the bushbuck] *started to run. She ran down the hill and into the grass. And I thought, "She is gone".* [But then she came] *up again and down again and up again. And she stopped to look at me and I said, "Wow" ; off again and then up and down and up and down, running around. It was joy. It was absolute joy. • I knew this animal was just having a very unusual experience …but it was afraid; it was afraid of my mouth and being bitten. And then it … somehow realized that I was not going to hurt it. And it felt somehow relaxed… •*

Beauty, Aesthetics and Stimuli

MNEs are regarded as beautiful experiences, either implicitly or explicitly. In many cases, the identification of ***beauty*** is clearly expressed, whether it be through defining a particular feature or as a more unifying characteristic of the experience as a whole.

> *…a beautiful, majestic reedbuck ram • A beautiful gecko… • …some beautiful storks… •… the beautiful mountains… • …beautiful mountain stream…•…the beautiful Wild Coast running along •…and the sun was setting and it was gold and it was beautiful… • …the beauty of the structures and clarity of the water. •*

People give ***attention to detail*** which may be overlooked in more normal circumstances. Appreciation of animal, landscape and celestial features are apparent in the stories shared. These may comprise any number of physical features: animal markings; majestic mountains; sunset colours; wild coastline, dramatic storm clouds; or an illuminating full moon. Combination of these attributes may create a powerful ambience.

> *…one of the things that struck me was the contrast between her darks eyes and the white lines under them. • I could see his individual whiskers, his nose twitching and his deep rich eyes just watching, calming me. • His* [the young leopard's] *eyes were so green and steady and large, they seemed to fill up the whole world. • Lighting storm over Uluru (Australia), with silver streaks of water pouring down a purple rock. •*

Details of such colours, forms, patterns, rhythms and the overall ambience may be all articulated as beautiful, and regularly prefixed by emphatic adverbs such as 'so', 'really', 'incredibly' and 'amazingly'.

> *…the ocean was so beautiful • …it was breathtakingly beautiful…•…it's just so beautiful… • …this stunning beauty… •… it is beautiful, really beautiful…•…this incredibly beautiful view…•…magnificent composition of beauty…• I was amazed by the incredible beautiful nature around me and being so close to the dolphin... •*

Beyond specific stimuli, 'beauty' may also be used to describe the totality of the experience.

> *Yet it* [the deer] *paused and even seemed curious. Innocent, curious, beautiful, still and peaceful amongst such noise and decimation. Beautiful. • …it is so beautiful that they* [the eland] *just stand there and look at me… •*

> *And we drove that beautiful drive back from* [place] *along the ocean … that beautiful stunning drive. And we had this amazing music playing loud as we were just driving along this beauty. And I was just infused with it. •*

Acute sensory focus on stimuli and sensations may allow persons to be sufficiently absorbed such that they experience ***presence***; an 'in-the-moment' sense of being.

> *I was transfixed. • I … did feel mesmerized. • I was very grounded and completely present without fear. • We were all simply there, no other thoughts but just to watch these magnificent creatures* [the lions]. *• For that moment it was just the seal and me… • I closed my eyes and listened to the sounds of the world around me. This was nature in all her perfection. I breathed slowly and deeply, savouring every minute. I could not speak nor move for fear it would end… I thought about a lot of things that night. …But a lot of the time I didn't think; a lot of the time, I just was. •*

A notable characteristic of the general wildlife-triggered MNE (which may distinguish them from more synchronistic encounters) is that encounters regularly involve ***large mammals***, particularly cetaceans (e.g. dolphins, whales), big cats (e.g. lions, leopard, puma), big ungulates (deer, kudu, eland) and elephants. Many significant statements illustrate this; however, in some cases, the mammal itself - and the unusualness, mystique or mythology it represents - is that which infuses substantial meaningfulness into the experience. Whilst mammals tend to dominate, fish (mainly sharks) and birds also feature.

> *… I woke up in the very early morning with the sudden awareness that something big was near me… it was an eland bull, and that it had been standing or grazing right next to me…I felt deeply honoured to have been so close to this … great noble beast…especially as I have always regarded them as somewhat mystical, and can fully appreciate the Bushmen's deep respect for them. • I have always been attracted to dolphins and feel a spiritual connection to them, so this was truly mystical. •…to be so close to this unusual animal* [hippo].

A similar trend can be observed for theme of ***large in size***: it is not necessarily just the size of the animal *per se*, but the unexpected scale of the animal in that situation as directly experienced.

> *… I realised how large elephants are and yet they can be so quiet and serene. • …seeing one of the biggest mammals* [southern right whale] *and birds* [albatross] *all alone … • …this incredibly large moose…like staring peeringly close. • …a huge bottlenose dolphin dived directly underneath my kayak… •*

Beyond animals, the scale of other natural phenomena may also be a striking component.

> *…there was a huge full moon, so beautiful… •…under the big forest trees… •…close proximity of really big mountain/rock/boulder/rocky outcrop features…• … massive lightning storm … •….surrounded by these massive pieces of rock i feel at home and a sense of awe yet also belonging…•*

A sense of communication is commonly associated with close extended encounters with wildlife. This forms part of the ***reciprocity of process,*** which appears to be central to the meaningfulness of these nature experiences. The perceived communication may be implicit or explicit, direct or indirect, verbal or non-verbal, uni- or bidirectional, or felt as real or imagined. The communication draws one further into relation with the animal, such that one may feel 'sameness', based on shared intelligence or emotion.[72] A number of extended accounts are provided here to illustrate the various ways in which specific animal behaviour is perceived as a form of ***interspecies communication*** (Section 4.5.2.1).

> *It was as if they* [the dolphins] *wanted us to know that they were there, hence the big splash. • We had the impression, that the whales were wondering "What are these weird creatures?" • Two Egrets came low flying over the river. As they passed me both made a strong cry as if they were saying "Hi there, we know that you are here, you are most welcome, we love you." • I think the blesbok was curious to see us and he was communicating with us by the sound (puffing) he made… • …the whale actually sensed that I needed help because I was in depression…•*
>
> *I told the butterfly to wait for me to get a camera out of my car…I took photos of the swallowtail, telling it to move around so I can take a better photo. • A beautiful gecko showed himself to me, and for about an hour I could have sworn he understood everything I said to him, and almost responded through behaviour. •*
>
> *So we get out there and … the monkeys started getting really loud, and not just like a couple of monkeys, but like a fleet of monkeys up in the trees really high, shaking the branches and getting really loud. And we are walking towards them... And we got to a certain distance, about 20 feet from them, when they started shaking branches and pointing down at us and making a lot of noise, like "hee-hee-hooo" and shaking the branches and so much noise was happening with the leaves, the branches and all these monkeys pointing at us. And I stopped –* [my friend] *& I both stopped - and we thought maybe we should go back around them because we are probably disturbing them. And he stopped and said, "No, it is not us". And then we did one of those, like really quiet, still, 360 turnarounds with your head to see what is going on around you. And there was a puma right alongside us. •*
>
> *And what I mean when they* [the whales] *are staring at you – through those eyes - you are just so humbled, and you can just see…you know when you look at something and you can tell it is intelligent? And when you're in that water, you're just staring at that mother and she just looks at you, like with one look, susses you up and goes like straight away, "Ok, you're not a threat, you're fine", and just moves away. •*

Communication also occurs with non-animals, such as trees.

> *I stood there and I had such a tussle internally, because I was sure that this tree was saying, "Come and sit in me, just come and climb in me, it is fine. And come and be here - let me put my arms around you." And I didn't, I didn't. •…I was hiking in the Knysna forest and stopped to rest under one of the grandfather trees. I dropped into a deep meditation (not deliberately) and heard a voice say, "If you wish to learn the ways of the greenwood, come to Me."*

[72] It may be argued with justification that 'interspecies communication' should be better categorized as an 'inner experience'. The nature of animal communication and emotion remains contested and, until this rectified, I am not in a position to judge (and dismiss) whether an actual communication is actually taking place or not. From a phenomenological perspective, it is experienced as a communication and that assumes precedence here. Further exploration of the contested and evocative nature of interspecies communication is explored later (Section 4.5.2.1).

4.3.2.1.2 Inner experience

Sensorial response

The 'inner' experience of MNE begins with the senses and it is commonly the ***suddenness*** and spontaneity of the experience which brings a person into a non-ordinary state of alertness.

> *Suddenly, magic happened! • … suddenly a pod of 6 common dolphins was playing around the boat… • Twenty minutes later he* [the elephant] *was suddenly right before me… • …and from out of nowhere a beautiful fawn started following us. •... it was just the spontaneous feel of being in the presence of a wild animal. •… in one sudden instant I felt the 'aliveness' of the surrounding trees, plants and grass in a way that I had never seen or felt before. • I was suddenly overcome with an immensity of feeling… •*

One may find themselves acutely engaged with a ***stream of stimuli*** arising from moment-to-moment.

> *About 15 hyenas were circling the lions and trying to take the buck from them. They would rush the lions, making horrendous shrieking noises, only to be clawed and chased away each time. I will never, ever forget* [the] *interaction between those animals; the sounds and smells will remain with me forever. It was an amazing experience. • … the only sounds were bird calls in the distance and gently running water. • The smell of the trees, the sand under my feet. The outstretched beach and the lukewarm water … • I felt the breeze as it played in my hair and wondered where each gust had been before dancing around me. • It is an amazing experience: you literally feel nature, to smell it, hear it and see it so close. And to be with it. •*

The intensity of the experience may alert the senses, manifesting as ***heightened awareness*** or intensified perception toward incoming stimuli as sensed in the outer environment.

> *… my feelings are sharpened, my awareness heightened (not in a magical cliché type of way), just in a genuine felt deep appreciation for nature and a feeling of wholeness. • Each little sparkle of sunlight catching on the water and the smoothness, and the texture and the colour, it was just enhanced tremendously… • It was one of those flashpoints when I was like, yeah, this stunning beauty in where I am, being in this* [snow-filled ski] *bowl, and with this view, and the different smells… it was one of those times that … will just burn onto my mind … • I was so excited, keyed up, alert - I could not have been more alert. There was a heightened awareness. •*

Danger, and a real threat to the experiencer's survival, may also induce heightened awareness. In the case below, the woman was bitten by a deadly snake in a remote location, hours from medical assistance.

> *…everything becomes really alert and all your senses are stimulated. Like right now, I can still see what the river was like, all the animals, the colours and even with my eyes open, looking at you, I can have that image and feel it, because it was so awakening with all the senses. And I hope I never lose it because it was really incredible to have that. There was like a large iguana on the root of the tree looking over, and speckled light, and all the animal calls - the birds, the monkeys. I know what songs were going through my head and what thoughts I was having... •*

This attentiveness can focus one's conscious awareness, such that a person becomes fully absorbed in the present. This may trigger a warped ***sense of time***, and a given moment may feel like it was drawn out for much longer than in the more everyday measured perspective of time and reality.

> *You know how the time kind of expands and it's kind of hard to tell how much it was, but it was more than 30 seconds and we* [the fox, my friend and I] *were sitting in this triangle.• Those moments where life continues for one species of animal but totally standstills for me. • Completely unsolicited time slowed as I froze in place trying to re-focus my eyes on the little bird perched on my shoulder. • All this lasted only a few brief moments and we* [our family and the family of lions] *continued watching one another as the minutes flew by. • So it just seems like this moment is prolonging…• I was one with nature, for quite several minutes, time just disappeared. It was the best feeling ever. •*

The intensity of the occasion may give rise to a profound ***quietening*** in the mind and speech such that one is compelled to a silence such the holding communing entities are held in space without intrusive thought.

> *We were all peaceful and quiet in the kombi* [watching the elephant]. • *None of us spoke and the lions stayed quiet throughout. We were all simply there, no other thoughts but just to watch these magnificent creatures. •…am thrilled to silence at the wild majesty and power of the oceans* •

During highly intense experiences, a few persons reported an ***overwhelming*** of the senses, such that one becomes bewildered or dazed.

> *I felt… it was almost too much* [after swimming with the otter]. *…it's just so beautiful, and you're almost like, "I can't, I can't take anymore. It is so, so powerful. I sat in like a daze for like two hours…I almost wanted to actually move away from the scene, because it was too much from me. • I was on the boat still dazed* [after swimming with the sperm whale], *and still processing, and not fully switched on. • As I gazed over the escarpment, absolutely bewildered by what lay in front of me, I felt a sense of utter peace.* •

Emotional response

> *I turned, blinking away the tears, and then left them to it. This was no place for a mere man.* (Watson 2003: 208, referring to a sighting and apparent communication between two matriarchs – a blue whale and Knysna elephant.

MNEs are heavily characterized by the diversity and ***intensity of emotions*** which are felt during and after the encounter. The emotional response most commonly shared is that of ***amazement*** and it arises across multiple contexts: the natural setting; the animal and its behaviour; the experience; the situation; the emotions; the feelings. ***Awe***, wonder, excitement are also commonly felt and are often coupled with the feeling of amazement.

> *…and I just thought, WOW! This is amazing! • It was surreal and amazing. • Huge amazement and awe for its existence…* • [The whale shark is an] *Amazing creature that I would have followed all day.* • *… the most amazing feeling of what being an animal in another's playground feels like…* • *And it was just amazing that we happened to be walking there when it happened.* • *And then just to stand there and look over this incredibly beautiful view, and then suddenly to have this thing* [jackal buzzard] *almost perch above my head was quite the most amazing thing.* • *It was amazing because it was so delicate in its movement and when it closed its wings, it would not have been possible to distinguish it from a part of the grass.* • *And I just remember lifting up the canoe and amazingly just saw right up close, this incredibly large moose… like staring peeringly close, where you could just like check… the velvet on the antlers - and I was just amazed.* •
>
> *…sitting on the rocks by the sea…watching waves breaking over huge rocks and things is amazing, it is mesmerising. It talks to you.* • *…but I was moved at the vast expanse and amazing vegetation that grew on the very steep slopes of the escarpment.* • *And so I had a very amazing time in one sort of not madly spectacular part of it* [Uluru, an Aboriginal sacred site]. •
>
> *In that moment nothing exists, but the awe you feel. It's a huge rush.* • *You always see it on TV and are actually so used to the picture, but seeing it really happen is an awesome experience.* • *The whole experience was awesome!* • *…in awe of the diversity of different* [coral reef] *species all in one place…* • *I was awestruck! It was such a "wow" moment!* • *…it made me feel small and it filled* [me] *with awe…* • *… awe- filled to be so close, with no fences* • [It made me feel] *In wonder.* • *I don't know, it is just awesome…* • *These experiences deliver a feeling of oneness, that you are part of this enormous amazing thing. There is a sense of awe of the entire thing.* • *…I had no fear just awe.* •

After, or instead of, the intense high-end emotions, person may encounter deep dissipating feelings of calmness, peace and relaxation.

> *For a long time no one spoke and it was smiles all round. • It made us really happy and this story/experience became part of our life. • That fills you with a sort of joy…• That* [instinct to flee] *gave way to the realization of what had just taken place and a beautiful calmness came over me. • I felt very calm and at home! • And having, ja, a sense of immense bliss and feeling very connected and very comfortable where I was. • It gave me an overwhelming feeling of peace and beauty… • I felt at peace yet rejuvenated, leaving my negative thoughts behind on the way there and gaining new energy from the mountains on my way back. • As I gazed over the escarpment, absolutely bewildered by what lay in front of me, I felt a sense of utter peace. • And it gives me a sense of peace, and it is a wonderful feeling to feel so connected to everything that is alive. • I was then in an extremely peaceful* [inner] *place. •…you have this moment of time where, which seems all perfect, and it seems like there is an absolute joy to be in human form experiencing what you are experiencing. •*

> *In any of these experiences, there is definitely a calming effect. Any of these experiences, whether it is dolphins coming up to the boat or with the whales, you are definitely walk out calmer, I mean more relaxed. Your stresses certainly seemed to disappear - it is a relaxing effect. •*

Beauty was identified earlier as a common theme of the 'outer' experience. However, in complementing the visual sensation, ***beauty*** may also be used to describe feelings which accompany the situation. This may manifest as a unifying emotion of diverse stimuli absorbed throughout the entire experience.

> *…and we were just so thankful to get out alive but somehow it wasn't a threatening thing - like being threatened with a gun or having a car accident - it is a terrible feeling. This was a beautiful feeling. • It gave me an overwhelming feeling of peace and beauty. • There was just this expansive ocean, I felt something… I was almost in tears. •*

High intensity emotions may be followed by relief: a sense of ***emotional release*** and rejuvenation, such that the experience becomes ***therapeutic***, restorative and healing.

> *My emotions moved from anger to peace, and a deeper connection that was private, yet shared with nature. •... It was uplifting, spiritually enlightening •…there is definitely something that nature does to your soul to restore your harmony or whatever - your spiritual being. There is a strong link between the two. I can't explain it. •*

> *…and I started grinding this* [orange ochre] *and it was an amazing experience, because I found this huge rage that I felt started to come out in that act of grinding. • I woke up in the morning before dawn, and I was just surging with life energy, and I like ran outside and watched the stars fade as the sun was rising and was playing music on the guitar and ran out into the ocean and just like cleansed. You know, I had pushed through something really big…it felt great..•*

> *… so it was an amazingly happy feeling, that I could look at this, and be immersed in this beauty, in order to regain it. I just felt this amazing healing feeling, that I was actually going through this healing process…And I had such a strong, I don't know, I can only describe it as a feeling which was deep in my heart of this amazingness in this world, and how we cannot destroy it anymore. That piece, it has to stay there, you know. We have to protect it, we can't let it disappear. I don't know how else to describe it. It was just a hugely emotional feeling and it has just been a part of the whole healing process…That experience and* [ocean] *drive, and had been infused with so much beauty, it healed me. It healed that feeling of not being able to love nature anymore… •*

> *It was the most amazing sensory experience of my life, and it was better than any kind of counseling or medication I could get to counter the shark attack. It was true therapy. Whale Therapy.* (Sampson 2008)

In contrast, ***fear*** was commonly identified as the prime emotion defining numerous experiences and their meaning. Being acutely scared is associated with feelings of unfamiliarity, helplessness, ***vulnerability*** and a powerful trigger for one's survival instinct.

> *I was actually shit-scared that day… you know, moments like that, you just realize how small and minute you actually are compared to this huge thing* [the elephant]... • *Being shadowed underwater by a Zambezi* [shark], *never been so scared in my life. • It was like a sort of a horror and pure fear, ja, it was basically those two things. • I was terrified by the open ocean at that stage and felt very nervous and vulnerable in the vastness of the ocean. • It was like being a twig in this giant whirlpool –frightening. And being battered like that also, like, shocks you. • The feeling of being vulnerable to part of nature was overwhelming and exhilarating. •*

On occasions, contrasting or ***mixed emotions*** may be present during the same experience: feelings of excitement and fear; joy and sorrow; or of privilege and worry.

> *I felt a mix of excitement and fear. •… it was an amazing and scary feeling at the same time… • He* [the leopard] *was probably thinking of eating me, but wow that in itself is weirdly scarily awesome! • I was feeling a mixture of fear and pleasure for being that close to the biggest animal on land. • I had tears in my eyes and felt a mixture of extreme happiness and some sadness. • It was a combination of fear and amazement, and feeling really lucky, not only to still be alive but to be so close to this unusual animal and to be on equal footing with it. • Whenever the whale was totally passive, I was making "woo-hoo" excitement noises, but that switched to 'wh-oa' scared noises when the whale move towards me. It was a tug of war of emotions, between fear and exhilaration. • Then when we were doing our 5m decompression stop, we got circled by great white sharks. It was scary, yet adrenaline filled all the way… I never felt so scared, alone, excited, humbled and inspired at the same time. •*
>
> *…the memory of the lioness' face looking up, its desperation* [in] *eating the seal on the coastline on its own had a profound effect on me. I felt somehow connected, but at the same time distanced. •*
>
> *At first I was very scared knowing that I am merely a few meters away from a ginormous, powerful mammal* [the southern right whale] *in the deep ocean that happens to be his home. Once I had given up the fear and was able to regain my composure I was able to scramble back onto my kayak and my first instinct was to flee. That gave way to the realization of what had just taken place and a beautiful calmness came over me. •*

The flip side to the earlier reported sensory stimuli *large in size* is a ***diminished sense of self*** (importance) which is precursor for - or entwined with - feelings of ***humility***: the combined sensations are humbling and gives cause to reconsider one's role/place in the ecosystem, food chain or 'in the greater scheme of things'.

> *Especially that being on foot made us realize how tiny and weak we were compared to those animals* [the rhino]. • *Like swimming with the whales, I mean, you feel like really really small: you literally feel tiny. • It helps me to see the bigger picture, we (humans) are not living on this planet in isolation, we share it with majestic creatures big and small*
>
> *Was with my dog in the middle of ice covered lake and lay down and watched the skies and 'listened' to the deafening silence. Was incredible and humbling. • …a sense of aloneness combined with a comprehension of how small we actually are compared to the rest of the world. • …so I become this little speck of organic matter suspended between two vast elements…• Lying on my back in the Karoo under the embracing, comforting yet humbling starry night sky…•*
>
> *I mean you feel phenomenal… but definitely humbling. • I felt very humbled. You know, to be humbled by a tiny bird…And to have the smallest of little creatures - and birds being as sensitive as they are -actually approach and meet you as an equal, basically, knocks from right under your feet any pedestal, we might have put ourselves on. • Seeing one of these really rare birds* [albatross] *and the size of it makes one very humble and in awe of creation. •*

Feelings of immense ***gratitude***, ***appreciation***, ***privilege*** and ***honour*** may subsequently surface. [73]

> *Mmm…and the thought, "I am so lucky, you know." • … and we were just so thankful to get out alive… • I felt utter peace, and such gratitude for being able to feel a connection, a deep respect with this wild soul. • I was so grateful for such an unbelievable moment. • … you kind of feel like you are in somebody else's environment - instead of you being top dog, suddenly you are a guest on earth, and sort of filled with wonder, respect…•*

> *I felt deeply honoured…• I felt very…privileged…• I always feel honoured when a massive whale slowly approaches the boat and spends time swimming around and under it. •…a case of extreme privilege … • …I was left with a feeling of having been honoured by this encounter / contact. • … the lasting feeling was one of like extreme privilege to be able to see this sort of little bit of real nature unfolding right in front of you. • …makes me feel more than special and at times it feels like I am blessed to be at the right place at the right time. So I will never take anything for granted. •…*[It gave me an] *awareness of the rarity of such an event (*[in the] *sense of I will only experience this once in my lifetime);* [and] *awareness of how many people may never get the chance to have such an experience… •*

This privilege may be reported in tandem with ***respect***, ***love*** and ***compassion.*** [74] However, these feelings are not always immediately expressed in a persons' initial recall of their MNE.

> *A tremendous love and sense of connectedness followed between me and the surrounding environment. • …you develop a much greater love of nature and much more reverence for life.• …And I so loved this landscape, this nature, this ocean and the mountains…there are no words, it's just a feeling of pure love. •…because you've had that tremendous intimacy, so you feel in some way naturally connected to that animal, and you have a special kind of love for that animal and a fascination with it. •*

> *While I initiated the act* [to swat a beetle] *revelation came to me and it was as if the being of the beetle, its meaningfulness and its right to live were suddenly clear and real to me…I had great compassion for the little creature and I thought to myself that I will never impulsively react to an insect near me again. •*

4.3.2.1.3 Physiological response

A person's body may physically react to the experience. ***Adrenaline rushes*** are a commonly reported sensation and evidently link to the reported high-end emotions of awe, fear and excitement. Other physical sensations (capable of being recalled) include changes in body temperature or tingling sensations.

> *Its* [the fur seal's] *big eyes made such an impact on me, my heartbeat and breathing increased. • I did not see it* [the tiger] *but it saw me and there was a low rumbling that I can only interpret as a warning. I did not feel fear at the time but did feel a surge of adrenalin…• At this particular instant, my heart was beating quickly and strongly. The level of excitement is at its maximum and I could even feel the release of adrenaline in my body. • It's a huge rush. • … being excited… just sort of worked up, kind of. I suppose it is an adrenaline rush!*

An individual may experience a ***lightness of being***, an expansion in the chest area and metaphorical feeling of wanting to leap for joy, or to connect with a 'something' bigger than oneself.

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[73] The feeling that the MNE was a gift or blessing was rarely articulated, except when the perceived experience was synchronistic in nature (Section 4.3.6). It was also likely to be mentioned during follow-up contact when the MNE was probed in greater depth with the respondent, but does not appear to be central to the core experience.

[74] Whilst more apparent in subsequent deeper recollections elicited during in-depth interviews, mention of these emotions is generally scant throughout all collated stories, particular those elicited through the OQ. ***Empathy*** is notable by its explicit absence and, if present, may be felt at a more unconscious level. One exception was the following statement: *I started to wonder what he* [the elephant] *feels or thinks or what he sees us as. •*

> *…feeling my chest being lighter and opening as if it were merging with the openness of the surrounding landscape, eyes becoming wider and smiling. • I felt the experience in my chest, an excitement, a desire to share with others, like shouting out "come see, come see this!" • …leaping - like almost a jump for joy inside. • I was suddenly overcome with an immensity of feeling -- like my body, my soul was opening up as wide as the sky and the land. I stopped because I simply could not move for the strength of the feeling, and because I didn't want to lose the moment. •*

In additional to emotional releases, persons may also experience ***physical respite*** from bodily pain due to, e.g. the predominance of sensory stimuli or associated emotions such as bliss.

> *I had forgotten all the pain and suffering and the bugs and everything because this thing… I'm tripping looking at this* [moose]. *• Still the beetle joyfully continued, it made me feel happy and forget the aches and continuing became easy. • … it was freezing water and all that went away, and I was just in this absolute bliss. •*

In extreme cases, persons report ecstatic shaking or, in contrast, a fear-based trembling and sweating.

> *The other thing I find if I'm connected like that, my body starts shaking. Which I think is quite a universal thing. It's a lovely ecstatic sort of feeling. • Elephants and hyenas around the camping area in the night; resulting into fear, sweating, trembling and shivering. •*

Supporting the notion that 'an experience' may extend for as long as it is accessible in memory (Figure 3), recall of the experience - even after many years - may still evoke ***pleasurable bodily sensations***.

> *The experience, even when writing it down now gives me a calm, deep feeling with bubbling excitement, that seems to spread through my arms to my fingers and all the way to my toes. • Even now when I speak to my brother about it …we smile and go quiet for a bit. • I still feel that sense of expansiveness when I recall that moment. It was glorious, as if I and the land were invincible. •*

4.3.2.1.4 Consciousness (integrated responses)

> *I ran out to Hillbury Island, and I had an amazing experience where I was at one with the seabirds. It was absolutely beautiful and fantastic. There was definitely a feeling of oneness, a really strong feeling of affinity with the birds. The sun was coming down in shafts of light from the clouds and it was all just beautiful.* (Taylor 2010: 17)

MNE may instigate a range of responses which are difficult to categorize. At one level, they may be cast as profound cognitive or perceptual shifts. However, there is a definite sense that what is experienced is more than only cognitive: rather, it is a powerful combination of sensory, affective and physiological responses nuanced by cognitive processes (which likely include pre-existing mental models or concepts). Clearly, all of the themes outlined in this chapter are responses in consciousness in one way or another: however, the following responses seem to distinguish themselves through the integrated totality of the response.

MNEs, when sufficiently powerful, may overcome perceptual states of separation which are usually felt between an individual and the natural environment. As the ***boundaries collapse*** between these two spheres, a renewed sense of ***connection*** is perceived - most commonly with flora or fauna as the focal point but also with landscape, family, friends and/or a previously undiscovered part of one's inner being.

…everything melted together as if there were no boundaries. •… you just feel a connection with the animals seeing them in such a 'real' situation…. • I had an important understanding that nature is absolutely permeable, the edges are all soft, whereas our fabrications are hard and sharp. So, there is actually no boundary between outside and inside, or nature and myself. I breathe, and the oxygen penetrates to the very centre of my body and back out.

It was a wonderful visceral experience connecting with a wild organism, and so also my own inner animal. • A tremendous love and sense of connectedness followed between me and the surrounding environment… • It's a sense of reconnecting with my past and my relationship to 'home'. • There was also a connection with my father as he had recently passed away. There was a real connection with the whale - it was a spiritually uplifting moment. •…And it was very very profound on all sorts of levels, because although I felt a part of the earth and felt very connected to that part of the world… I travelled off… and did all these things. But then I returned …So it was reconnection. •

So there is definitely a bond – the longer the time you spend in nature and with nature, they [the animals] *become more friendly towards you. You are not some outsider - you become part of it, which is a lekker* [from Afrikaans: 'superb'] *feeling. There is something nice about it. • That there is a deeper connection. That there is something else. •*

I went surfing on the east coast of Australia and about half an hour into the session, I was sitting with this friend of mine and he goes white. And on the surface of the next wave was a tiger shark. Its fins were down and it was in the zone and this thing was literally two metres away from me. And I looked down and right there - it's like in a glass case in a wall - this dolphin comes out of right field and 't-bones' this shark...and pushes it directly away from me and my buddy. In that moment, that's the most obvious demonstration of a connection in my life. ~ Dave Rastovich (professional surfer and co-founder of *Surfers for Cetaceans*) in the 2009 documentary film *The Cove.*

When boundaries collapse and connection is perceived, finer-scale yet paradoxically more far-reaching understandings of ***interconnectedness*** often arise. There is a perceived interrelatedness between oneself and other beings – and interdependence with 'the other'. A sense of interconnectedness may extend to include mind and body, consciousness and matter, and beings of past, present and future epochs.

…really signifies the interconnectedness of nature on our magnificent planet. • …it was meaningful to me, because it felt like two different universes, overlapping for 10 minutes. •…made me feel that we are all part of a system greater than humanity. •…this feeling that everything is interconnected like in the magical carpet and I am not alone and my thoughts and my imaginations have a certain effect on beings somehow. • I just changed my perspective on energy in this world and how all living things are connected. • …it is the great sense of the divine, of the connection … of the understanding of the interconnectedness of all things – the absolute joy and bliss of being a part of that. •

Feelings of ***oneness*** are entwined and sometimes synonymous with interconnectedness but, from a lived experience perspective, may be further along the continuum in terms of the all-encompassing profundity. It may manifest as something more expansive and unifying: a ***wholeness*** with all life and the universe, such that everything feels as though it is in perfect ***harmony*.**

…my attention was caught by some grass plants, I started observing them, got close and everything melted together as if there were no boundaries. I was one with nature, for quite several minutes, time just disappeared… Magical. After a little while the surroundings became more apparent, the birds singing, the wind blowing. I felt myself separate... again. •

…I was practising [target archery] *and looking up at the sky and seeing the clouds and swallows wheeling around. And it is a feeling of, "We are all one. And we are connected. I know." You can't say, "You know what", it is just "You know". And as I picked up the bow, I could feel the connection between my body, the bow, the arrow, the target and everything around was just focused in harmony. And it is that incredible being at one with the whole world around us that is so exhilarating… And one can feel a connectedness and I'm not saying that this is necessarily a religious experience - I mean, one is not seeing God, so to speak - it is a question of 'oneness' … •*

It felt as if the whole beach was pulsating and as if all the separate elements, the water, the sand and cliffs, were all part of one entity…• I all of a sudden felt things coming together. • I felt after a while completely one with Nature • …and a feeling of wholeness.... • I was close to 'one' with the energy of the universe… • It feels like a great oneness, you know…a feeling of complete oneness with everything • …it is a very holistic experience • I could feel the oneness… • …it is that harmonious thing bringing it all together…this oneness…to become one with God again… • Like, it is just a sense of oneness, a tremendous oneness. Instead of being caught in the human body there is a sense of no separation. • These experiences deliver a feeling of oneness, that you are part of this enormous amazing thing. • … you realize that everything is one. We are all the same thing, even the animals, all is one thing. • It was meaningful to be able to experience the feeling that humanity is just part of 'the whole.' •

A seagull came into view, gliding. Dipping, playing with the wind. I watched it as I'd never watch anything before in my life. I almost seemed mesmerized; it was as if I was watching myself flying, for there was not the usual division between us. Yet, something more was there than just a lack of separateness, 'something' truly beautiful and unknowable. Finally, I turn my eyes to the pine-covered hills behind the monastery and still there was no division, only something there that was flowing through every vista and particular object of vision. To see the Oneness of everything is like having special 3D glasses put before your eyes... (Roberts 1993: 32 in Taylor 2010: 130)

Respondents sometimes perceive ***something greater than oneself***; a force or power, which may be labelled as God, creation, spirit, or the divine. Explicit references to these dimensions are more likely to surface during in-depth recollections and seem to be more associated with synchronicity (Section 4.3.6).

From horizon to horizon I felt blanketed by some great creation I couldn't even begin (or need) to understand. • Although I did believe spirits do visit people and there is a higher power, this just reinforced it. • The encounter helped me see that there was something bigger than I, bigger than myself. • It is the presence of the divine or God, or however you want to describe that power. • A deep feeling of peace came over me, and I felt like my being or spirit had expanded to fill all the space I could see. I remember this thought coming to me very clearly: "God is big out here". •

I didn't expect to feel so overwhelmed by the experience [of seeing African elephants in the wild for the first time], *but it felt almost spiritual. • This* [dolphin experience] *was the most mystical and spiritual encounter I have ever had • It makes me believe that there is more to life than just chance and that there must be some spiritual connectiveness between us and all living things. It is also with these encounters that I have a sincere belief that there is something bigger than me out there that might be called a higher force. • But I have to say I can't help denying that when you do see one* [an animal] *and you interact with one at this sort of level, it is sort of… it is as if you are talking with God - that's the sense you get, you know. You come and you are looking into the face of God - that's the sense - and that's a pretty powerful thing to experience. •*

Standing alone in the middle of a frozen lake at dusk, I was suddenly and unexpectedly overwhelmed by a sense of profound warmth, from the inside out, and ultimately with the absolute knowledge of Something Bigger Than I Am. At that point I certainly didn't want to call it God, but I've never been able to find a better word for it. (Lionberger 2007)

MNE delivers ***insight*** as a basis for profound understanding and learning. It may result in an instantaneous or delayed ***revelation***; conveying a message which may support personal growth, provide guidance in life, or trigger self-transformation (these themes are particularly characteristic of synchronicity (Section 4.3.6)).

It filled me with a sense of a greater understanding of nature and how it all fits together. • I also saw a different way of looking at my role in the world… • I realized that nature can never be fully understood by humans. •

> *The experience cemented my understanding that humans are not always the top predator, that we are very much part of the food chain and that we really do need to respect the power and intelligence of these animals* [sharks]. • *…a very powerful moment of awareness of the incredible beauty and simplicity of the world and space, but also that our survival is at such a very tiny limited level...not above the earth or below...but really only on the surface..* •
>
> *This* [experience with the whale] *made me realize three significant things. One: we should always know that the planet does not belong to us as humans alone. Two: Our brothers and sisters from the animal kingdom are as curious about us as we are of them. Three: We are the dangerous animals whose intent toward other animals is not always pure, and not animals in the wild, as they do not have any animosity toward us, even though we are the ones destroying their habitat and hunting them for our own greed. • …It felt a bit like a birthing of something new in me. •*
>
> *Something changed in me that night. I had experienced something magical, something perfect, something powerful that set me on a different path. I saw the world through different eyes and realized I had a reason for being. I had, at the tender age of 21, found the meaning of my life. And it was amazing. •*

Such an experience and the resulting realizations may imbue newfound ***curiosity*** and ***fascination*** for the natural world and ignite a desire to understand the phenomena and the deepening mystery of nature.

> *I felt the…well, I suppose it relates to the questions people ask: why is this huge piece of extraordinary rock* [Uluru] *sitting in these plains? And its whole energy field? And I suppose that the little that I know about the Aboriginal relation to it, it is definitely a sacred place, without having to try. •*
>
> *It is…a sense of attraction - otherwise why would you actually get into the water in the first place? There is a curiosity, a love for the animal* [the whale]. • *I was very curious to see what the whale was doing and decided to stay and get a better understanding of these amazing animals. • … and the curious thing is why the sharks stayed with us. Why is it wanting* [to be] *touch*[ed]*? • …And you're thinking, how can this animal* [the moose] *that is this big, you know, get into this forest and not be peering at me, right? • And I thought, "Is she* [the bushbuck] *just showing joy?" • It is such an interesting thing because they* [the baboons] *are probably so close to humans. They are really an interesting animal to watch, eh. Their mannerisms, their playing and how the little ones play with the mothers. Ja, that's like, you can write books on that. •*

4.3.2.2 Structural description

This section explores the setting and context within which the phenomena of MNEs were experienced (cf. Creswell 2007). It is not merely restricted to physical environmental dimensions; equally important is the social setting, the activity and one's state of inner being (Table 15). Respondents' significant statements are employed to illustrate the MNE context. Given that data were obtained from various sources, the level of detail in respondents' accounts also varies considerably. In particular, OQ respondents tend to be brief and focused primarily on the experience itself, without voluntarily providing additional information which might provide more insightful clues as to the context within which the experience unfolded. Therefore, for the OQ, an additional question was added which invited respondents to speculate on the conditions or, more loosely, 'the cause' which facilitates MNEs.[75] I have therefore augmented these two different approaches: i.e. the more reticent approach of picking up themes as they arise during the recall of MNEs; alongside the overt approach of specifically asking respondents to share their feelings on influential conditions.[76]

[75] Using the word 'cause' in the initial OQ was probably a poor choice, as it inadvertently invites possible objection to whether these experiences can be considered causal at all. On the other hand, the contested nature of the word was able to provoke and elicit thoughtful and highly valuable contributions on context.

[76] For any experience, one could assume the extreme constructivist position that the perceived outer (physical world-*matterscape*) is essentially formed by the inner (cognitive and affective - *mindscape*) or that the inner is reliant on what

Table 15: Overview of core structural themes of MNE

*Thematic families** -Themes used for coding	*Summary description of themes*
Activity - Physical activity - Physical inactivity - Physical challenge/exertion - Fieldwork	MNEs correspond with polarized levels of activity: i) *Physical exertion* as found in a nature-based activity such as hiking, wandering, backpacking, kayaking, diving, surfing'; or, conversely with ii) *Physical inactivity* through contemplative sitting, resting, meditation, or during a hiatus after physical exertion. MNEs are also reported to occur during intensive (conservation) fieldwork.
Being - Level of (*outward*) awareness - Openness - Humility, appreciation - Emotional intensity, change - Focused, still, relaxed - Relatedness, connectedness - Prior knowledge - Novelty, unfamiliarity	Level of awareness (of surrounds) before or during an activity appears instrumental. "Openness" toward MNEs is sometimes considered decisive. Humbled respectful disposition toward nature, feelings of appreciation relatedness and sameness are noted. Emotional intensity, turbulence, or life transition may also preface multiple MNEs. Similarly, MNEs occur during periods of concentration, focus and stillness (potentially closely linked with the activity). Prior knowledge (e.g. ecological) may be influential. Unfamiliar novel settings may instigate related emotional and perceptual states.
Social setting - Family - Solo - Paired - Group - Influence, interpretation	MNEs are experienced across a range of social settings: with family, alone, with a close friend, or in a group (e.g. together for a wilderness trail). Each make a unique contribution to the MNE and different responses and outcomes may be experienced from each. MNEs may be directly or indirectly facilitated by another and this influences the interpretation.
Environmental setting - Authenticity, naturalness - Protected area - Remoteness, wildness - Animal contentment, safety - Open expanse, vastness - Time of day - Exposed, enclosed	Nature reserves, wilderness areas, national and provincial parks, marine protected areas are common settings for MNEs. Attributes of such areas include a perception of remoteness, wildness and open expanses; however, MNEs do not exclusively occur in such areas. The time of day – particularly sunset and sunrise - may be influential variables in the event. Settings which are vast and exposed are commonly reported, though enclosed settings ranging from dense bush to backyards and indoors are also possible.
Ecosystem setting - Marine, ocean, coral reef - Mountain, high country - Thicket, bushland - Desert, savannah - Coastal beach, estuary - Suburban green space	Various ecosystems provide a substrate for MNEs. Commonly cited biomes include ocean and marine environments, mountain and high country, and deserts and savannah. These areas possess attributes outlined in the above *environmental setting*, e.g. remoteness, vastness or other characteristics which may induce a sense of smallness, vulnerability. MNEs are also reported in suburban areas, e.g. backyards and parklands.
Variable setting -No specific conditions/context - Right place, right time - Works of God - Works of Nature	MNEs may not require any specific conditions or contexts or, alternatively, any number of identifiable variables. It is rather considered a matter of being in the *right place* at the *right time* with the *right state of mind*. Some individuals may perceive this coming together as the work of God, spirit, or a symbiotic way in which nature reaches out to communicate with us when we need to be awakened or made aware of a dimension of ourselves.

*Theme categorisations (i.e. activity, being, social) have been adapted from Morse (2011).

4.3.2.2.1 Activity

MNEs are entwined with the ***activity*** being performed: the act of engaging in a particular activity is a precondition. In almost all cases, there is an outdoor-based ***physical activity*** which is a result of a

manifests in the outer. For the purposes of this part of the analysis, the approach considers that what was experienced in the outer physical domain is that which primarily led to – or triggered - the inner experience.

willingness to immerse oneself for a period of ***time in nature*** (see also environmental and ecosystem setting). Common to many terrestrial experiences are walks, hikes and wanderings. Marine or aquatic-based experiences may occur during activities such as boating, kayaking, swimming, snorkelling or surfing.

> *Whilst out walking…• ….I was on trail…• I was hiking…• a 4 day wilderness hike • I was backpacking…• …on an EFP (extended foot patrol) • …I remember one* [horse] *ride…• … we were portaging… • I was abseiling…•*
>
> *I was surfing…• I was snorkelling… • I was taking a sunset dip… • …coastal swimming… • I was out spearfishing…• I was kayaking…•…paddling my surfski…• I have a meaningful experience every time I climb a mountain. •*

However, in numerous cases, the physical activity mentioned may be a distraction from what the individual was actually doing at the moment the experience unfolds. Conversely, this may be at the ***moment of inactivity***; a brief pause after a challenging physical endeavour, or an extended hiatus associated with contemplative sitting, reflective meditation, or during prolonged observation and focus.

> *When I push my body beyond its perceived "breaking point"* [during mountain climbing] *my mind empties of thoughts and becomes filled with the presence of the mountain in all its smells, sights and feelings. • I came out of a sloping climb through the trees to an opening where there was a wide curve of the trail. • I was hiking... and stopped to rest … I dropped into a deep meditation (not deliberately)… • I was sat in long grass…• Lying on my back… •… lying in the (shallow) river…•…floating on my back…•*

Beyond physical, a given activity may also serve a more sensory or spiritual purpose and some respondents report MNEs occurring during or soon after ***sensory awakening*** practices (e.g. yoga, rhythmic breathing), rituals or other ***ceremonial activities*** (e.g. funerals, thanks giving).

> *And in the ceremony I did for myself, greeting the directions of the wind, thinking of the reasons I was there, thinking of the important people in my life, I all of a sudden felt things coming together. • I was walking up a mountain to ceremoniously dispose of a childhood artefact that I had outgrown many years previously and to make a decision regarding my future career. •*

MNEs appear to correspond with an activity which has the potential to disrupt or change one's default mode of perception and thus disrupt the usual psycho-physiological homeostasis (cf. Taylor 2010).

> *…floating on my back in the center of a perfectly round volcanic lake near our house…is an amazing experience. Not because of the Pope's palace on the rim of the volcano, but because if my face is at water level and with my peripheral vision I can see the volcanic rim all around (about 5km radius) and become intensely aware of being at the center of a round, very deep body of water, the surprising thing is the sky appears to be a dome, the same color as the water, so I become this little speck of organic matter suspended between two vast elements, it's a very powerful moment of awareness of the incredible beauty and simplicity of the world and space…*

MNEs are found to occur during intensive conservation-oriented ***fieldwork***, particularly that which involves extensive periods of immersion in nature.[77]

> *We had spent the day tracking the sperm whales on the hydrophone. We were doing sound recordings, taking ID…We had been following, photographing them throughout the day but had not got this close, or had been presented any kind of up close opportunity or invitation. •…to accompany some other conservationists and a photographer on an underwater photography/ snorkelling mission. •*

[77] It is noted that this is dependent on the sample demographics. However, attention should be directed to understanding contextual qualities of the activity, rather than deliberating on the validity of possible correlations.

And I can remember one night, just walking along the coast, scanning for [feral] *cats , just sort of hearing this "pffff pffff pfff" and there was a pod of killer whales just coming right past. … • I was doing patrols and walking around the trail area…• …extended foot patrol… • The year I spent on a small island in the south Indian ocean working as a field researcher stands out for me as the time I got really connected to nature. •*

I volunteered at a private game reserve …During that time, I spent every day in the mountains and hills. • I was interning mapping invasive plants in …one of the deepest, most remote locations and the biggest challenge to hike down into from our vehicle. • …when I did my prep for my diploma …working in the Cederberg tracking leopards. • …doing that study you spend weeks in the veld [translation from Afrikaans: 'field']*, in the environment… • … when I was doing my PhD fieldwork in Addo… • … I studied in the Kruger National Park for a few months. • We were at Addo Elephant Park with our University Zoology-3 class. • After that 1st experience I constantly wanted to be out to the veld to look for animals… •… I was working on my Masters project in the Baviaanskloof. • … taking partially sighted youth and able bodied youth for a camp … • Whilst out walking…with a group of schoolchildren… •*

4.3.2.2.2 State of being

An individual's ***level of awareness*** of the surrounding natural environment before and during is seemingly pivotal. Whilst difficult to assess objectively, a number of respondents felt this to be a determining factor. The earlier textual description already illustrated that the MNE itself may also enhance sensory awareness.

…how aware you are during that time. If you don't pay attention to nature or wildlife, the chances of having a meaningful nature experience are very small. • You have to be consciously aware of your surroundings and the beings sharing the living space with you - that's all. Nature will do the rest. • It depends how aware you can become of the nature that is around and within you. • Careful observation… • … there has to be an awareness outside yourself to occur. • …when we open our eyes and look around us we experience so much more. • …just being engaged with my five senses in the moment. • In some cases, many senses are being stimulated (sight, sound, touch, smell etc.) which helps you become completely present, thus feeling very connected to everything... • I mean, there was also some rhino and things there so you are always on the alert - that's the other thing about being in wild country, where there is some danger. Your senses are so much more tweaked in… •

Openness is often cited as important: i.e. a person retains an open-mind toward the idea of experiencing something profound and meaningful. Conversely, being closed to such possibilities may inadvertently restrict the advent of a MNE.

…being aware and open for this. I think this [sic] *are interpretation*[s] *of the situation. Some people who are not aware, have not the information or are not open for this will not see it. • … the mind needs to be open to such experiences… • You need to be open for nature and wildlife and allow new experiences. People that are extremely open to new experiences, might also have more meaningful nature experiences. • …probably need to be open to the possibility of such experiences (even just subconsciously), … • …like that the person is looking for answers or signs, and is aware of the possibility that such things may come from the natural world. • …being open to the experience. Opening your mind to other beings and life forces… • openness to the idea... •*

With openness and awareness tends to come an ***outward-looking focus***.

To look out of oneself and stop being so selfish and inward focussed. • I [think] *there has to be an awareness outside yourself* [for these experiences] *to occur. •*

The textual description found MNE to potentially instil humility, respect and diminishment. It appears the relationship is symbiotic as a prior disposition which carries a degree of ***humility***, ***respect***, and ***diminished sense of self*** when entering an environment is also regarded as being a key variable or precursor.

It is when we realize that there is more than us…[and] *understand that it's not all about us. •… An understanding of a world that is bigger than ourselves and bigger than humans. • I think a prerequisite is the view that humanity should not dominate nature, but rather should be nature. • And I think* [the nature connection program I attended] *encourages you to commune in a respectful reverend way with nature. And by going in* [like that], *I saw animals I had never seen before or since…• …have a certain respect for the natural world, rather than viewing it as a purely mechanistic phenomenon or as a well of resources there simply for humans to plunder. •*

Especially that being on foot made us realize how tiny and weak we were compared to those animals. • …everyone was very quiet and respectful in this area. • … conditions were shared with the animal(s) i.e. we were both cold and wet, hot etc (I was not fully removed from the environment the animal was experiencing…). • Meeting an animal at its level in a natural environment. • I was once told that the greatest complement that a wild creature can pay is to be there because it chooses to be there. To interact at the same level is humbling and meaningful. •

Feelings of appreciation are often linked to states of humility and respect. Appreciation may be directed toward natural diversity, beauty and relatedness with life.

We admire how different wildlife is from us, yet at the same time we can identify with wildlife. • …being overwhelmed by the beauty, grace, or power of nature… • A sense of awe… • That there are other animals that we share the earth with that are surprising, scary, beautiful and majestic. •… the fact that you realize that what's around you has a life of their own. • …the complexity and interrelatedness of systems is also profound. •

This state of being also tends to acknowledge *a-priori* a ***relatedness*** or sameness with other species, and the act of putting oneself on equal footing with animals in the natural environment, may enhance the sensation. This closely aligns with feelings of ***interconnectedness***.

To see oneself as part of rather than apart from the natural environment. • Being open to nature and feeling a kinship towards living creatures and natural elements (wind, earth, rocks). • And connectedness: the fact that you feel you are also one piece of the whole jigsaw puzzle. • This requires a way of thinking that knows that the day-to-day material world is infused with/underlain/not separate from Spirit. • Many times it manifests itself in a calming feeling of interconnectedness or just the desire to connect on a different level with the environment we find ourselves in. • …a sense of connection to the immediate surrounds… • It happens because everything is connected and if we open up to that we experience the true meanings of those relationships. •

MNE is sometimes prefaced by ***emotional intensity*** and ***turbulence*** arising through times of personal stress, transition, uncertainty or concentrated feelings resulting from relationships and loss of loved ones. These conditions are however more commonly associated with synchronicity (Section 2.4.4, Section 4.3.6).

I had a fight with my brother and parents, and moved away from their table… • I was doing a weekend workshop using Joanna Macy-esque grief work. • I was suffering from depression at the time… • …my whole experience was very tied up with the Zimbabwean crisis… • I was very very down… • I guess I could have been in a vulnerable state as I had been away from home for a month in a very different environment with unfamiliar people. • I had been in a really bad space… • My aunt died a few months before this holiday …•

…my Nana had lost her long battle with breast cancer and my first attempt at uni had ended in dismal failure. I wanted to be anywhere but [City 1] *so I booked a flight to* [City 2] *to visit my brother. I was depressed, an utter failure, and completely lost. •*

Specific ***intentions*** or questions may be formulated consciously or subconsciously to help resolve outstanding personal issues such as ill relationships, anger, or a lack of direction and satisfaction in one's life.

…it was at that stage where this whole environmental anger I felt had got to such a pitch that I was actually almost starting to feel it in my heart. I was getting worried that I might end up with a heart attack. Because I was literally feeling that my heart had hardened. •

We were crossing the boundary from civilisation into the wilderness with some kind of a ceremony. My issue for this trail was to examine my relation to South Africa. How do I relate to this country, my parents, my family? What is the meaning of South Africa in my life? •

MNE is repeatedly linked with extended periods of ***perceptual focus*** and mental concentration, such as found in deeper meditative states, fieldwork immersion or preoccupation with work or study tasks.

I sat down and watched some birdlife I'd never seen before, how dense the moss was on some of the trees… how muted the many colors were and how they seemed to all fit the one palette. Then I looked up through the forest along the length of it beside the beach, and spotted a deer. I'd never seen one in the wild before…•

…when I am on a challenging path with obstructions… loose stones and thorny bushes in the path and so on, my awareness becomes highly attuned to the environment I am in and I am intensely focused…present and mindful. •… I used to do a lot of target archery. Now, archery takes an enormous amount of focus. •

…for two or three weeks at a time, we would do this filming …and then after, I think, about 10 days every night, after having these experiences and diving with these big animals [sharks], *I would have, say about an hour before I went to sleep, just relaxing eyes open lying down, waking visions of being back in the water. •*

A number of respondents noted the importance of cultivating an ***inner stillness*** or ***outer quietness***, as a precondition for increasing the likelihood of MNE. Closely linked with such states are feelings of relaxation, or a relaxed mind, which is not preoccupied with the usual worries linked to 'everyday life'.

Because everything is so quiet, you just sit there and these things come past you and they don't even know about you… • We were watching the sunset and had all stopped speaking… • I sat on [a] *rock in silence… • Then he* [the guide] *turned off the torch and for the next few hours, we sat in silence…. •*

To be still/quiet for a moment and stop incessant talking/stressing/worrying. • …one needs to be still and quiet, be aware of the sounds and scents, be curious and unafraid. • …sometimes it is simply a moment of stillness that triggers a special moment in someone. • I think they are more likely to happen when the person is alone, quiet, relaxed, and aware, ready to see small things and able to be present to observe completely. • Stopping what one is doing to really "take in" the moment. • Being in a space that doesn't call on you to talk or allow the ego to act in relation to other people, where you don't feel conscious of being watched and so you drop into the internal while melting into the external through the senses. • …the common thing would be a stillness… •

It all depends to what degree you are able to "shed" your "human consciousness" (constantly thinking and focusing on artificial things). It depends how well you can detach yourself from the civilized modern man. •

Dalglish (2009) reports on multiple encounters after his Vision Quest (contemporary wilderness-based rites of passage) and links his altered state of being after that sojourn to his newfound experiences:

Once, while lying on a rock ledge in the sun, lizards crawl over me and sit on my body, unconcerned. This had never happened before in hundreds of similar situations.… And, on hikes on the Table Mountain chain, twice had a troop of baboons approach me and my friend Antoinette, the little ones scampering up and playfully undoing shoelaces, gently squeezing fingers or softly tugging at our hair and clothing." (Dalglish 2009: 17)

Prior knowledge, education, experience and even ideas about possible modes of causation for MNE undoubtedly influence perceptual concepts. This in turn guides the interpretations of the meaningfulness ultimately extracted from a given experience. Some respondents make this explicit in their reflections; others also suggest that the very act of reflection itself is important in developing the personal meaning.

> *…a basic understanding of the underlying patterns and processes which drive all biological systems. • knowing something about what you are seeing – knowing when you see it, rather than walking by and taking it for granted (e.g., seeing individual plants rather than an indistinguishable mass of plants). • my experience with the eland was because I attached a value of strength to the animal. I know this because some local people told me this. • I knew that a humpback whale would never intentionally hurt us. But this was a sperm whale - and humans are just the right snack size, and sperm whales are known to eat stuff which is not normally on their menu. •*

That prior experience may have come through ***media*** (e.g. television) and acts as a reference point:

> *You always see it on TV and are actually so used to the picture, but seeing it really happen is an awesome experience. • I'd never seen one* [spotted deer] *and only really identified with them through Disney's Bambi. • I only saw these type of animals on TV or read about them in books. • I suppose being so familiar with images and videos of the animal or landscape in question, and then finally seeing it in the wild, where it is supposed to be, rather than in a zoo. • … made me sad to see that such a beautiful animal* [great white shark], *could have such a bad reputation. The media is such a powerful tool that affects all. • … we are sold this image … of this monster sort of animal, and that sits in your brain, a part of your brain, which is connected to fear. And then you go into the water, and this thing* [this shark], *which is being sold as a monster, is the most beautiful creature. •*

In some cases, individuals may carry a relatively fresh perception, given that they have unexpectedly found themselves in new and ***unfamiliar circumstances***.

> *Travel often helps me because everything is new and discovery is everywhere… • The novelty of the situation (the setting, the wildlife, the remoteness) • When you see something different, or unusual, when you are taken out of the comfort zone of the everyday life…•*

Respondents also acknowledge how their perceptions shift through demanding activities such as mountain climbing, surfing. [78]

4.3.2.2.3 Social setting

The social context for MNEs is complex and multidimensional since they are encountered across a range of settings: with ***family***, ***alone***, with ***another*** (e.g. close friend), or in a ***group*** (e.g. on a wilderness trail). Each of these settings makes a unique contribution to the defining qualities of the MNE and emerging meanings may be intimately tied with this context. There was no particular social context which emerged as being more frequent, more powerful or a necessary precursor and in-depth interviews further illustrated that each setting can bring its own specialness to a situation (Box 19). Importantly, a shared experience may support the validity of the experience and this sharing may amplify the positive emotions and, in turn, strengthen bonding with the other person particularly a close relationship already exists. Having a MNE alone is more intimate and personal and may speak powerfully to the individual at a deeper private level.

[78] Taylor (2010) identifies a number of other activities which may trigger 'awakening experiences' (although not necessarily in or with nature): music, dance, asceticism, fasting, fatigue, drug use - all of which have the effect of disrupting the body's usual equilibrium and psycho-physiological homeostasis such that perception is 'reset'.

4.3.2.2.4 Family

…the fact that I shared it with my family just makes it more profound. • I think I had never felt so close to my wife and children, 12.000 km away. I felt the presence of my parents, the other members of my family… • I went with my pregnant wife to a hospital in Rwanda. It was early in the morning and we passed some beautiful storks. We had never seen them before. [The day after, my wife] *gave birth to our daughter...It made us really happy and this story/experience became part of our life. • About 55 years ago ... (I am 60) my Grandmother showing me where a large eel hid under a bank. Her hand was warm and steady as we fed it bread…The warmth of my Grandmother, and her calm manner were important to me feeling the specialness of the occasion. I can still see the place where it rested in the slow moving water. It makes me feel "at home" •*

What was striking for me was that my brother, father and friend (who is like a second brother) were all watching this family as our family was watching them [the lions]. [It] *Created a sense of shared family and experience - we were curious, they were curious, they were our interest and we were theirs, we were a family and so where they. This shared commonality between us is something I remember very well, especially since I had been away from my family for the last year. It really hit home how important family is, even a small family. If these powerful creatures felt safer and are more successful in a group than family must* [be] *truly important…Even now when I speak to my brother about it… we smile and go quiet for a bit. •*

4.3.2.2.5 Alone

I was on a solo in the wilderness…• …sitting "solo"… • …. in very remote locations by myself. •…we had separated for a bit and I was on my own… • …and you go up there all on your own. • Standing alone on a big beach… • It was just you, the trail line … in an ocean so vast. • During solo periods I had an important understanding… • …By myself has been the strongest experiences, but that doesn't mean the best… •

They mostly happen … when I have been alone for a while and more in touch with my inner world. • Being alone in the experience, so it is a special, personal happening. (Both of my experiences happened while I was away from my companion(s)) • For me, it is usually something that happens 1-on-1, in other words there was not a large crowd of people there also experiencing the same thing. •… it made it kind of more poignant that there was nobody else to talk about it with. So you just had to kind of like savour it and then go home and dwell on it a bit, I guess. •

I would go for virtually a week or two weeks without seeing another person - not even in the distance… let alone even talking to someone… So it was the first time in my life I had ever gone through anything like that. I think that one of the things that sort of surprised me was that I never had the feeling of loneliness - I never felt like I was isolated or something… And I can remember sitting around a campfire and just seeing wilderness. And having, ja, a sense of immense bliss and feeling very connected and very comfortable where I was. •

4.3.2.2.6 Shared with others

…and the fox sat down, and I sat down and my friend sat down and the three of us were in a triangle looking at each other… • Afterwards we were just smiling in our own thoughts and occasionally just talking to share some part of the experience… • During our undergrad my best friend and I would sit in an open space on campus at lunchtimes and we'd just look up at the sky and discuss the cloud formations. Even now we don't see each other but if we see unusual clouds or trees we would take pictures and send it to each other. • And one of my good friends up to today – he's one of my good mates … we went for a hike up to the plateaus …Some bond developed there , which I can't explain to you…But just that - that whole experience - it was quite unique. And it was our own experience. There was nobody else to share it with us. •

Having someone to share it definitely makes it more intense. I mean when I had that whale experience by myself that was beautiful, it was actually awesome, but noone understood it. As much as I tried to explain it and share how beautiful it was with photos and they were like, "wow", but you could see that they didn't get it. But after the Tonga trip when everybody got to get into the water and swim with the whales, then everybody got it… it was just double - it was definitely better with everyone else experiencing it as well. •

> *I think generally it* [the experience] *is more profound having it with somebody if you can,* [though] *probably a bit more difficult. Because if they have had the same thing - especially if they are not that way inclined – it is just more powerful. It is affecting them –*[otherwise] *you think it is just affecting me - but if it is affecting any human in that space then you know that it's very very strong. Most of the experiences I've had alone. It is easier for me to get to that place when I am alone, but I would say it's much better to have it with somebody if you can. That thing bonds you, I must say, in a beautiful way - it really does.* •

Should the experience be shared with another, the way in which that person shares, primes or otherwise influences the experience through, e.g. provision of complementary information, setting a mood or building anticipation may be pivotal in creating a space for interpretation or provoking meaning-making. In numerous cases, respondents cited the ***guided facilitation***[79] as valuable to their MNE.

> *Het bewustzijn van de gidsen* [Translation from Dutch: 'the awareness of the guides']… •*… very knowledgeable guides who I learnt a lot from…* •*…She* [the facilitator] *took us for a silent walk down to the river and waterfall…* • *A scientist who has researched the area took me to the highest peak and pointed out the surrounding mountains in the range as the clouds threw dappled light across them.…The colors changed constantly as he named them and explained the history of fire and grazing in the area and how each of the plant communities recovered.* •
>
> *I'd been chatting with our guide… for much of the evening and when I mentioned that I wasn't sleepy, he suggested we go for a walk… I have no idea where* [he] *took me. I followed him through the darkness, up hills, across rocks, through bush and over rocky plateaus. I could hardly see a thing and stumbled a lot, but was exhilarated by the adventure. Eventually, we reached a plateau and sat on a rock overlooking the…Escarpment…For the first few minutes,* [the guide] *told me stories and pointed out constellations by torchlight…Then he turned off the torch and for the next few hours we sat in silence… As I scanned the rocky outcrops and bushland below, I thought of* [the guide's] *stories and tried to imagine what life might have been like here thousands of years ago. I gazed at the stars, imagining what lay beyond…* •
>
> *Our guide …explained: The elephant came from the North (the direction of Wisdom according to many tribal people) and is the most powerful animal of the bush. "It underscores what you just shared with us." said* [our guide]. *At that moment the person was overwhelmed with emotions…* •
>
> *It was just one of those moments where - and it happens just quite quietly… and you might not even notice it. And a lot of people probably they would not have noticed it if I* [as the guide] *hadn't pointed it out.* •

> *Reassuring us that he had his rifle, Leonard* [our guide] *ordered us to just "sit tight". He told us we were going to be all right, but he didn't sound convincing. We could all sense that he was losing control of the situation.*
>
> *"Not without the light!" somebody blurted out excitedly. "We won't even be able to see the lion before it leaps at us!"*
>
> *As humans, it must be the ultimate primal terror to be eaten by a predator – and now suddenly we were living this nightmare. We had been in that fateful spot for less than 20 minutes, and I now understood the eternity of which death-row prisoners speak. What made it worse was the knowledge that Leonard's fear was well founded. If he of all people had lost his nerve, what hope was there for the rest of us?*
>
> *My head was pulsating like a drum. The stars had crystallized overhead and the warmth of the African night had turned to cold sweat on our skins. We had run out of options.* (Tucker 2001: 6 – NB: the author and her groups' subsequent rescue from the angry pride of lions by an Indigenous Shangaan medicine woman precipitated a life-changing journey for the author).

[79] A number of respondents' MNEs occurred while participating in wilderness trails in the iMfolozi reserve (facilitated by the Wilderness Leadership School (WLS)) and therefore, whilst possibly not made explicit by the respondents, their experiences were nevertheless guided in the broader context. Raimondo (1985) and De Wet (2007) explore the pivotal role of guides in creating powerful interpretive experiences on WLS trails. Kerley et al. (2003) also emphasize the need for guides in enhancing tourists' perception and appreication of biodiversity.

Box 19: Is MNE better experienced alone or when facilitated?

Two South African conservation professionals – a male with extensive wilderness guiding experience and a female with wide-ranging expertise in facilitating (peri-) urban environmental education - share perspectives on whether MNE is better when alone or through a facilitated experience (see also Williams 2012).

The Wilderness Guide

That's quite an interesting question. A bit of both I would say. I think that if you don't know an area it is probably better for the first time - or the first couple of times – to go with somebody who knows the area better. It is also a unique experience to go into country that you don't know alone … Because you are tweaked into it - you can't take chances, you know, going up a mountain fall of snow. You don't know what to expect, like dangerous animals or what could happen there. You are so much more careful. And you are so much more - what's the right word - tweaked into not making mistakes.

But if you've got the right group with you - and from that point of view, I can tell you about the groups that I took into the [wilderness area], *where some of the politicians are still phoning me today, 15 years after I took them into the* [wilderness area] … *Those politicians would have never be able to go out into the wild area like that on their own - they would have freaked out. They were already freaked out, even with experienced guides with them. So I would say… it is good to be introduced into wild country with somebody who knows what to do.*

It doesn't mean to say that there is not benefit from a person going on his own - there are great benefits from being on your own in wild country. We often do that with groups as well. We take them and we let them hike on their own after we have spent two or three days - when we walk back… and we let them walk 20 minutes and then we send another guy and then you let people go every 20 minutes. So you have that experience that it is now me and the environment on my own. And now I need to be on the alert, because you increase your senses - you start hearing birds, and you notice all sorts of things in nature, and there is such a big benefit to that…there is still something to be said for going to explore an area - it is a good feeling.… each have their own benefits and their own uniqueness.

The Environmental Educator

I generally had my most profound experiences alone, but often facilitated in some way, like the space has been opened up in some way by somebody else. [My pivotal MNEs]… *happened on a guided walk or on a silent walk in a group. Some of them happened when I was on my own, but the opportunity had been created by that person - so it had been scaffolded. Like* [name of program] *had been prepared, the space had been well prepared in the group, and then you sat there on your own, and waited on your own. So I think you can have them any old way actually. And also if I think about the* [MNE I had at the] *closing circle at* [place] *when we were all together… so it is like anything - there is a sort of collective energy, perhaps there is a collective calling. Maybe it does strengthen it. It is little bit like doing yoga on your own and yoga in a group…you do better with others actually. You are kind of encouraged and there is a better energy there than just you.*

I think sometimes an experienced person can deepen your insight. And you know, for example that might have knowledge of whether it is the biological or ecological role of that thing, which became a profound part of your experience and they might be able to give you a depth of understanding. Or they might have an archetypal understanding or whatever deeper understanding they might have…I think [my program guides] *have made me more aware of the kind of almost archetypal meaning of some animals.*

So part of it is about bringing wisdom which you might not have as a novice… into that position. So I think it is a bit like interpreting dreams - sometimes you might have an analyst who looks at your dream that sometimes may be best left to your interpretation. So it is a bit of both. You know you don't want somebody putting words in your mouth in a way. But equally they can give you words you didn't know were there.

In their research of tourist perceptions of wildlife viewing in Addo National Park, Kerley et al. (2003) find that the quality of wildlife viewing can be significantly improved through the use of trained guides, can enhance the education value of eco-tourism and, in turn, foster a greater appreciation for the value of biodiversity. However, this does not necesarily translate into personal meaningfulness: symbolic meaning could be found in not seeing any wildlife at all.

4.3.2.2.7 Environmental setting

An intimate yet complex relationship exists between the environmental setting and the MNE. The setting may be an ideal substrate upon which the experience spawns or, alternately, the area may be fluid, in that its significance or sense of power may further increase after the MNE (Section 4.5). At this point, we are interested in the role of the setting *a-priori* or during the MNE.

> *…the further away from "civilisation" and the more pristine the environment, the higher the chance of an experience like this occurring. • … to be out there among the wilder bits of nature. …• …a varying degree of isolation…*

Protected areas such as nature reserves, wilderness areas, national and provincial parks and marine protected areas are repeatedly recalled settings for MNEs.[80] Attributes of such areas include an explicit perception of ***remoteness***, ***wildness*** and ***isolated expanses***. Such characteristics may simultaneously induce emotional and perceptual states earlier identified, e.g. awe, vulnerability, sensory awareness, and are therefore likely to be more important than whether the area has official protected area status or not. Most evident, is an express preference for areas which are not perceived to be ***free from human interference***.

> *I was on a secluded beach…• It is so wild and rugged, with the sea crashing into the cliffs below and standing there with few other people around and not much human development to be seen…• …and it is very isolated… • …very remote…• …in the middle of no-where (in the desert)…•…with only two other people far away from anything else…•… It is real wild country, where there is real wild African animals. • There is actually bugger all. And you realize that if something goes wrong here, then you are gone - nobody will come and look for you. •*

> *No interference from man… • … a pristine beach, where there was not a single sign of other humans - not even footprints. • It was… void of all human life… I could not see, hear, smell, taste, or feel anything made by humans. There were no lights, no traffic, no houses, no pollution, and best of all, no people. Even in the darkness, it was breathtakingly beautiful. This had to be the most pure place on earth. •*

Importantly these areas – protected or otherwise - need to exhibit ***naturalness*** as well as an ***authenticity*** (or, more specifically, a perception that such attributes are present and this may be concomitant in the designation of an area as, e.g. a 'national park', wilderness area' such that it influences expectations *a-priori*).

> *The animal should be in its natural environment and feel safe and relaxed. • Seeing animals wild and free. • 'Wildness'. That the animal was in its natural environment… • …somewhere when you can blend in with and observe yourself as an animal among other animals. • An encounter with an animal in its natural habitat where you both feel safe from each other. • …when an animal shows no fear of humans without been tamed has something to do with it. • When the experience is 'real' without outside influence* [and] *just you connecting with nature and with God. •*

It would be misleading to presume that MNE exclusively occurs in wilder areas. Whilst exposed settings consisting of vast, open expanses (both marine and terrestrial) are commonly reported, ***enclosed*** settings ranging from dense bush to ***backyards*** and ***indoors*** are also possible. However, in these cases, it less about the qualities of setting itself as trigger, but more the unexpectedness and non-ordinariness associated with these experiences (in that they actually occurred in these unlikely settings) which makes them meaningful.

> *• We were sitting in the lounge… • … in the self-catering unit where we stayed…• …while I was looking out of my room… • I was in a counselling session. • I was sitting at my window and a stunning big bird of prey flew right up to my window and then over the roof. •…but I have moments in my backyard and enroute to work. •*

[80] The iMfolozi reserve was frequently cited; MNEs often occurred on a Wilderness Leadership School (WLS) trail.

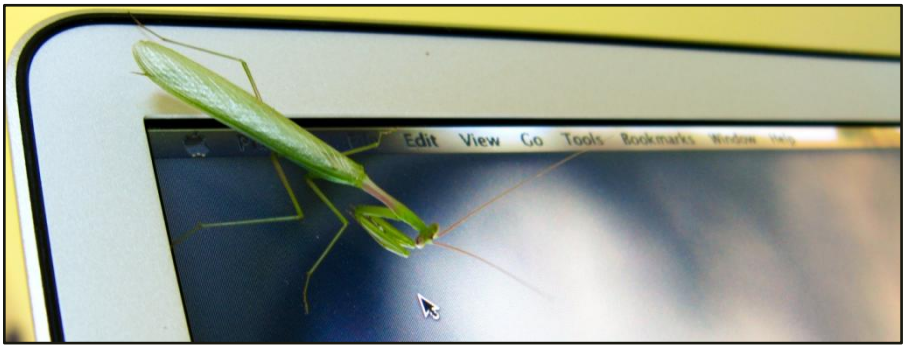

Image 8: Digital divide

A personal example of an indoor and shared MNE. View video

We were working away, as you do
Til into the room a mantis flew
Landed there on unsuspecting Mac
Decided it would its cursor attack
But after about a minute or so
We had to let this little fella go
Outdoors where prey is what it seems:
Not encased behind a laptop screen

The ***time of day*** is regularly cited in the recall of MNE. ***Sunsets*** seem to hold a special attraction and may be influential in creating an special ambience for the event. Sunrise or early mornings are reported, but less so. It may however be an event of happenstance; the MNE occurred at the end of the day, just as the sun was setting, irrespective of whether that in itself added to the experience. The 'end of day' period is also notable through its association with MNEs which unexpectedly arose after a day filled with a particular activity and which may have involved physical exertion or, in contrast, have been otherwise uneventful.

> *Toward the end of the day, just before we had to make the decision to go home… • We all spread out to find a separate spot to watch the sunset… • I had been enjoying a beautiful sunset … • One late afternoon a herd of elephant walked past the campsite… • In the late sun of the afternoon… • We were watching the sunset…• …witnessing a magnificent lightning storm at sunset. •… and the sun was setting and it was gold and it was beautiful.*

4.3.2.2.8 Ecosystem setting

Commonly cited ecosystems for MNEs include coasts, reef and oceans, thicket and bushland, savannah, deserts, and mountain and alpine areas (Appendix 9.12.1). These areas may have characteristics associated with the general environmental setting, e.g. remoteness, vastness or other characteristics which may induce a sense of smallness and vulnerability. Ecosystem types were unlikely to be referred to during the recall of experiences (except for marine environments) MNEs are reported in suburban areas, such as backyards and parks or even on streets. The latter may paradoxically make the experience all the more remarkable.

> *… I saw three deer walk down the street on the sidewalk opposite… •*

4.3.2.2.9 Variable, chance or purposeful settings

Finally, a few OQ respondents (when invited to reflect) perceived alternative or no fixed variables in particular to underpin their experiences and MNEs in general. These include a feeling that it is about chance, various ***right conditions*** coming together at the ***right time*** (possibly as form of implicit resonance or harmony) the ***work of God*** or an unconscious ***communion with nature***.

> *…the right place, the right time, and the right frame of mind. • Being privileged to be in the right place at the right time. • I am not sure one can 'cause' such an experience, except by being experienced in meditation techniques. But these are no guarantee - all my experiences have been spontaneous. • I think any moment can turn into a meaningful nature experience.. • … often a matter of chance, or at least serendipity. • … it is merely being in nature that creates these experiences within oneself. • For me personally it is a moment of wonder at the work of God. • I believe...everything happens for a reason, so meaningful nature experiences happen to highlight something one was not aware of, or needed/didn't need…A profound meaningful experience is the way nature 'communicates' with us. •*

Box 20: Communing within a 'oneness'

In his autobiographical book on leadership, Jaworski (1996) recounts the pivotal and synchronistic experiences which led him to found the American Leadership Forum. During a period of intense introspection after the breakdown of his marriage, Jaworski recalls a life-changing encounter in the Grand Teton Mountains (USA):

> The third day out, I got up early in the morning to fish in a stream not far from our camp. As I walked along, suddenly in front of me a beautiful ermine popped out of the deep snow...All at once she appeared with her almost black eyes looking directly into mine...She sat there staring straight at me, moving not a whisker or a muscle. It seems as if we looked into one another's eyes for several minutes, but perhaps it was less than one. She turned to go but stopped, turned around again, and took another long look at me. Then she began. She jumped up into the air and did a huge flip, and then looked into my eyes again, as if to say, "What did you think about that?" She did the same trick for me three or four times, each time cocking her head to the side and looking at me as if to ask for my approval. I stood there, held transfixed. Then I began smiling and cocking my head in the same direction as hers. This went on for the longest time. There together, I felt at one with that ermine.
>
> I stayed in that spot for the longest time, alone, considering the experience. I knew then that was a profound experience and consider it so to this day. We communicated, that ermine and I, and for those few moments, I experienced what I can only describe as a kind of transcendence of time and a feeling of oneness with all the universe.

In subsequent paragraphs and chapters, Jaworski continues to reflect on this experience. For him, at that time, the experience became a catalyst into his first-hand experiential understanding of 'oneness':

> I thought a great deal about my encounter with the ermine. But it was a long time before I was able to comprehend how important it truly was for me. It was much more significant than it might seem on the surface. What it taught me was the importance of the experience of oneness....
>
> When I encountered the ermine, there was also a transcendence of boundaries that we don't ordinarily expect in our lifetime – a loss of boundaries with part of the natural world. It was as if for those few moments we were inseparably fused. I was drawn into a relation with the ermine, and she was not an "other" to me. I know that now that my orientation had shifted, and that was what had made it possible to encounter the ermine herself...
>
> That provided me with new clarity. I had had a direct contact with an aspect of the natural world which my lifelong, fragmented perspective had previously said was not open to me. This forced a shift in conscious functioning and began to prepare me at a deep level to recognize the impermanence and transparency of boundaries in all other aspects of my existence. This shift didn't happen overnight – it was like a time-release capsule, with the shift occluding over the ensuing years. Over time I came to see that the boundaries we create in this life are imaginary; they don't exist but we create them. Then we feel trapped by them... The encounter with the ermine was so important to me because it was the first time I had directly experienced the interrelatedness of the universe (Jaworski 1996: 55-56).

Jaworski's (1996) account is an important contribution to this analysis since it synthesizes multiple core textual and structural themes identified in the preceding analyses, e.g. proximity, reciprocity and communication, unusual behaviour, sense of time, collapsing boundaries, interconnectedness and oneness as well as being in wilderness at a time of emotional turbulence and transition. Additionally, the account illustrates that impacts of such MNEs - particularly the cognitive reprogramming which might influence attitudes and behaviour - extend well beyond the immediate lived experience and may take many years to reach fruition. For me personally, reading Jaworski's (1996) book - titled *Synchronicity: The inner path of leadership* – at the outset of this research had a profound effect on my thinking and reaffirmed my commitment to 'the call' of pursuing this subject matter. The book was lent to me by a friend and the moment I first laid eyes on it remains auspicious and vivid in my memory.

4.3.3 MNE involving flora and land-, sea-, sky-scapes

Qualities of *MNE involving flora, land-, sea- and sky-scapes* (i.e. weather or celestial bodies - sun, moon, stars): have already been identified (Section 4.3.2), phenomenological analysis reveals slightly different qualities to *MNE not involving an animal*. In other words, there is a discernible shift in emphasis between the commonly identified or essential themes. It is necessary to highlight those particular qualities which differentiate *flora/landscape-based MNE* from *general MNE* and which makes this type of experience that which it is.

4.3.3.1 Textual description

These MNEs are associated with perceptions of ***aliveness*** and a sense of ***vibrancy*** in the landscape**.** The normally inanimate becomes animate and usual inert objects are now awakened and possibly viewed as living beings in themselves. This fresh perception may be more specifically experienced as the pulsating of ***life energy*** or force, either in nature, within oneself, or as a merging between the two, i.e. oneness.

> *Instead of 'knowing it* [the sun] *and what it does' I FELT its being in the universe and its ever-presence since the beginning of time. • Pure rich blackness and millions upon millions of ancient wise and all-knowing star lights. • The individual trees seemed to 'come alive' like it was the first day of creation. • The water changes from mere H_20 to a living entity, full of colour and life. • …tangible energy… • I was close to 'one' with the energy of the universe…*[and I knew]*…If i die, I'll just become part of all this - energy (thinking of the ocean & life therein). •*

The focus of the MNE not involving an animal tends to place greater focus - or direct more attention toward - the visual detail in nature itself: forming rich descriptions of the colours, contrasts, blends and hues manifest. The ***awareness of natural detail*** appears to be more significant during these experiences.

> *The ground was covered in a tiny forest of shrubs, all underfoot, small, colorful…It was like walking through a Monet painting and I was smudging a masterpiece!...In the distance were snow patches which glistened, distant hills were subtle and moody purples and blues, closer ones bright yellow, muted green and some still with snow patches across them which changed colors as the clouds wafted over them. Very moving and profound: the colors, the scale, the changes, the history, the biology, the stillness and beauty… •…a magnificent lightning storm at sunset. With the sun setting in what appears to be the inside of the clouds creating the most fiery red clouded sky with a massive lightning storm going on all around it. With lightning bolts running diagonally, perpendicular and horizontally across the sky. • And I opened my eyes, and the whole ocean seemed to be just like ablaze with light…There was this different quality to the water, this magnificence. Each little sparkle of sunlight catching on the water and the smoothness and the texture and the colour was just enhanced tremendously, and I felt absolutely ecstatic. •*

The visual sense may be fused with other senses, such as auditory, to create a perception of ***rhythm*** and ***patterning*** which together support the underlying theme of ***aliveness***.

> *I became acutely aware of repeated patterns in the sand along the edge of the water. There was a distinctly rhythmic quality in the way the sand dried out with each wave that retreated back into the ocean. It was accompanied by a rhythmic throbbing sound of the ocean, which was echoed by the cliffs along the beach. It felt as if the whole beach was pulsating and as if all the separate elements, the water, the sand and cliffs, were all part of one entity. I had never before or since had the same experience… It feels as if I had a glimpse of how alive the landscape is.*

MNE not involving an animal more commonly generates a ***sense of place*** and place identity. This may in turn be coupled with feelings of self identity, belonging and a sense of "Who I Am".

This experience…reminds me of my heritage and who I am. It's a sense of reconnecting with my past and my relationship to 'home'. • …surrounded by these massive pieces of rock I feel at home and a sense of awe yet also belonging • I saw the world through different eyes and realized I had a reason for being. • I saw a small island in front of [place] *with magnificent composition of beauty and* [it made] *sense to me because my mother* [was] *born in this place. • But I've always wanted to go back there* [to the place of my MNE]*…I felt that there was something quite unfinished… and so I carry that image of the rock* [points to photograph]*… on my mind - always there. •*

This difficult-to-describe sensation of being embraced by place in a way not normally known is possibly best illustrated with the following reflection from an in-depth interviewee.

So I don't know how to describe what happens to me there - it is a spiritual experience. There is…how to say it? Sjoe… I think I have a sense of being known by the land… the notion that you will be remembered. Which may sound like quite an arrogant thing, but I don't think it is. And you feel received as you are, as you come… and it makes me quite emotional actually [weeps] *… the feeling that you get when you are received by…what is called inanimate earth, I just think that it is being loved in a way that one does not normally know. And some people may say, "Well, that is your imagination". But I don't think that it is. I feel so totally embraced in this place. It is a vast area, and it doesn't matter where I am in it, I feel completely loved and completely accepted, completely seen, completely safe, I feel nothing bad could ever happen to me or anyone else there… I think it is like a cathedral… the land - it is like church, it is like holiness… it is a place of ultimate respect and reverence. So, I really love this place and that land. •*

4.3.3.2 Structural description

Many of the structural elements common to general MNE (involving an animal) also underpin MNE which involves flora, land-, sea- and sky-scapes. However, the ***elements***: ***landforms***, ***flora, water*** and ***celestial*** phenomena are more central to these MNEs; not only a backdrop but essentially defining the interaction.

Landforms: *…the close proximity of really big mountain/rock/boulder/rocky outcrop features. •… surrounded by these massive pieces of rock •… and I was sitting on a big rock overlooking the river. • … discovering landscapes in the high country … • in awe of the beautiful mountains… • In a high alpine valley in Yosemite watching the clouds build as wind pushed up the valley them towards me, culminating in dense storm clouds over the mountain peaks behind me…•*

Flora*: …I was moved at the vast expanse and amazing vegetation that grew on the very steep slopes of the escarpment. • …epic views of all waterfalls and waterways and these amazing trees… • …and my attention was caught by some grass plants… • Watching for the first signs of spring seem to be one of my most emotive experiences: leaf budding, witch hazel blooming, the bend of a seedling as it pulls from the earth. •*

Water: *Water - lying in the (shallow) river, and letting the stream wash my thoughts and worries and warm head away. • And its mostly the water that I find* [energizing], *being in the water… • …the rivers are flooding and it's beautiful to watch them. • I often sit at a waterfall on the farm, surrounded by a magical hidden forest, and just quietly watch the individual droplets and follow their path down the waterfall… •*

Ocean*: …am thrilled to silence at the wild majesty and power of the oceans. • Every time I surf I experience something meaningful with the ocean;* [whether] *it is a fear of its power, an awe of its energy, or an absolute, overwhelming sense of peace at its endless, ongoing formation of waves. • …watching waves breaking over huge rocks … is amazing, it is mesmerising. • There was just this expansive ocean, I felt something…I was almost in tears. •*

Sky: *Seeing the northern lights … • … the cloud formations. • … the sun rising … • … the sun setting… • huge huge full moon… • starry night sky… • … I gazed at the stars, imagining what lay beyond • … a huge shooting star! • …watched the skies and 'listened' to the deafening silence. • Any time / any day the sun can make me feel puny, this feeling* [means] *that I can relax and enjoy life for a moment. •*

4.3.4 Composite description: essences of MNE

MNEs are characterized by multiple themes relating to both the felt experience and its context. Evidently, some themes may be apparent in nature experiences which are not considered so meaningful; some themes may arise through other types of MNE but which do not involve any natural (biotic or landscape) phenomena. This section therefore seeks to reveal that which ultimately gives MNE its defining qualities.[81]

MNEs emerge in distinctly natural areas: remote, 'wild', authentic and vast environments are particularly conducive. We approach and subsequently engage with these areas through physical activity – sometimes intense - but yet encounter intermittent periods of rest and stillness, whether intentionally planned or unintentionally arising as necessary lulls between our otherwise steadfast exertions.

Between these contrasting moments of activity and inactivity, we find a mirroring of such patterns within our own mind - oscillations between mental chitchat and quietness. The inner dialogue and sensations may be emotionally intense, arising out of undesirable circumstances in our current everyday experience. We however find that we eventually give greater focus to the stillness inside and out and our senses awaken. In shifting our focus from inward to outward, we become more aware of our surrounds. We begin to relax and pay attention, open to whatever may arise. We appreciate the isolation and solitude, the presence of family, the companionship of a friend and the natural - often novel - setting which cocoons the connections with ourselves, others, nature and, sometimes, the transcendental. As nature opens up, and we open up to it, we feel privileged, humbled and appreciative. The dipping sun brings a relaxed and agreeable ambience. Or alternatively, we find ourselves in unfamiliar territory: possibly the unpredictable expanse of the ocean and underwater world. We feel vulnerable, anxious and unnerved. We are keyed up and alert.

Suddenly, the unexpected happens. An animal appears or other eye-catching phenomena appear within the sky, sea- and/or landscape. The non-ordinary nature of the encounter is arresting. Our senses intimately engage with what presents itself in our consciousness: the experience grows in its vibrancy and vividness. In states of adrenalin and heightened awareness, we direct attention to the phenomena, engaging with the stimuli and attending to the striking natural detail: colours, forms, movements, markings, scents…or responding to the survival instincts which have abruptly been woken deep within us.

We experience an animal's behaviour as striking. We unexpectedly find ourselves in a shared space previously unknown to us: physically close to another being for an extended time and perceiving an interaction which beckons us into relation with it. It is a sense of reciprocity – an exchange mutually experienced through eye contact, gestures, approach or acceptance (with the definitive display being when the animal allows physical contact). Fully present in this experience, we may eventually start to wonder what the animal is thinking, feeling or what its intentions are: how does the animal react to my presence?

[81] The focus here is on *general MNE* (all types). The essence of synchronicity as an MNE will be explored in Section 4.3.6. Whilst overlap is unavoidable, some omissions of qualities of MNEs in this section have been purposely done with the view that they may be better ascribed to synchronicity as a MNE.

Am I part of its own experience? We perceive a communication of some form as taking place yet wrestle with how that should be understood or interpreted, if at all. We may find ourselves between two potential extremes: willing the moment to end because we are vulnerable, gripped by fear with our life endangered; or wishing the beautiful magical moment to last forever as we savour the rarity of the encounter.

With landscape we are enveloped in the beauty, majesty, perfection and/or dwarfed by the power, scale and magnitude. We see the landscape as coming alive. The diversity of natural landforms which surround us in their usual lifelessness is suddenly renewed and awakened. Trees, rocks, waters, sky, sun - the elements in their primacy - instantly ignite with a non-ordinary vividness. For moments, they are no longer experienced as the labels which we have assigned them, but interwoven as one living mosaic of colour, contrasts, patterns and form pulsating with life energy. Our senses expand to meet the grandeur and majesty of mountains and swallowing sky or tune into the fine-scale forms and intricate patterns of plants and pebbles. We marvel at the endless expanses of ocean and light refraction.

Our emotions are triggered and released. As they intensify, we feel amazement, awe and excitement - a combined sense of wonder and exhilaration. In fear-driven states, we are anxious with senses aroused, feeling vulnerable through a perception of helpless and lack of control over the situation. In either state, our body responds with a rush of adrenaline which is felt as a racing heartbeat, pulsing, tingling, changes in breathing or a sudden surge of lightness, energy and vigour. Previous emotional and physical states (e.g. hardship) dissolve. We are held captive to this experience and our mind and body responds accordingly. As the experience piques, we are caught in concentrated - and possibly conflicting – emotional states. Yet emerging from within the moment may be an extreme sense of calm and bliss: an unparalleled well-being or acceptance with everything that just *is*. Or, as the intense fear dissipates, we are gradually overcome by mildly euphoric relief that the perceived danger has passed. Surrendering, we feel alive.

Consciousness responds. We experience a continuous shifting interaction between the inner and outer: a perceptual dialogue with the non-ordinary as our prior mental concepts morph to integrate this experience alongside current frames of reference. We discover a quality in those prolonged moments which takes us beyond usual ways of conceiving our interactions with nature. It is in these moments that nature evokes something profound - yet often indescribable - which moves us into relation with the animal or the natural phenomena, animate or inanimate.

The accepted everyday boundaries between us and 'the other' - fauna, flora and/or scape - become permeable. Something 'shifts' and we connect. The exact link is indefinable and often indescribable but we feel it exists and, in that moment, know it is undeniable. We are aware that we have momentarily formed or rekindled some kind of deeper bond that is not felt usually or previously at all. The sudden dissolution of divides which characterized our previous relationship with nature brings an all-encompassing sense of belonging and, in more peak moments, an all encompassing sense of oneness. In that instant, we discover that we are not alone. Something outside of us exists in a meaningful sense and we respond to that.

The connections include and extend beyond that which is physically before us and we experience renewed bonds with family, friends, nature and place. There are glimpses of newly perceived interconnections between phenomena and comprehension of the complexity of interlinking systems. These realizations may be the basis for insight and are shaped by whether we are alone or are sharing the experience with another person. If the latter, it may help us to substantiate an experience which is otherwise difficult to share or describe - knowing that words can never supplant the richness of all that was experienced during the event.

In the presence of this enormity, we encounter something other - or even greater - than ourselves. We might speak of the power and wisdom of nature or soul, or we might reflect on mightier creative forces such as that of God, the divine, spirit or universal manifestation. In the face of such presence, we are humbled. Our sense of self is diminished and we no longer feel the same individual centeredness or importance as a human species as before. Something both in- and outside of our physical human form was capable of conspiring to move us in a way not normally known, imagined or expected. We remember this experience and carry it forward as an embedded part of who we are - and who we hope to become.

4.3.5 Summary: an invariant structure of MNE

This section has explored in detail the common *textual* and *structural* themes which comprise general MNE as recounted by respondents. By revealing these elements of *what* and *how*, we gain insight into their relationships which ultimately may take us closer toward revealing the essence of the experience. As a synthesis of the phenomenological analysis, *invariant structures* of MNE have been identified:

The *personal context* is characterized by expanded sensory awareness (captive attention), emotional response (awe, 'a rush') and a perception of the non-ordinary (amazement). In consciousness, this awakening experience powerfully and/or meaningfully informs one's views on the nature of the world. In the external *situational context*, natural phenomena suddenly/unexpectedly arise to meet one's awareness. The perception of authentic beauty (through, e.g. naturalness, remoteness, vividness, wholeness, harmony) is integral to MNE.

If an animal is involved, close proximity (*spatial*), extended length of time (*temporal*) and reciprocity (*meaning*) are central. For MNE not involving an animal, perceived vibrancy and aliveness (*life energy*) infusing the 'scape' is primary (see also commonalities to Figure 5).

The 'inner' and 'outer' dimensions meet: with a diminished sense of self, there is an innate (or primordial) feeling of connectedness and interdependence. The privilege to commune with 'the other' redefines or reinforces one's own sense of being and place in the world.

The diversity and uniqueness of every MNE ensures exceptions are inevitably the rule.

4.3.6 Synchronicity as a MNE

The purpose of the following analysis is to:

i) Describe the experience of synchronicity in nature as it is lived;

ii) Explore if and how the experience of synchronicity may differ in essence from other MNEs;

iii) Reflect upon common, interesting and unexpected themes.

As outlined earlier (Section 2.4.1), synchronicity is defined in various ways. This study has adopted the operational definition from Main (2007) (Chapter 2.4.1) but adapted for this study's explicit focus on nature, whereby at least one of the paralleling events must have wild nature as central to the otherwise unlikely, notable and abnormal character of the experience.

Box 21: Synchronicity as a MNE: definitions, criteria and identification

In order to carry out an analysis of *synchronicity as a MNE*, it was necessary to ensure that we have reasonable certainty that the experiences being analysed are in fact eligible to be considered as synchronicity, particularly since identifying synchronicity may be ambiguous and highly subjective to the independent observer. Therefore, the analysis in this section is both prefaced and complemented with content analysis (Appendix 9.13) addressing:

i) Respondents own definitions and understandings of *synchronicity as a MNE*: to ensure that respondents' own definitions are suitably equivalent to the operational definition as above;

ii) Criteria and significant statements which identify *synchronicity as a MNE*; to identify experiences not submitted as part of the synchronistic-specific OQ but which may still be judged as such;

iii) Practical identification of *synchronicity as a MNE* (brief working assessments); to illustrate how other MNEs may be assessed as to whether they carry qualities concomitant to synchronicity.

The results of content analysis (Appendix 9.13) of definitions volunteered by respondents in the OQ targeting *synchronicity as a MNE* and as elicited during in-depth interviews revealed common themes of: ***co-occurrence***; ***connection***; ***meaningfulness***; ***confirmation & personal guidance***; ***openness***; ***unexpectedness***; and ***flow***. These themes are further expanded and exemplified/qualified with respondents' significant statements (Appendix 9.13)

4.3.6.1 Common textual themes

The section provides preliminary insight into textual themes, i.e. what was experienced or associated with *synchronicity as a MNE* (Table 16). This clustering implies neither that every theme is common to every story nor that a theme needs to be present in order for be an experience of synchronicity. Importantly *synchronicity as a MNE* may also carry many of traits identified with *general MNE* (Section 4.3.2). Therefore, the purpose here is to identify key qualities which distinguish (or are at least more prominent) synchronicity from general MNEs. The subsequent themes identified (Table 16) form the basis for the textual description compiled in the following sections.

Table 16: Common textual themes of synchronicity as a MNE

Thematic groupings	*Summary description*
Non-ordinariness	The experience is unusual, odd and out of the ordinary. Based on the observation and interpretation that the perceived phenomena (e.g. animal behaviour (and sense of communication), timing, frequency, proximity of the natural event) are strange or striking given one's knowledge and accepted understandings of cause and effect. The experience tends to have more of an uncanny 'feel' than more *general MNE*.
Insight	The experience is seen as a message, sign, omen, symbol or metaphor. There is a conviction, 'knowing' or confirmation of its personal or shared relevance as a meaningful insight or response to a conscious or sub-/un-conscious 'search' or 'call' for guidance. Provides a basis for demonstrative, metaphoric or reflective learning and may initiate a personal resolve to change beliefs, emotional disposition, attitude and/or behaviour.
Integrated awareness	The experience intimately entwines awareness of 'inner' and 'outer' states, or repeated unlikely happenings in the 'outer' world involving natural phenomena. Attentiveness to one's 'inner' cognitive or emotional state may resonate with notable natural phenomena triggering synchronicity. The merging of inner and outer forms an integrated awareness.
Connectedness	The experience reveals profound connections and interconnections between mind and matter, events, people, family, species (e.g. human-animal 'communication'), places (e.g. non-local perception) and, in some cases, between self and something other or greater than one's self. Critically, it delivers a consummate experience of connectedness.
Emotional involvement	The experience evokes amazement, awe, astonishment, incredulity, wonder and joy, often coupled with a sense of humbled appreciation of being an inherent gift or blessing. The experience is sometimes emotionally intense and not always immediately positive: concern, anxiety or foreboding may follow. Fascination or intrigue may be triggered.
Spontaneity	The experience is sudden, unexpected and usually fleeting. Paradoxically, there may be instances (e.g. a consciousness-changing activity) where there is hopeful expectancy or anticipation of 'something might be about to happen'. Yet, despite possible intuitions, the event is felt as unexpected, since the actual manifestation often defies expectations.

4.3.6.2 Textual description

Significant statements, meaning units and verbatim examples from respondents are used to compose a textual description of the experience of *synchronicity as a MNE*; i.e. what do individual's sense and experience during a moment of synchronicity with or in nature. One must remain faithful to the common sense of experience (DeMares & Krycka 1998) without becoming overly preoccupied with every possible way that synchronicity is experienced.

Synchronicity involving nature and wildlife is experienced as overtly special. It is a moment or series of moments which go beyond what is considered as normal everyday experience. The uncanny paralleling of events is striking and stands out within one's field of awareness for its ***non-ordinary*** or numinous qualities.

> *…an incredible experience…• …a very strange experience. • …an extraordinary experience…• … it was uncanny • It was just weird. • It was bizarre actually. • It was superb… • It was profound. • Like really strange stuff –* [black eagles] *hovering over my head at night, and that kind of thing. •*

There is sometimes a certain indelible property to the experience: the moment is infused with a ***grace***, a glow or ineffable richness which remains imprinted in an individual's memory over time.

… you could call it grace, you could call it energy, you could call it spirit… • …moments of grace - and it's that sort of thing, you have this moment of time where, which seems all perfect, and it seems like there is an absolute joy to be in human form experiencing what you are experiencing. •

The non-ordinariness experienced is a result of abnormal phenomena arising in nature. In most cases, this is perceived as an animal exhibiting ***unusual behaviour***: appearances and activity which are striking and uncharacteristic of accepted survival-driven behaviour.

…they [birds] *were literally falling out of the reeds into the group. It was amazing- the kids were entranced. • I mean, it is so rare that one gets really close to a bird of prey… It was bizarre actually. • And it* [the wolf] *was so close to me, like three or four feet away…and we just sat there and we stared at each other and it could have eaten me because I was very small* [at age eight]. *But it didn't. It didn't lunge or do anything. It just stared at me •*

However, unusual behaviour may arise with phenomena (elements) normally considered inanimate.

Sitting looking at the water and listening to the sound - it suddenly started to flow faster and made a louder sound as it flowed over the rocks… • It felt like I got a hug from the wind as strange as that sounds…And the wind was still blowing afterwards, but it wasn't in the same way, it wasn't the same feeling. •

Quite often, it can be the first - or only – time that such an unusual encounter is witnessed.

…a bat - nocturnal bat - in the middle of the day came out and flew around us, but this close [gestures a few centimetres with fingers]. *And the guide there was like, "What the hell?" It had never happened ever, in his 30 years he has been there, you know. •… the fact that it was the only time that we had seen storks, made it remarkable. • … so there was a scorpion in my mum's bed* [during her visit]… *And I have never seen a scorpion in the entire time that I was here - which has probably been two years already…And* [then] *while she* [a friend] *was here, we found a scorpion in my room!... these two scorpions in my home at these two stages of my life, I found quite interesting. •*

And I've never experienced that before… • I saw animals I had never seen before or since… • We were amazed, since my brother-in-law said that all the years he's been living there, he has never seen a swallowtail [butterfly] *in his back yard. •…this was my very first time that I saw a fox … where the fox was comfortable enough in my presence to sit down, no more than six feet away, in clear view in a sandy opening … • I felt very special like this was my place* [laughs]…*I did sort of take it personally…and I never saw a leopard again in the two years that I was there. •*

During a period of intense exploration of his own unconscious, psychologist Carl Jung had his most important encounter with a character he called 'Philemon', which flew to him in a dream - "an old man with bull's horns, holding a bunch of keys, one ready to open a lock. He had a kingfisher's wings…" Jung did not understand the dream so he began to paint it and, as he did, "I found a dead kingfisher by the lakeshore. I was thunderstruck! Kingfishers are rare in our vicinity and I've never since found a dead one." (Hyde & McGuinness 2008: 53-54)

The animal's overt and unusual actions may be felt as a ***visitation*** or as reciprocated ***communication*** (Section 4.5.2).

…and when I turned around, there it was...the big creature [the ray] *that came to say hello... very special. • Whilst meditating on a rock, I was visited by an owl. • So there was definitely some awareness of the hummingbird that it was communicating with me. • Seems that he* [the ground cricket] *could understand and read my thoughts and he just decided to give me a lesson. •*

The animal's unusual behaviour may be interpreted as ***guidance*** or protection, possibly in response to what is later viewed as a subconscious call for help.

> *…there was a plover flying in line with her passenger window, and it did that for about a mile just sort of following her and following her. And then it sort of stopped, and she got to her gate, an electric gate, opened up, went in and it was still there and it was only when she went to go in that it flew off. And she had that feeling that it was almost like escorting her home. • The eagle followed me all night long, going from tree to tree, just watching me. I had an odd feeling it was protecting me...Then I began walking another 8 hours in the hot sun and the eagle continued to stay with me. I was actually ready to give up and die on the side of the road, when a nice lady gave me a ride out of my hell. •*

Synchronicity may equally involve animals displaying normal behaviour but which are experienced as non-ordinary due to the ***timing of the encounter*** being considered meaningful.

> *When I really understood the meaning of the snake in my life, the snake eagle flew over… • I was in a counselling session when a cat jumped into the consultation room with a pigeon in its mouth… At the time we were talking about energy/vibrations of the universe and the connections with our body. • During a meditation course I was going through a really hard time. I was challenged to continue. While I was looking out of my room a single bull eland walked by. …[S]eeing…that animal gave me strength to carry on. •*

> *…and it was probably because it was at that time that I was really rejecting it* [my parents idea of me needing to find a spirit animal] *that it* [the wolf] *came, and it showed me that that was like what it was meant to be at the time. And I have always kind of regarded the wolf very specially ever since then. •*

Similarly, non-ordinariness in MNE not involving an animal rests on the nature of phenomena, the timing, location or frequency and how that resembles an individual's inner processes.

> [There was] *talk about the role of one human in the world. The statement "Mind your own business and God does the rest" was fully underlined by a heavy thunderstorm (lightning, thunder, rain, wind). • It was the day that I found out that my grandmother was dying...I started crying and then the wind started blowing, and it almost... it felt like it embraced me... I felt like the wind was communicating with me and telling me that everything was going to be ok. •*

> *And we were sitting in a circle and we had spoken about the microcosm and the macrocosm and reflection and the meaning within our circle that is reflected in the cosmos in the universe and back again. And how tiny it is, but yet how big it is and the contradictions and the divine paradox of it all. And as we were sitting there talking, the moon was just coming onto full, and there was a massive circle around the moon. And straight away, one of the guys - and these are Dutch businessman that are trained in left-brained thinking, the rational and the analytical - and straight away one of them said, "Jeesh, there we are… around the moon." And they could connect and feel that thing straight away. •*

The common link which permeates all these is the ***paralleling with another event of comparable content***. In many cases, it is the outer that corresponds to one's internal mental or emotional state. It is in this uncanny paralleling where the ordinary becomes the non-ordinary and notable.

Synchronicity brings ***insight***. This may be similar to what is understood as an epiphany or revelation. An experience of wisdom comes from a source beyond what is rationally known or understood at the time.

> *I experienced an enormous wisdom. And at that moment I realized that life is about strength, gentleness/ kindness and wisdom. • It's like an a-ha moment, you know. It's kind of …ja, I guess…I feel it in my core, not in my head so much. • While I initiated the act* [swatting a beetle during fieldwork on insects], *a revelation came to me and it was as if the being of the beetle, its meaningfulness and its right to live were suddenly clear and real to me. • At that moment* [the sick crow appeared] *I had a realisation I had to go back to my home country to say bye to my grandfather. • … and it all kind of came together. • … and I realized - even at* [age] *eight - that obviously my spirit animal had found me and I didn't really have a choice about it… • But there are the times that as I'm sitting there, it'll come from… not from within me though, it is hard to describe…It feels like it just comes, the knowing and understanding of that event is belonging to a bigger picture, belonging to another picture at times. I don't know if that makes sense, you know. •*

The uniqueness of the experience is perceived as a personalized ***message*** which has been felt as a ***sign***, omen, motif, ***symbol***, archetype, mirroring or ***metaphor*** pertinent to dimensions of one's life. The message is felt as a purposeful response or specific answer to a life question; a reciprocity with concealed wisdom.

> *I tend to think of these* [animal] *encounters as carrying a message.* • *There was no doubt that this* [butterfly] *was a symbol* [of my recently deceased sister] • *When I entered the Drakensberg, there was heavy thunder…with lightning, storm, rain, and beautiful skies. That was exactly the metaphor of what my life has been in the year before.* • [It affected me] *Because of my specific question I was chewing on, and the clear connection I had with this bird and the direction in which he showed me to go....* • *Het voelde voor mij als een symbool voor mijn transformatie* [Translation from Dutch: 'It felt like a symbol for my transformation']. • *I really felt the sick crow was a sign* [of the imminent death of my grandfather]. •

> *And that* [ebbing and flowing stream] *just said to me, "You've been going round and round in your quiet little space, doing the same old thing here for seven years and it is time for you to break off and just tumble down the stream". And get energized…and you'll have no idea where you will end up. And it doesn't matter - go with the flow. And it was so helpful to me - just to be able to see metaphorically in that place, where I was… what I needed to do. And I didn't have a clue where it was going to go, but it was all cool. It was all part of this whole river process of life.* •

Alternatively, the message may be more overarching in providing confirmation that one's life is currently in a ***state of flow***, harmony and resonance with greater organizing patterns and powers in the universe.

> *My most frequent encounter is with a "buizerd"* [buzzard], *who shows himself at crucial moments :-), signifying for me that I'm on the right track,* [and that I] *should trust my vision and overview.* • *I just kind of give a little bob of the head of acknowledgement to no one in particular - just the universe – that, okay, things are flowing.* •

The insight is coupled with a ***knowing***. There is an immediate deeper sense of conviction, intuition or ***confirmation*** of life questions or emotional states, even though the eventual interpretation may require further reflection. The clarity of insight affirms that which is felt to be true. Insight and knowing are inextricably married with meaning-making.

> *Mostly, it is just a sign of - a confirmation – that … I feel when that presence or whatever it is - it is hard to explain - is there… I know that all is well and that we are going to have something pretty profound.* • *I remember feeling with a lot of conviction that this was a sign to embody that which I wanted to be in harmony with...* • *… but all of these things have mainly been confirmation of what I sense or know , but it also added to that sense of knowing.* •

> *…and complete confirmation that that is in my opinion the right path to follow… it gives me the complete knowing that that is the right thing at that time, and the answer. Although …it takes some time to let that sink in, the exact meaning of that to come out, you know.* •

There is trust in a process which is no longer felt as a solo endeavour but shared with a greater wisdom. The uplifting sense of 'I am not alone' brings comfort and purpose toward a particular course of action.

> *The first thing is that awe and that sense of that we are not alone, that is one of the biggest things.* •

The paralleling of events involved in synchronicity establishes a perceived ***connectedness***. The accepted boundaries which define everyday experience cave in. The perceived divides between oneself and the rest of the nature are momentarily transcended with a sense of interrelatedness. These unifying feelings may be felt on various levels: ***interconnectedness*** between mind / matter, time / space, with the natural world, or with something greater than oneself. In that moment, we feel ***unity*** within the totality of existence.

It feels like a great oneness, you know, the understanding of interconnectedness, ah, with the divine, with the sacred, with the earth, with… with all beings, you know, at the time…an understanding that at last you've been shown or have been given a moment of illumination, you know, so that there is a total feeling of connection to everything… • *…this feeling that everything is interconnected like in the magical carpet and I am not alone and* [that] *my thoughts and my imaginations have a certain effect on beings somehow. And if that is true that we are living in this wonderful interconnected carpet, it really makes a lot of sense to me that this* [premonition and prior visualization of a subsequent close-up encounter with eland] *can happen.*

…it was a complete life-changing experience because I just changed my perspective on energy in this world and how all living things are connected. And how all plants can really feel our intentions and feel our energy. • *And there's just that, like, synchronising thing for a little while and lets you see through the window to confirm that thing, that actually, whoa - we are all connected. We are those animals. They are us.* •*…the dualistic nature of life and all that goes away… it is the truth, the reality of our whole existence.* • *I could feel the oneness. We are all connected.* •

> *Yet, something more was there than just a lack of separateness, 'something' truly beautiful and unknowable.* (Roberts 1993: 32 in Taylor 2010:130)

Respondents sometimes felt that we have a choice in defining this more embedded perspective, although the underlying nature of the interactions may remain mysterious and fascinating.

…gave a feeling of connectedness and that when we are open to it, life will give us little messages of support. •*… these encounters … make me feel very connected and embedded… that meant a lot for me personally (and to anyone else they seem maybe delusional)…* • *…it is a very holistic experience, but it absolutely requires "the other" to show itself to you. And how far you go with that is I suppose how far you are prepared to respond.* • *… something, ah, weird and wonderful going on.* • *It is the presence of the divine or God, or however you want to describe that power.* •

The encounter [with the whale], *helped me see that there was something bigger than I, bigger than myself. It was uplifting, spiritually enlightening. I am less cynical now - it was beyond anything that I could rationalize. It made me reconsider my father's* [Methodist] *tradition and what a wonderful tradition it might have been - and I am less cynical of it now. The encounter was about understanding a bigger connection without being hippy about it.* •

That feeling of connectedness arising from multiple experiences of synchronicity compels a person to look beyond a single MNE and allow the insights gleaned to be a source of orientation throughout life or to motivate their purpose for this life.

…there is one conclusion that I must do with all this and that is… the purpose, and least in this life for me, is to come to this realisation of this connection, of this profound connection that we have with every single thing. • *It was accumulative experiences of nature that was so profound. You know, you might doubt the first one. Say, if I had had that otter experience 25 years ago, I probably would have thought it was just a coincidence, but I pretty much know to myself now that it is not a coincidence* [but] *that I was in that …that state of balance and when you're in that state, sometimes these incredible things happen.* •

Emotions linked with ***joy***, peace, aliveness, ***harmony*** and awareness arise during these MNEs.

Joy… a feeling of being alive, you know, being… a part of something great… the great sense of the divine, of the connection… of the understanding of the interconnectedness of all things – the absolute joy and bliss of being a part of that. • *And it gives me a sense of peace, and it is a wonderful feeling to feel so connected to everything that is alive.* • *… and a great peacefulness just "moved" into me.* • *I've had like warmth, peace, leaping - like almost a jump for joy inside, ja, sort of excitement, anticipation, all of those sort of almost responsive senses: resonance, perhaps….* • *… it is that harmonious thing bringing it all together.* •

Besides these more expressive emotions, *synchronicity as a MNE* often carries an underlying subtle and more reserved sense of ***humility*** and honour.

> *Each member of the group felt the synchronicity and …was silent for a couple of hours … • And humility - the power and presence of that illumination at that time, you know… it is just beautiful to be in that space…. • And very humble about my thanks giving. • … it was very, very humbling. And it breaks a lot of stuff that is built up in you by society and all the rest of it, that there is another world out there…more humble towards wild animals or any animals, really, and humble towards nature in general… • I was left with a feeling of having been honoured by this encounter… •*
>
> *I felt very humbled. You know, to be humbled by a tiny bird. I felt very humbled and what I find again and again about these experiences, because that has happened with other birds and that as well since, just landing on me and stuff… what I find is that it kind of relates to the humbling thing. •*

> *He feels appropriately humbled and gives thanks to the Great Mystery. He ends up finding nine, nearly identical black feathers, by which time he is on his knees, crying. He considers these feathers as a sign that something special and mysterious might indeed happen for him in this place.* (Plotkin 2003:173)

A 'first-time' experience of synchronicity may give rise to incredulity, amazement at what may be perceived as unexpected blessing. It may spark intense ***emotional release***, ranging from being touched / moved to being overwhelmed. Subsequent experiences of synchronicity in a person's life may be complemented by humbled acknowledgment, appreciation and expressions of ***gratitude*** at what is felt as a (recurring) ***gift***.

> *…I mean, when I felt that I immediately stopped crying and everything was okay again… And then a couple of days later I had the exact thing happen to me again…the wind just whirled, and it felt like a hug again. And I stopped crying, I felt totally at peace, and I came back to the house and everything was fine after that. •*
>
> *And I guess the best way of expressing it is elation. I mean, it is so rare that one gets really close to a bird of prey. And they are so magnificent and…the call is just so incredibly moving, it is really visceral, and it was like…an incredible sense of being…unexpectedly blessed and I suppose that's what blessing is about - it is not earned, it is just given. •*
>
> *The fox sat down first, right, so it was like it was giving permission... And we were just all there* [being] *natural. It was a gift, a gift. • So I was just like, "Thank you hummingbird!" • I was so grateful for such an unbelievable moment. •*

> *I've never heard of anyone else scoring a ride with a whale or sharing even a touch. So, wow, I feel truly blessed.* (Sampson 2008)

The experience is ***difficult to describe***. Persons may find it challenging in that one feels a sense of shyness or embarrassment in the face of accepted social norms or judgements about such perceptions or interpretations. Or one may feel that the experience is unspeakable: it is deeply personal and it is in the unspoken where this experience holds its power. There are additional limitations in terms of available vocabulary in being able to accurately convey the complex blend of sensory and emotional responses.[82]

> *At times, you can't find the words to describe it, you know… it is something that is really difficult and hard to talk about, because it can't be measured or it can't be related scientifically...Sometimes it is a difficult thing to talk about* [chuckles], *because you're worried that if I talk about it, am I going to lose it - but that's not true. •*

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… and they are very hard to describe, I have tried for years, I sort of wrote a bit of a down, but it was very difficult to describe the interior experience … • *… If something is going bad with* [my friend] *he will phone me or I'll know when something is not right with him. There is a special bond between me and* [him], *which developed on that mountain. And I can't explain these things, but there is definitely something there…* •

But it is not easy to put in words, I don't think. It's feelings, mostly - it is feelings... Because not everybody can express those things…[So] *you see it in the way they* [people] *are rather than what they can say..* •

In summary, what is experienced with synchronicity in nature is a spontaneous, unexpected and notable paralleling of events which, through their timely, implicit, uncanny connections are felt as ***meaningful***.

…the concurrence in time with my mood, the very (opdringerige verschijning of) [translation from Dutch: 'obtrusive noticeable appearance of'] *the animals, the impact (without giving much thought): the 'feeling' that it was meaningful.* •

…and that for me is, being plugged into that system where everything is connected and things unfold, that give you meaning and understanding of what is coming next and what is going on, and where to go to next… that things are being spoken and said for a reason….we start to understand the connection between the natural environment and how it is speaking to us the whole time…[that]*…there's another level…there is another side to things, as I move and breathe, that speaks to us, you know. It can tell us where to go and what is going on. Ja, it is just fantastic.* •

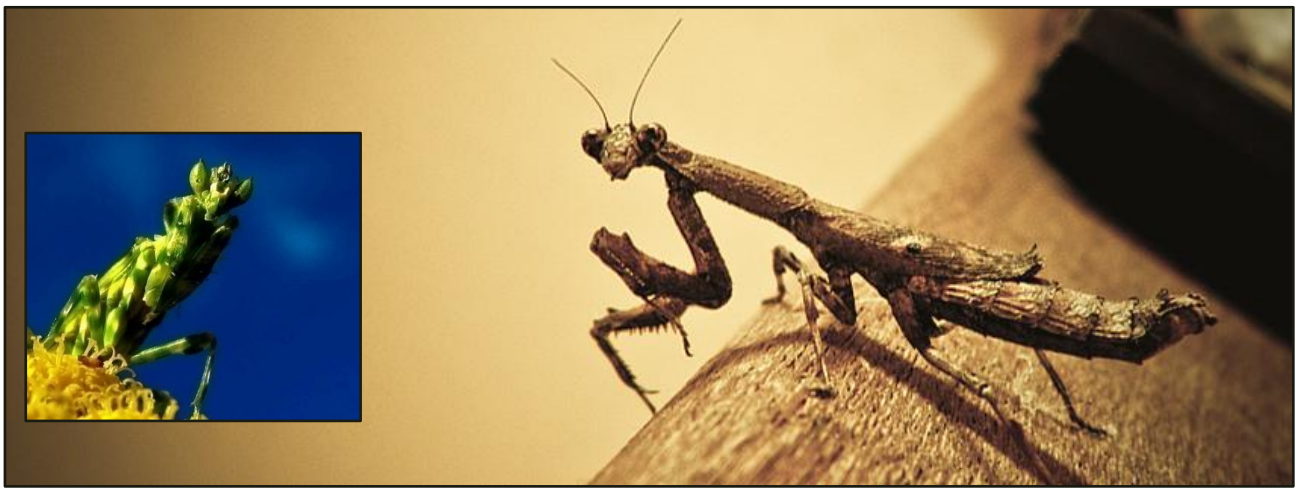

Image 9: Meaningful March mantis morning

There are various entwined reasons why the surprise sighting of two striking mantises (the first outdoors and the second on my desk) on the morning of 2 March 2011 was highly significant. However, there is a depth of meaning behind these reasons which reason itself cannot describe. On their own, the ingredients comprising these events were seemingly innocuous and inconsequential. But strung together as a series of events connected in time, space and meaning, they produced a patterning which made the respective visitations uplifting, fascinating and instructive (see related poetry in Appendix 9.23.5.1, entries on 1 Mar 11 and 2 Mar 11).

4.3.6.3 Structural description

Meaning units, significant statements and verbatim examples are used to compose a *structural description* (Creswell 2007) of *synchronicity as a MNE*; i.e. the conditions under which persons experience synchronicity with/in nature. These include temporal and spatial dimensions, perceived links and relationships between oneself and others as well as states of consciousness (DeMares & Krycka 1998). Context is highly case-specific and generalizations must be avoided but there is phenomenological value in exploring the salient structures which appear to commonly support this type of distinct MNE (Table 17).

Table 17: Common structural themes of synchronicity as a MNE

Thematic groupings	*Summary description*
Emotional intensity (changing consciousness* - passive)	The experience occurs during periods of intense emotion: characterized by feelings of turbulence and imbalance, transition and uncertainty, stress and tension, grief or loss (of, e.g. a loved one). These times could be linked to formal therapy or informal healing processes. Alternatively, the MNE may be linked to more desirable emotions, e.g. joy, flow, relaxation, appreciation. Emotional states arise passively - not usually premeditated.
Perceptual focus (changing consciousness* - active)	The experience is linked to an activity with a focused intent: it may be a question (to inner self or greater universe) seeking guidance (e.g. prayer), sensory awakening (e.g. bodily sensory awareness, physical exertion), acts of creativity (visualization, minds-eye imagination, expressive arts), rituals / ceremonies (e.g. giving thanks), or an introspective or reflective activity requiring sustained focus of attention (e.g. meditation) to cultivate present awareness or a deeper connection with nature. Perceptual change may be induced. Engagement with the activities represent a conscious, intentioned and active process but without foreknowledge of specific outcomes.
Openness	The experience is more likely to be perceived with an 'open-mind'. The individual is open to less-ordinary experiences of reality; or alternatively, in group situations, synchronicity may be triggered by the openness of acquaintances. There is a level of expectancy for synchronicity to manifest yet a non-expectancy as to when and how.
Perceptual modes (alternative)	The experience is associated with non-ordinary ways or seeing and/or knowing. Includes dreams, waking visions, intuition, futurist prognosis (e.g. precognition, premonition) and other subconscious or subliminal sense perceptions which acquire information other than through rational deductive reasoning. May intertwine with previous themes of perceptual focus and emotional intensity.
Physical inactivity	The experience is linked with periods when one is inert or stilling after a period of (physical) activity. The relative inactivity may be linked with activities requiring perceptual focus (e.g. meditation, contemplation, ceremony). Synchronicity may be experienced during periods of activity, particularly if a mix of other themes are present.
Spatial setting: wild nature	The experience is more commonly reported when immersed in remote, wild natural environments. However, it may occur in a residential area or indoors, particularly if previous themes are present or active in some form or another.
Temporal setting: twilight; transitions	Respondents tend to encounter such experiences during afternoon, twilight, night hours or at dawn (transitional periods).
Animal type (flight/aerial)	The encounter is commonly experienced with winged creatures. These include multiple species of birds, insects, and flying mammals such as bats. If a terrestrial or marine mammal, it is more commonly a cetacean; or juveniles/sub-adults of the species involved.
Person involved (family)	Synchronicity commonly involves connections between family members or another close relationship where strong emotional bonding is involved. The family member may not be physically present, or even alive, yet their presence is felt through the encounter in one way or another. Normal (physical) spatial boundaries may be transcended.

*Consciousness is understood here as the intentional and directed attention (conscious awareness) toward specific phenomena (and which may alter neural activity, perceptual homeostasis or equilibrium of the brain).

The structures underpinning synchronicity in and with nature are characterized by ***altered states of normal consciousness***, though not necessarily in the more dramatic or artificially induced sense, as is usually implied by the phrase. It is rather a case of (subtle) changing perceptual conditions which orient how one directs their everyday conscious awareness. These perceptual shifts may be *active conscious* or *passive conscious* processes.

The passive conscious (and in some cases unconscious) processes surrounding altered perception are characterized by periods of ***emotional intensity***, which may result from stressful and/or ***emotionally turbulent*** periods being experienced in one's life…

> *I was very very down…• I was having a really bad time…• … I was going through a really hard time. • I had had a fight with my brother and parents. • I was standing looking at the sunset in a rather hectic time of my life… • …particularly at times when I have been in stressful times at times of major decisions in my life… •*

… Or indecision and ***uncertainty*** about a particular course of action…

> *…constantly contemplating how i was going to adapt to life when it was time to leave Spain and enter the 'real world of England again', i was scared and apprehensive of losing the connection with the universe i had discovered i could feel since being in South Africa previously .... • I didn't know what I was yet and I didn't really know that this was something that I connected with - this idea of like having a spirit animal… • We were wondering which route to take… • The decision I was trying to make was whether, after completing my studies, to go to the development planning or environmental section of the institution that had given me a bursary. This decision, it seemed to me, would profoundly affect my career path. • I had one particularly profound visitation with that tree and was wrestling with a lot of questions about powers that we have as human beings, at many different levels. •*

…Or heartfelt grief over the ***loss of a loved one***.

> *My…younger sister had died of a massive stroke…It was a week after her death, and I was planning her memorial service… • …my father…had recently passed away. • My son passed away…• …my brother got a brain tumour and had a long, lingering death… • … my father…had recently passed away...I was suffering from depression at the time.•*
>
> *It was the day that I found out that my grandmother was dying... The day I found that out I was really upset. And I went outside and I was crying behind the barn, and I was really upset about it and I felt totally out of control and it didn't feel like I had any grasp on my life or anything that happens to any of us. •*

These times might be metaphorically reflected upon as a '***dark night of the soul'***, being lost in the deep shadows of one's psyche, until dawn breaks with sudden illumination and emotional release.

> *I was then going through a difficult phase and felt lots of relief through these* [buzzard] *encounters. • I was treating somebody the other day, she was a young kid going through one of those patches in life where her boyfriend had left her and she lost her job and this and this and this. And she had just had a bumper bashing in her car about a week ago, and it was sort of like the cherry on the top, you know, "That's it. I can't handle life anymore." While I was treating her, a sunbird was rapping on my treatment window. And I looked at it and I said, "There you go, that bird is trying to give you a message - and the message of the sunbird is joy and happiness. Don't give up - joy and happiness will come back into your life again." •*
>
> *I was still wanting to really deal with this anger and rage that I felt about environmental despoliation. So on, one my walks - it was a sort of meditative walk - I stumbled and as I started to fall, I looked down and I found a beautiful piece of orange ochre… and I started grinding this and it was an amazing experience, because I found this huge rage that I felt started to come out in that act of grinding. And it was like, I took that stumbling stone in my life - which was the*

anger - and I gave it back to Earth… And ended up in at the end of the grinding session with this beautiful golden powder… I just felt so released. And it has been an amazing thing, because that has been a transition from me. I have never since felt that unbridled anger, rage and judgementalism that I felt beforehand. •

However, whilst the more profound and transformative synchronistic experiences in nature might be experienced in these contexts, other individuals report experiencing them at moments of ***elevated well-being***, e.g. relaxed , joyfulness and appreciation. Similarly they may be associated with times when one feels more ***connected***, ***respectful*** or '***in tune***' with nature or people; or when life seems to flow with a purposeful presence and seamless sense of ease.

I felt I was pretty present with them that day, thinking, this is how life needs to be. My son was having difficulties in school, and there was a lot of tension and fighting between us and within the family. This day, though, I felt very connected to my kids. • And I also do have a sense that animals in particular show themselves when you are in a space where you are not threatening - like when you open, or when you are quiet, or respectful. • Relaxation. silence, appreciation • Being connected with the nature around. •

…I have a deep connection with this island. And I had been teaching other children about ecology and nature connection on this island for months. And I had deep nature connection with other animals during this, so I knew there was a possibility, I was trusting it and not shying away from it. And welcoming it really…•

These activities are guided by setting specific ***intent*** which is both conscious but also 'felt' at some level.

I asked especially for a raven. • So with the intention to go back there and have a wander to try and find amethyst. • So we went down there with the intention of making peace with my experience and giving gratitude for my life… • My issue for this trail was to examine my relation to South Africa. How do I relate to this country, my parents, my family? Coming into the trail, I had done a lot of work to work the whole story out. But I hadn't quite come to peace with it. •

The activity may be an introspective or creative endeavour, such as that of inner questioning, reflection, contemplation and meditation which may allow a person to reach state of inner ***stillness.***

I was sitting on a small island in the Okavango delta during a meditation session at sunset and was asking myself the question regarding next steps in life. • My fingertips were inside the water and I was trying to neutralize my energy field and let go of thoughts and stress, meditating for a few minutes with my back facing the shore and my face the setting sun. • I was the only one awake and was busy meditating. The lion walked right up to the fire…It really went to show that through meditation, you are projecting a calm, loving energy, which attracted animals in a peaceful way but without meditating, we were almost seen as strangers to the animals, no longer linked to them.•

I suppose the common thing would be a stillness. Ja, often it will occur if I am either wandering, you know like walking but without intention of going somewhere…And then something will arise…in the natural environment, something will strike me, something will come forward…whether it is an animal, like a bird or something. •

I closed my eyes and enjoyed the white noise of all this from a cliff top, letting it lap over me, evoking other oceans, other times spent whale watching - and when I opened my eyes, there was a whale right there. (Watson 2003: 206)

There may be a personal and customized ***ritual*** involved, or alternatively, a ***ceremony*** based on ancient principles and practices. The activity may be an expression of creativity, such as achieved through the arts. Similarly, one may be engaging in a set of bodily ***sensory awakening*** exercises.

> *We were crossing the boundary from civilisation into the wilderness with some kind of a ceremony.* • [During a] *6 day vision quest… nature solo. no food.* • *I do, um, sort of stretching yoga exercises and then a swim along the coast…And what I've been doing recently is after the swim, I do a set of breathing exercises to try to, to just…get into the space..*• *… it was all in preparation for a rite of passage that I was supposed to be having…* • *I was walking up a mountain to ceremoniously dispose of a childhood artefact that I had outgrown many years previously...* • *And in the ceremony I did for myself, greeting the directions of the wind, thinking of the reasons I was there, thinking of the important people in my life, I all of a sudden felt things coming together.* •
>
> *We did like a little exercise of saying, "Okay, let's go into the reserve and use our hearts as a sense organ, and to see what we can find." And also to go and say thank you and give gratitude to the creatures and to the plants…sorry if we have done things harmful – like, the litter in* [place name] *is atrocious. So we went and said sorry to the water.* •

> *I'll share a recent synchronistic event: On August 3, 2008, my staff and I participated in a love and gratitude ceremony that was held at Lake Baikal in Russia. …We prayed, sending love and gratitude to the polluted water, and recited a grand declaration to spark healing for the lake. Three hours after our prayer (which lasted an hour), a huge rainbow appeared in the sky. Actually, there were two - one on top of the other! In Russia, rainbows are said to be blessings from heaven, showing us that our prayers have been heard. Many locals remarked that they'd never seen such a beautiful rainbow over the lake. We were deeply moved and knew that God had sent us an encouraging sign. For the rest of the day, we all felt very happy and content. Following this, I witnessed two more rainbows all within a week's time.* [Emoto later discovered that the locations where he saw all three rainbows (in Russia, Spain and Canada respectively) were, according to his measurements, equidistant from each other] (Emoto 2010: 86-87).

These activities are usually experienced in solitude, although it may be facilitated by a ***guide*** or therapist.

> *…during a healing session with a client at my house…* • *I was doing a weekend workshop using Joanna Macy-esque grief work…* • *And while I was giving her healing from physio treatment, I said to her, "I want you to start keeping a journal and putting your emotions down…"* • *And this man who was the shaman…* •

Ritual or ceremonial activities are also evidently characterized by an element of *priming*: past stimuli which unconsciously affect thoughts and behaviours now and in the future. This shift in awareness may be linked with a heightened sense of ***anticipation***.

> *And so she said, "This place is really special". So I suppose I had that kind anticipation that this place was really special. And also the way that we were introduced the evening before when we went up the hill and had a meditation session, and we were kind of introduced in that way that raised our expectations as a place that is really quite something. So it was in that sense of, "Something is going to happen here."* •
>
> *So we went down there* [to the place where I had been bitten by a highly venomous snake years earlier which almost took my life] *with the intention of making peace with my experience and giving gratitude for my life…* [but initially started with the fearful] *mindset that, "Hey, I could get bitten by a snake again." That never happened. The forest opened up to us and we had the most magical animal experiences.* •

Ultimately, while the respective purpose of each activity may differ, all activities also have a tendency to open paths to involve ***attentive focus*** which may lead to present awareness.

> *Not being with my energy in my head. Being aware of everything that happens around me…*•

These activities may fuel conscious anticipation, yet synchronicity may be more commonly experienced when one has ***no expectations***. *There is a non-expectant expectancy for the unexpected*. One may set a specific intent prior to e.g. embarking on a wilderness trail, yet retains an open-mind in being able to experience synchronistic moments and is neither attached nor judgemental if they do not surface.

Being connected with the nature around. No expectations. • …[There needs] *to be an openness. And to be prepared that something might be coming. It is only if you are sensitive that it comes and it is significant. •*

One may seek to retain sufficient ***openness*** such that they are able to perceive whatever phenomena may arise; waiving the desire to predefine potential outcomes so as not to interfere with one's moment-to-moment awareness. This may also include a process of 'letting go'.

The more I have an open mind and an open view, the more synchronicity happens…the more I see it. •... it is only if you are sensitive that it comes and it is significant. I became sensitive to it, whereas before if owls were around, I never used to pay much attention to it. • When you sit in that zone in that space, ah, nature and symbols … just speak, you know. And if you open to it, sometimes it seems so blatant… •

I have opened myself up to that part of the existence to what I call "letting the universe steer". Letting the universe guide me and asking what's up. Instead of me steering it and telling it what is up. And it is a totally different way to live than what I've done for most of my life. And this last year half of my life has been the most amazing set of stuff that has gone down. And I have coincidences… these coincidences happen on a regular basis now to the point that I am not even surprised they happen. •

…Especially if: a) you are in a stage of your life, where your doors are opened, where your mental, emotional and spiritual doors are open, because you are at a crossroads, let's say, or whatever they call it or b) that you open to this idea of this connectedness. And that this can happen at any moment. Not that it has to confirm one profound moment in your life, but it is a confirmation of everything happening all the time, every minute of the day… •

…it generally is, I think, when one is almost ready for them [profound animal encounters] *and waiting for them and asking, perhaps, permission for them. That is the wisdom of what is around us. We are not the only ones who have mind, or who have intelligence or wisdom or whatever - it is all about us and is willing to present itself if we are open..•*

The combined ***openness in a group*** situation may trigger or amplify experiences of synchronicity and/or information presented may subsequently unlock less open minds of other persons present.

Being with people who are open to it seems to trigger more frequent experiences too. • It has happened a number of times - more often with people who are willing to play with that idea, and accept that there is something more to it than just seeing, "Oh, there are some nice animals there, this is what they are doing" and so on. That there is a deeper connection. That there is something else. And there is almost like… it gives permission for this thing to happen. •

Synchronicity as a MNE may be associated with other forms of perception and ***other ways of 'knowing'***. Dreams, waking visions, intuition, and precognition all represent subconscious or subliminal sense perception which, when paralleling an event arising in nature, presents a powerful and compelling experience. Such moments challenge preconceived ideas of how one obtains information as the usual accepted frames of linear time and three-dimensional space are suddenly distorted.

… shortly after midnight, I was woken by the sound of the wolves in the far distance… But in a sort of twilight zone state between sleep and wakefulness and along with the sound came a whole lot of mental images coming out… images very clear of three wolves of a certain description walking in a staggered formation out of sort of knee-high muddy water with an elk kill in the background. I didn't think much more of it… [until] *about 2pm that afternoon, one of the tracking teams radioed in to say they had found exactly that scenario - an elk kill from the night before…And the photograph was a complete match in daylight with what I had seen happening and unfolding at 1am in the morning… it was definitely non-local - clearly. It sort of immediately alienated me from my sense of what was a reasonable way of coming via information... And it was…completely undeniable…there was no way I could find a way to explain it away.So that is probably why it was so incredibly meaningful, because its repercussions were far-reaching •*

I've found with the snakes, you're walking along… [and] *there is something in us and you just look down. It's nothing that says "wow, look down there is a snake". You look down and, my god, there is a snake over and over again. You know, you're either next to one or you are just about to stand on one… But you are not conscious of it at that time. • …I knew I was going to see it* [the snake] *exactly in the location where I saw it... 15mins prior to seeing it...! •*

And I started to get these really fearful communication messages of snake. And I was so afraid that I could not vocalize it to my friend. I suppressed that. And I continued walking up the river... And while I was in the water I had these really intense images of snakes climbing on the waterfall. So it is really scary. And I jumped out of the pool really fast. And I go out of the pool, got my clothes on and I said to [my friend] *"I think we should leave. I'm just not feeling good here anymore… So we put our sandals on and took like 10 steps away from the pool and my foot hurt really bad. And I jumped off the trail and looked at my foot and there was two black dots of liquid coming out from my foot… And my friend is looking at my footprint in the sand with a baby snake wrapped around it…. •*

Yesterday, we did an imagination [visualization] *about getting in touch with an animal… And then* [20 minutes later whilst walking] *suddenly I heard something moving and I stopped, and at the same distance like in my imagination, I saw two eland staring at me. And I remembered my imagination and I looked at them peacefully like I have done in my imagination. And then I realized there were like 10 or more eland behind them, but only two of them were standing very close like in my imagination. •*

… the meaningful experiences are linked with the synchronicity and the dream experiences; to get shown something in a dream…So if I get shown a place, and I get very detailed sort of information, in some respects… sometimes it can be very brief… but I get a sense of place, and the vegetation and there is usually certain things. And even if it is a place I've never been to - sometimes it takes me quite a while to locate it - but when I do then it turns out to be virtually identical to what I've been shown in the dream. That's potent! I mean, it is powerful, you just… it is just truly amazing. That to me is what makes it so profoundly moving… • [83]

Experiences of *synchronicity as a MNE* are more prevalent in predominantly natural areas, particularly wilderness or other locations which imbue ***pristineness*** or convey ***remoteness*** or have diminished human presence, e.g. ocean. They also tended to happen during ***twilight***, night or day/night transitions.

Toward the end of the day, just before we had to make the decision to go home… • and the sun was setting and it was gold and it was beautiful… • There weren't too many people around, we were there in the late afternoon…• I left my co-worker's place furious and in tears at 2:30 AM… • During night watch, around midnight …• I was taking a sunset dip in the sea…• In the late sun of the afternoon …• At sunset.…• …I'm pretty sure it was the same animal, and it was early morning - and it approached me again… • … the very first morning before breakfast, I went for a walk up to the little koppie [Translation from Afrikaans: 'rocky outcrop or hill'] … •

These experiences may also occur in ***indoor*** residential areas but usually they must be coupled with other more predominant structural themes (e.g. perceptual focus/disorientation, emotional intensity, grief),

We were sitting in the lounge of their new house…• … during a healing session with a client at my house in the city...•

Synchronicity as a MNE may be experienced alone or with others: the meaning may be more profound alone, the credibility and joy from the experience may be more enhanced when shared. Notably, the presence or involvement of ***family*** was evident throughout numerous accounts. Unlike to *general MNE*, the family member(s) do not need to physically present or even alive: that nature of the synchronistic encounter may be such that the connection is experienced with family at distance or outside of the physical realm.

[83] For another example of precognition, see: http://eyes4earth.org/mne23-something-with-the-elephant/. The person involved shared this story with me at a social gathering after he had enquired about the focus of my PhD research.

Opened the way to… get in real touch with my (mostly dead) parents and grandparents for the first time in my life. • I all of a sudden felt things coming together. I think I had never felt so close to my wife and children, 12.000 km away. I felt the presence of my parents, the other members of my family, I felt the welcoming of the country to me. • Walking through the woods I came across a sick crow which I picked up and took home. A few days later the crow flew off with a squawk at sunrise. At that moment I had a realisation I had to go back to my home country to say bye to my grandfather. This event was followed by the death of my grandfather about 2-3 weeks later. •

I went with my pregnant wife to a hospital… It was early in the morning and we passed some beautiful storks. We had never seen them before. [The day after my wife] *gave birth to our daughter…It made us really happy and this story/experience became part of our life… the fact that it was the only time that we had seen storks* [a symbol (as bringers) for birth], *made it remarkable. •*

I mean the one really weird … - my whole experience was very tied up with the Zimbabwean crisis, because my family was on a farm threatened with all the evictions and that sort of stuff. And my brother - and it started when it was really getting bad with all the land invasions, warlords coming in and causing all sorts - the one night they were woken up with an owl scratching at their window. It was scratching and they eventually phoned me. She phoned me and said, "[Name] *what does this mean?" I said, "Wheeeeww. Just be careful. I'll pray. I'll pray that you are okay", because owls are regarded as omens of death basically or big trouble. And next morning, the* [warlord] *bunch arrived with all their drugged up war-vets with their pangas: they had pangas at my brother's neck… But thank God, they were okay. They managed to calm them down - and they left. So, that was to me, you know, that connection was there… •*

It just seems like an extraordinary coincidence that both a son and a mother would have profound experiences with an otter of all animals, within a few days of each other. It seems… too much of a coincidence… I mean you are very deeply connected with your parents - that's your primal relationship. I think there is an invisible line that connects you to your parents even if they pass away. •

Synchronistic encounters are more often reported with ***species of flight***, e.g. winged creatures such as birds, insects and bats (Section 9.14).

…her release was triggered by a blackbird that sat at a ledge on the balcony and started to sing. • getting a sudden insight while reflecting and at the same time a kingfisher diving down from the sky to almost touch the canoe. • …a bat - nocturnal bat - in the middle of the day came out and flew around us. • Had an experience with butterflies… • …and sitting on my shoulder was a praying mantis. •

> *It was one Monday morning, two weeks into her healing sessions that Susan reported some curious events that happened to her over the weekend, all involving birds.* (Wansbury 2006: 141)

There may be any number of structural themes intertwined, occurring concurrently or acting in synergy within any given MNE or even significant statement. The above analysis has sought to shed light on some of the more salient connections; however unravelling their true complexity is perhaps a lifelong endeavour. However, when asked specifically to reflect on the context and conditions of their recounted MNEs, synchronicity-specific OQ respondents and in-depth interviewees offered diverse responses but shared a number of the common structural themes outlined above, i.e. ***relaxation, nature immersion***, ***stillness***, ***presence, meditation***, ***openness***, ***awareness***, ***being connected*** or ***'in-tune'*** with nature or oneself:

Being in nature helps, although you can have the experiences in the city too. • Walking along the beach and in the woods. • Taking time, emptiness, being in an open and perceptive state, not asking or wanting, observing, the rhythm of walking, silence. • Open mind, open view. • Relaxation. silence, appreciation. • Being relaxed in nature • Just being present and aware what is around. I'm wondering if synchronicity happens all the time, we just are not aware at times•

…I would say, they can happen anywhere… So, I don't think it is just with plants and animals, I think it is with people too - like an openness to what is around you. And in fact, it is probably easier in those rather rarefied encounters when you are on some sort of process and you are geared into it…you are not in the middle of your busy week thinking about a million things. I think you are more receptive or open when you are on a retreat, because that's what you are there for. I don't think it is in any way confined to that - it is just making the space and the time. Being receptive. •

Being in tune with nature i.e. myself. Meditating is a powerful tool for me to allow synchronicity to happen, mostly because I am probably more open to receiving the right signals. • … meditation, strong topics on love [and] *relationships… • Be more in line with your own heart. • Being truly connected to choices, targets, wishes in* [your] *life. • By meditating I am more open and conscious or perceptive to synchronicity. I think it's more about being aware and thus seeing and giving meaning to what's always happening. •*

The events that [struck] *me the most were all unexpected. But what I also sometimes do, when I am dealing with a personal issue, is go for a walk and ask for some clearance through nature. It works quite well. But it is never as intense as the events that are suddenly there. • They mostly happen when I'm in either a sensitive mood, e.g. when creating, or when troubled, or when I have been alone for a while and more in touch with my inner world. • I think the context is more internal than anything else: I don't think there is any external context. But those things have happened when I have been fully present to the moment, which usually is all about just being engaged with my five senses…. •*

Box 22: Butterfly confirms path of the family

One respondent shared an in-depth story regarding the presence of a swallowtail butterfly around the time of her sister's unexpected and premature passing. It was linked with subsequent encounters with the same species at other poignant moments, in which family relationships were involved.

I went to my other sister's house to work on details for the [memorial] *service, and my sister shouted to me, "Come out here quick". There was a swallowtail butterfly fluttering in a flowerbed near my sister. There was no doubt that this was a symbol of* [my deceased sister]. *Later on that day, I noticed multitudes of swallowtail in a bush at the back of the yard, thinking that* [my deceased sister] *had brought other family who have passed. The day of the memorial service, I was back at my other sister's house, saying good-bye to a cousin. A single swallowtail flew by, over our heads, and we both felt it was* [my sister] *telling her good-bye. The context of this experience is that she showed us she's around, and continues to do this at critical moments, described below. Although I did believe spirits do visit people and there is a higher power, this just reinforced it. This experience made me feel like we are still connected after physical death…* [it] *gave me an opening that there are things that are bigger than us. The swallowtail has come to my attention several times after that, but there are two that really stand out for me* [during a time]*…where I have been overwhelmed* [by my family's reactions] *…My relationships in general were not healthy... and trying to maintain my own family, which I was neglecting my kids' needs…*

My son, then about 9 years old, pointed to fire he saw out in the distance. I looked where he was pointing, and could not see the fire. He kept pointing at the fire, and then I saw a swallowtail in the distance, the same direction as he was pointing to the fire. This was a sign to me that what I was doing at the moment was what I need to be doing - being present with my kids… The other event was when…I signed up for this week long [primitive skills] *event…and I was intimidated to attend. I had already been separated from my children's father… and I felt nature awareness was part of my journey and on my path. I also had a strong connection with someone who was also in attendance, but because of how I was feeling about myself (not worthy of love), I was fighting my feelings for him, thinking I would just be rejected. He and I ended up gathering with a group of four others in a grove of trees, and a swallowtail was fluttering around us for quite a while. It landed on a tree trunk, spread out to see its full wings. This person pointed out the swallowtail to my daughter, and although I noticed it, I was talking to another person. But this confirmed to me that I was in the right place.*

4.3.7 Composite description: essences of synchronicity as a MNE

Synchronicity mystifies. We experience it as an unusual coinciding of events or phenomena occurring in nature or with nature. We immediately sense that there are dimensions to the experience which are out of the ordinary. In particular, the timing is uncanny: we recognize a striking paralleling between two otherwise independent events, possibly a remarkable congruence between our inner mental or emotional state and the outer physical state. It may also be that we come to notice of a string of external events which have comparable content, and retain (or gain increasing) meaning through their repeated occurrence.

Prior to the event we are absorbed with emotive reflection about tensions in our life, uncertainty over decisions which lie ahead, or working through feelings of love or grief about relationships past and present. We seek succour through nature. Separately, or in addition to, we have proactively engaged in an activity which has honed our intent, sharpened our attention or primed with our perception: meditation, breathing, sensory exercises, ceremony, prayer or acts of creative expression. We move into a heightened state of awareness and feel relaxed, still and appreciative. We might cultivate a more present, focused and connected state of being. Irrespective of whether or how it can be articulated, something in our everyday consciousness has shifted.

Our demeanour carries a degree of openness. We (temporarily) suspend judgement over what outcomes may arise. We may harbour anticipation: *a non-expectant expectancy for the unexpected*. In any case, the searching focus of our (sub)conscious attention is momentarily met and fulfilled through the unexpected phenomena arising in nature. We are arrested by the blatant behaviour of a bird, the appearance of an insect, the odd and mysterious movements of a mammal or the remarkable patterning in water or sky. These manifestations seem like nature has held up a mirror to the innermost workings of our mind. We feel acknowledged, understood and emotionally uplifted.

Insight strikes us. Through a series of indefinable and indelible moments, the unfolding event presents a message, sign, omen, symbol, revelation or metaphor which begs to be decoded. Something meaningful has presented itself and this may be grasped within an instant - we feel conviction that this is the right path, a 'knowing' of that which cannot be fully articulated, but that a conscious or subconscious call for guidance has been answered. We may subsequently feel we have to yet grasp the full meaning - and thus seek to deepen our understanding through internal reflection and external interpretation. Alternatively, analysis may be unnecessary: we simply feel confirmation of being in the flow of purposeful living – 'the right path'.

We realize that we have come 'to know' in a way not usually experienced: somehow, we obtained information through other non-rational, non-reasoned, non-local forms of perception. Yet in its immediacy, we honour and credit that as coming from a place of greater wisdom. Our accepted understandings of cause and effect are challenged; we are intrigued by a notable event that should not normally have occurred

and we are unable to explain the unlikelihood in conventional terms. If we are aware of more transcendent forms of causation, then this event provides experiential confirmation of that possibility.

The meeting of external phenomena with the inner world fuses the experience, but it is the reflective inner exploration that *infuses* the meaning. The continuous interplay and merging between what happened 'out there' with what is going 'in here' fuels our searching interpretation. We increasingly orient our slightly bewildered attention inward as we seek to reveal that which is still partially obscured. We try to marry the internal and external in an integrated awareness arising out of our meaning-making. Shrouded in a dawn or dusk setting, we gaze into nature and see back into ourselves - and quietly contemplate the reflection.

The entwining of inner and outer content spawns interconnections. Walls between mind and matter, human and animal, soul and spirit, near and far, past and present, dreaming and wakened, living and dead are now permeable. We choose a fissure to peer through - and we see. We experience connections and wisdom previously thought to be beyond the limits of ourselves or the human and animal species. We have suddenly been opened to that which was previously inaccessible or unimaginable. We are heartened in being able to reconnect with family lost or afar. We are delightfully bemused at the possibility of meaningful communication with an animal, rock or tree. We may experience divine purpose, spirit forces or soul awakening. We feel interconnectedness at any, every, or all of these levels – an experience of totality.

Initial experiences stun, awe and amaze. Subsequent experiences motivate, reassure and inspire. Emotions ranging from joyous upliftment to humbled appreciation permeate our being. In contrast, perceiving 'bad omens' brings anxiety and foreboding of what may follow. Yet, we recognize the experience as a gift or blessing - a moment of grace through which we feel acknowledged as a purposeful part of something bigger than ourselves. The feeling of 'I am not alone' provides solace. Newfound fascination piques our curiosity in seeking out explanations or reliable ways in which to make such experiences a regular feature within our lives. We feel that, with the right attention, reflection and action, these events can transform us.

But we struggle to describe the experience. In the moment, it is difficult to articulate. Upon reflection, it may not always feel right. Our desire to share the encounter with others is matched by a reluctance which knows that words cannot convey the personal meaning directly felt. There is an added ineffable dimension which renders verbal language inadequate: trying to speak that which cannot be spoken. We may feel that somehow attempts to convey the experience dilute and displace its power and meaning. It is a profound and evolving realization that the synchronicity that can be fully described is not the real synchronicity.[84]

[84] Adapted from the *Tâo Te Ching:* "The Tâo that can be trodden is not the enduring and unchanging Tâo. The name that can be named is not the enduring and unchanging name."

4.3.8 Summary: an invariant structure of synchronicity as a MNE

An invariant structure for *general MNE* has been put forward as one recreation of its essence (Section 4.3.5). Similarly, in exploring the collective experience of *synchronicity as a MNE* and, in identifying that which permeates the individual and collective accounts, certain invariant structures are identified. *Synchronicity as a MNE* has largely the same sensory, emotional or perceptual intensity and invariants as the *general MNE*. Yet, it remains distinctive. The emergent structures which give synchronicity its unique character - and without which it would not be what it is - are synthesized as follows:

Phenomena of comparable content suddenly and strikingly intersect; paralleling events coincide and pattern in an unlikely and meaningful way, whereby phenomena of nature act as the external medium. A 'normal', accepted and causal explanation is elusive. The immediate experience is one of connection(s) and insight: a sense of 'knowing' as revealed through the presence of another form of wisdom is felt as significant. The event is recognized or revealed as a response related to one's current focus of attention, state of consciousness and/or signpost linked to one's purpose or stage in life. Synchronicity is usually of greater frequency and intensity during periods in wilder nature but is less dependent on external variables than general MNE. It is the intensity of the *inner personal* context through thought (or lack thereof) and turbulent emotional state (of which we are not always aware of) that feels as though it has provoked the *outer situational* context into conversation. *Synchronicity as a MNE* happens unexpectedly anywhere, anytime, anyhow.

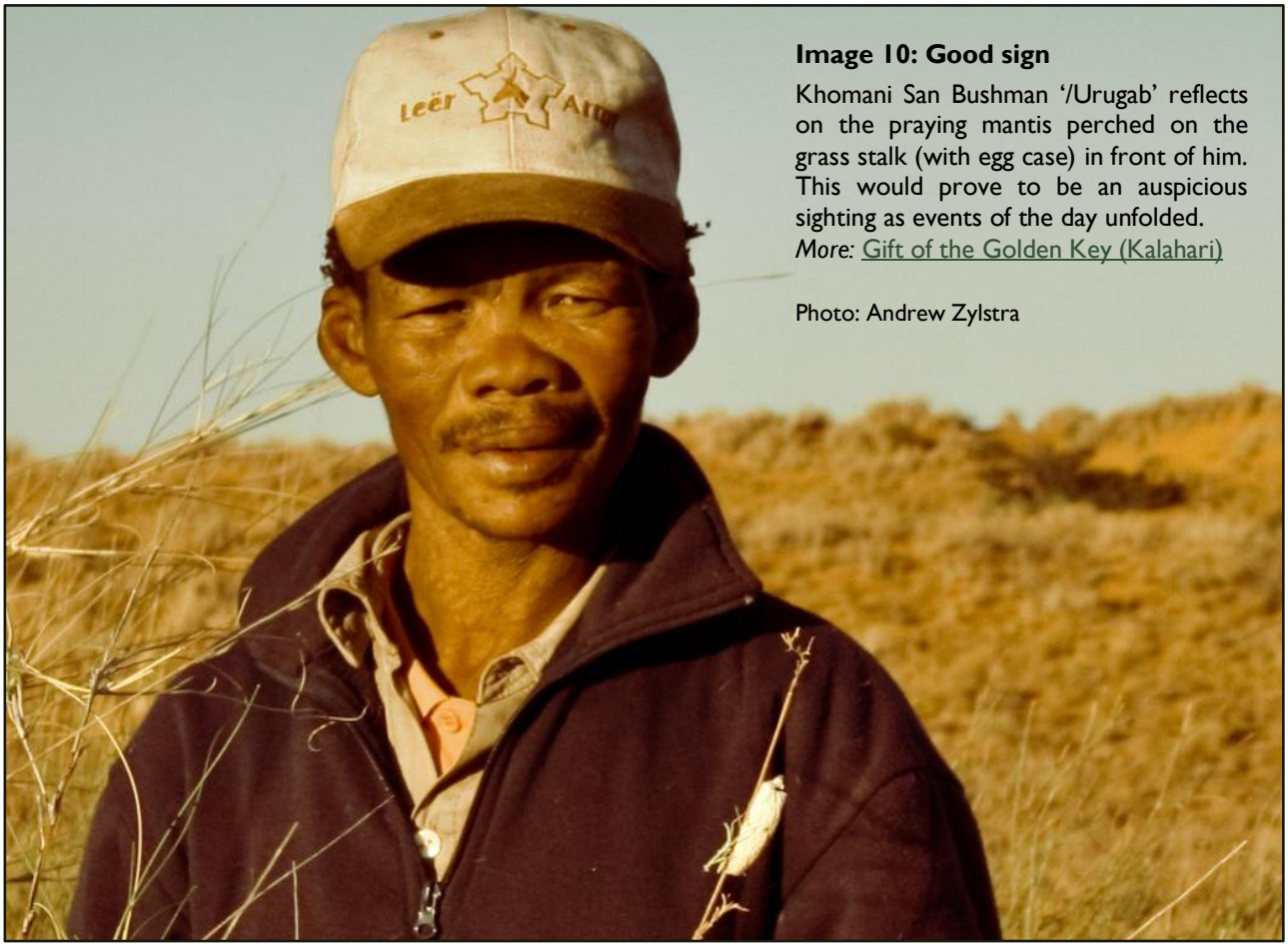

Image 10: Good sign

Khomani San Bushman '/Urugab' reflects on the praying mantis perched on the grass stalk (with egg case) in front of him. This would prove to be an auspicious sighting as events of the day unfolded.
More: Gift of the Golden Key (Kalahari)

Photo: Andrew Zylstra

4.4 Case study: "Too much of a coincidence"

To deepen understandings of the essence of MNEs, it is valuable to analyse key themes within the context of an illustrative example which can be considered in its 'wholeness' as opposed to being dissected into a series of disconnected significant statements which largely characterize the previous analysis . The example illustrates that MNEs do not necessary confine themselves to 'one-off' events but may gain meaningfulness as they transcend temporal and spatial boundaries and grow to become a shared experience. The case study features experiences retold by 'Craig'. It was selected on the basis of the fact that his MNE:

- Happened just three days prior to the research interview and was therefore more vivid and fresh in Craig's mind than other experiences which may become golden or diluted over time;
- Contains a number of other MNEs and themes which could be analysed in isolation but are more significant and meaningful when considered as part of the whole series of events;
- Had an expanded sphere of meaning when I (as researcher) subsequently shared a MNE with Craig which was uncanny in that it contained similar content to his original encounter;
- Took on further relevance when it was revealed during a follow-up interview that it was also linked with an earlier MNE with similar content but which had, until then, been overlooked.

Craig's MNE (or series of MNEs) is particularly notable because of its multi-dimensionality, the interweaving themes, and that it presents itself as one of the more striking encounters recollected. This sense is also amplified because I unintentionally became a peripheral part of the story which manifested through personal MNEs – alone and shared. Furthermore, the encounter encompasses various types of MNEs addressed in this research, e.g. MNE with landscape, MNE with an animal, MNE as synchronicity, MNE as interspecies communication. This section is presents Craig's reflections and concludes with phenomenological analysis and a relational map of emergent themes and structures which comprised the core content of the MNE.

In response to the question of whether he had had a meaningful nature experience - with or without an animal, Craig did not hesitate for long.[85]

> *I'll just say what immediately comes to me…*
>
> *Three days ago, I had an extraordinary experience. Basically, every single day … I walk down for about half an hour to an hour along the coast here. I do sort of stretching yoga exercises and then I swim along the coast for about half an hour to 40 minutes…. And it is coastal swimming so depending on the tides and the clarity of the water I do different routes each time. And I feel totally different if I do that… And it's mostly the water that I find* [energizing], *being in the water, being with the animals, swimming with the penguins and various animals…* [but] *one of the animals I've never seen is an otter, in the seven months of being here, doing it literally every day. And what I've been doing recently is after the swim, I do a set of breathing exercises to try to, to just, you know, kind of get into the space. And after the breathing exercises, I do, like, almost a dialogue with the ocean, because it just gives me so much, you know what I am saying? It transforms my day, it transforms my life - just being in that water, you know.*

[85] A slightly edited version of this account as recalled by Craig in this interview can be listened to online – and as subsequently mixed with ambient music. Listen at http://eyes4earth.org/media/

So I have this sort of - it's slightly strange in a way – just like a dialogue with the ocean, thanking it for everything. Then sometimes, if the breathing works well and everything is working well, one starts to notice smaller things and you start to feel that there's a presence, like, in nature. Almost like instead of the water being kind of just the water and inanimate, it seems to have a personality, are you with me? The rocks, you can start feeling like the crystal structures in the rocks, that type of thing, and it doesn't happen very often.

What happened was, and it was so significant, um, I'd been feeling okay and a little bit off for a while. When I say "off", like, not tuned in like that. And then three days ago, I suddenly got the breathing right, and I suddenly got this dialogue right, and it just felt, you know, incredible. Like, there is just this… it is a sense of oneness, a tremendous oneness. Instead of being caught in the human body there is a sense of, there's no separation and the water seems to like, even though you are sitting on the rock, it is like flowing through you and the rock is flowing through you and it is totally ecstatic.

And what was amazing was… this is the middle of the day… I'm having this almost slightly hallucinatory vision from the breathing of the ocean moving towards me and so on. And then there's suddenly an otter right in front of me eating a fish on the rock. And I think "Jeesh, this is extraordinary". Normally they just come out at dusk, or in the evening or whatever, y'know, amazing. And then I heard squeaking to my left, and there's another otter.

So I quickly put my mask back on and slipped in the water. And I went towards the animal that was squeaking. And then I just lay still on the water, probably about 20 or 30 m from it and this otter just came straight towards me, and they are normally fairly shy. And it came right towards me and then brushed up against me and kind of move passed. And then I swam with it, and it was like a sub-adult, swam with it and this animal was so relaxed that that it could let me touch it, be with it. I was probably with it for about 15 minutes. It was just weird.

But if it hadn't happened, you know, it just seemed too much of a coincidence to happen on the day that I had the deepest connection of the whole year, are you with me? Um, then I was almost in a daze, it was such a profound thing. And I swim with a lot of animals here - I swim with sharks often, I swim with seals , I swim with penguins and its beautiful, but …it's not like I have a big reaction to it - it is just amazing and I feel stunning. But this was slightly out of the realms of normal, are you with me?

I got out of the water and this animal followed me and then started making these strange, like lifting its head, looking at me and barking, almost like calling me, wanting me to go back in the water, calling me back in. It was just strange, really strange. And eventually it just went and sat there. Because I felt… it was almost too much. You know when you have had, it's just so beautiful, your almost like, I can't take anymore because it is so, so powerful. I sat in like a daze for like two hours…I almost wanted to actually move away from the scene, because it was too much for me.

And then the strangest thing happened: two days later [yesterday], *I get a call from my Mum. They live in Pringle Bay, directly across the bay, okay? She says, "I had an amazing experience. I swam with an otter and the animal let me touch it". I was like, "What?!" What's going on, eh? Really weird. And she doesn't swim that often. She started swimming because I, um, got them into swimming, my parents - and so on, and they do live right near there. Seems like the chances, you know, something, ah, weird, weird and wonderful going on, you know. It was…I mean obviously those sort of things stay with you…forever, I mean, it's like, I can't ever go to that place there again and feel the same after that - that place will always have that, ah, that power.*

The other thing I find if I'm connected like that is my body starts shaking, which I think is quite a universal thing. It's a lovely ecstatic sort of feeling. So, that's what immediately pops to mind, because it's so fresh, also, you know.[86]

[86] Equally notable was that this event should transpire during the week between scheduling the interview and meeting with Craig to carry it out: the day prior to our interview, Craig's mother had her otter encounter (over 30 kilometres away from Craig's house). Six months after the interview, I also accepted an offer to join Craig for a kayak along the coastline not far from where he had the otter encounter. On this day, we also experienced an unlikely otter encounter. View the story and video footage of that encounter here: http://eyes4earth.org/mne22-moving-odyssey/

In November 2011, a select number of interviewees - including Craig - were re-approached in order to, as part of the phenomenological process, delve into their experiences with greater depth, fill outstanding gaps and invite interviewees to focus more on the sensations accompanying the experience as it was lived. Craig chose to close his eyes in order to recall and relive the experience again with the freshness which would accommodate the detailed 'in-the-moment' accuracy required.

> *So what I remember is... I remember that I had done a swim in the ocean which was …quite blissful, beautiful and very relaxing…*

The story continued in a similar vein as retold previously but with added recollections which were subsequently included in the thematic analysis presented below (Section 4.4.1.1).

> *…I suddenly felt that the ecstatic feeling that I know is related to these trance states, when I did a lot of work with the Bushmen and shamans in Mexico and so on, years before. And I recognized this magnificent ecstatic states coming on. And I opened my eyes, and the whole ocean seemed to be just like ablaze with light, just like I described earlier. There was this different quality to the water, this magnificence.*

Craig continued with the original story but in the process of retelling, two other pertinent memories were unexpectedly triggered.

> *…I'm pretty sure - a few days or weeks later, I remember clearly - and I'm pretty sure it was the same animal, and it was early morning - and it approached me again, and I felt the same ecstasy, it was freezing water and all that went away, and I was just in this absolute bliss. And I hung in the water, because I could feel the otter wanted to come to me, it was drawn to me. And, but it was afraid. It was afraid of my mouth and being bitten. And what the animal did was that I just kept dead still in the water, and it came around to my feet, because it knew instinctively that there was no danger there. And it touched my feet with its paws and then it realized or it somehow realized that I was not going to hurt it. And it felt somehow relaxed, and it came around and touched my hands and was right near my face.*

Without any hesitation, Craig immediately recalled another story which provided another meaningful link in the continuum of otter encounters over temporal and spatial contexts.

> *And as I'm telling this story now, I'm remembering a looong time ago – maybe eight years ago, I remember now, going down at five o'clock in the morning in Pringle Bay, and doing this strange thing, that might be strange in a way. But I had, at the time, this extraordinary girlfriend who was a Zulu sangoma…It was five o'clock in the morning, it was part of a ritual, which she had asked me to do, and it was to call upon the spirit of the ocean...and I walked into the ocean[87] … And I put my head underneath and I silently called the spirit of the ocean, which she kept calling this Zulu name, which I forget now. Anyway, nothing happened and I walked out of the ocean.*
>
> *And I got 20m above the water line, and I heard this strange sound. And I swear, I turned around, and there was an otter jumping out of the water like they do. They do tend to do that kind of porpoising out, pushing their body out. And I thought, "What the hell?" And I walked right down to the water's edge, and this otter remained in this spot and was so close that it was splashing me everywhere. And I could see that it was terrified of me - that was the strange thing - and I sat there, and it splashed me and it was baring its teeth.*
>
> *But there was something inside that animal keeping it right close to me. I may have interpreted that as this weird spirit of the ocean, I don't know what it was. But there was something keeping that animal really close to me but I could feel it was afraid at the same time. And that went on for five or ten minutes and the otter left, and I walked away, and it was a pretty profound experience, and I didn't fully understand it.*

[87] Specific details of what the ritual involved have been omitted to respect the traditional knowledge concerned.

> *Now whether this was related to this - it is just coming to me now…the funny thing is that I have only had profound experiences with otters when I have done some kind of meditation, breathing, ritual or whatever. Never… except when we went on the kayaks, that's the only other time that I can remember when it was pretty amazing, but you could still think, "Okay, that was an otter encounter." But these other ones were more intimate and more strange.*

Craig's thoughts returned to his experiences and the gradual impact they have had on him:

> *After you have experienced that, I mean, you don't - you can't see an otter again, without having a tremendous sense of excitement, because you've had that tremendous intimacy. So you feel in some way naturally connected to that animal, and you have a special kind of love for that animal and a fascination with it. And that's why we need them so much, I mean, because they are just so inspiring…I'm more of an environment person - I just love wild environments, I don't need to see animals. But I have to say I can't help denying that when you do see one and you interact with one at this sort of level, it sort of… it is as if you are talking with God - that's the sense you get, you know. You come and you are looking into the face of God - that's the sense - and that's a pretty powerful thing to experience.*

Amongst the many coincidences encountered in this string of paralleling otter events spanning eight years but intensifying within the previous six months, Craig then returned to the final event which for him appeared to be the most significant of all:

> *It just seems like an extraordinary coincidence that both a son and a mother would have profound experiences with an otter of all animals, within a few days of each other. It seems… too much of a coincidence, especially that both were quite similar, both were in the water… and* [my parents] *they lived there* [30km from here]. *It is not like they've gone* [out] *to sea or whatever, so it makes the chances even lower…*
>
> *So, I think there is some… I mean you are very deeply connected with your parents, that's your primal relationship. I think there is an invisible line that connects you to your parents even if they pass away… So, perhaps there is some sort of … it just seems too much of a coincidence somehow, I dunno. It could just be, but it seems like some kind of transference is happening that ignites that. But somehow that animal - I don't know, it is complicated, eh? I mean, who knows… I immediately felt … I mean I can't deny that I felt it was too much of a coincidence.*
>
> *…But if I think about it now, you know, that first* [otter] *experience of mine* [eight years ago] *was at Pringle Bay, exactly where she* [my mother] *had that experience. So it is kind of, something is going on there…*

4.4.1.1 Thematic structures and relationships

It is necessary to return to a phenomenological approach in order to understand the structure of Craig's MNE. The aim is to identify the key themes and how they are linked. One way of approaching this endeavour is to intensely and carefully focus on the interview and map the structures of the thematic relationships, based on the flow of the conversation as recalled by Craig. The thematic structure of Craig's experiences is visually depicted through a concept map (Figure 15) which contains coded interview themes as they chronologically emerged throughout the MNE as recalled. In addition, the concept map (Figure 15) represents inter-linkages and relationships between themes which may have surfaced multiple times, but within a different context, e.g. 'connection' in terms of the oneness felt with nature and the otter and 'connection' with his mother's profound otter experience.

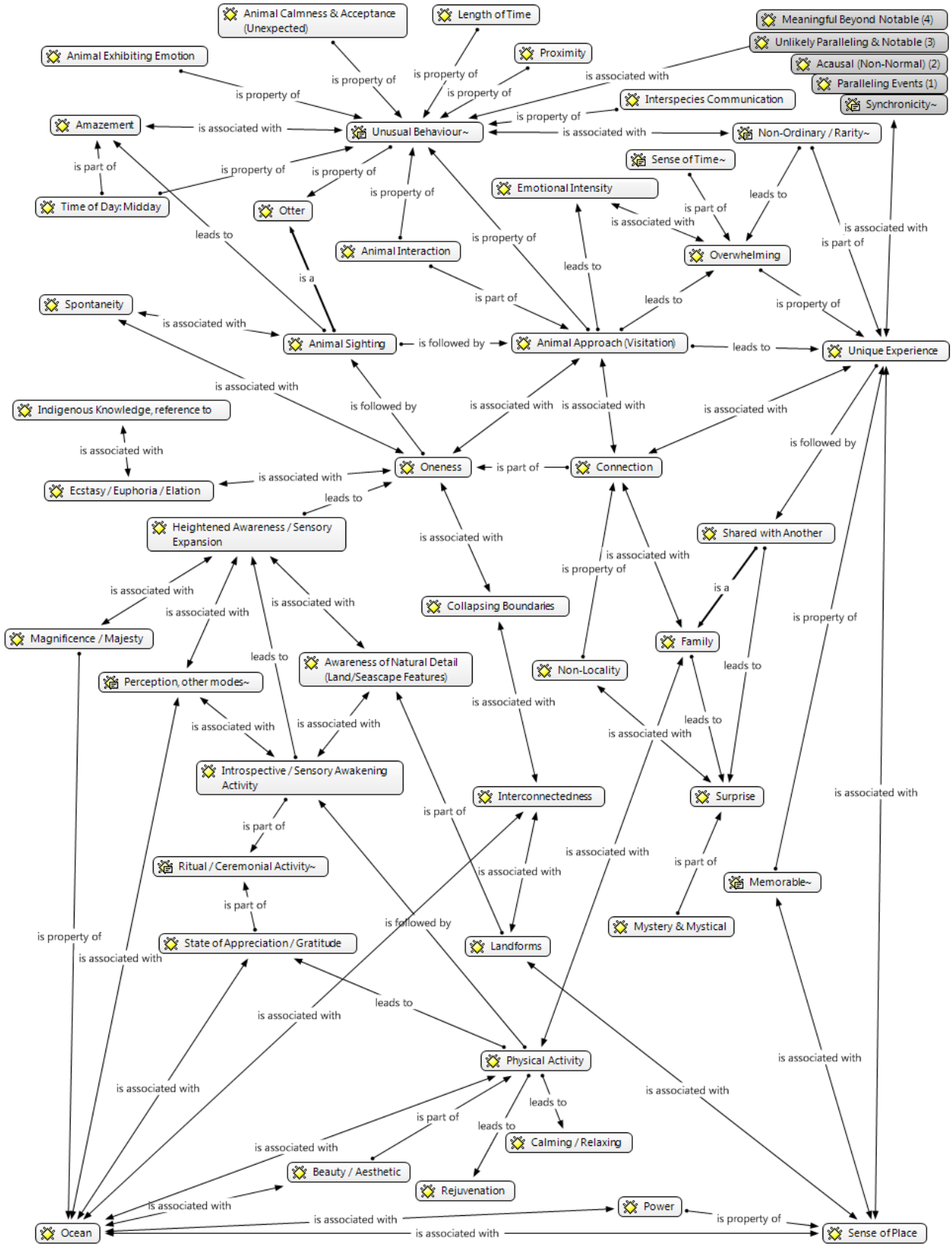

Figure 15: Thematic conversational concept map (read from bottom left ['Ocean'] in a clockwise direction)

Note: The linking arrow labelled 'leads to' could otherwise be loosely understood as 'causes'; however I am reluctant to infer any certainty of absolute causal relations in this context - it is perceived causality only.

Note: The four criteria for synchronicity have been included as a reference; they were not explicitly stated in the conversation but rather implicitly deduced. They underpin the entire conversation and more linking arrows could potentially be made with other elements of the thematic concept map.

The thematic conversational concept map (Figure 15) can best be understood by reading it in roughly a clockwise direction starting in the bottom left corner with the coded theme 'ocean'. Note also that the concept map depicts the conversational structure as articulated by Craig and therefore aims to only depict that which is made explicit through the recall of his MNE, and should therefore exclude any links which might otherwise be made according to the researcher's own judgments, interpretations of extrapolations (except where otherwise stated). Three main events (sub-MNEs) comprise Craig's entire MNE:

i) An experience of oneness with the sea- and landscape:
ii) A profound close-up interaction with the otter; and
iii) Knowledge that his mother experienced a similar otter encounter two days later.

Craig's experience is more complex and multi-layered than most analysed during this research; the presence of three conventionally distinct events would, one suspects in the case of most people, usually constitute three distinct MNEs. In fact, one might argue that all three of these events by themselves do not constitute synchronicity and might otherwise be classified as peak or transcendent experiences. But the unfolding of all three events with relative simultaneity gives the unified experience the qualities of synchronicity (irrespective of prior and subsequent otter encounters later recalled).

The ocean hosts all three events and more linkages could be included in the concept map, though they are largely obvious and therefore implied. Reading the concept map clockwise it is highlighted that:

- The ***physical activity*** (swimming) invokes a number of initial low-medium intensity emotions, most notably states relaxation and gratitude which appears to inspire subsequent actions.
- The ***introspective / sensory awakening activity*** (breathing exercises) is perceived to trigger heightened sensory awareness, altered perception and, a subsequent state of oneness.
- The ***state of oneness*** is central to the first half of the experience and, in evoking a spontaneous 'collapsing of boundaries' between Craig and his surrounds, there is a sense of interconnectedness between the landforms, the ocean and himself which brings a feeling of ecstasy.
- The ***animal sighting*** and ***approach (visitation)*** immediately follows. Craig perceives this to be associated with his non-ordinary and ***connected*** state of being.
- The ***unusual behaviour*** of the otter is a source of ***amazement*** and at the centre of a range of dimensions experienced, e.g. proximity, playfulness, length of time and its ***communication*** with Craig, i.e. 'calling' him into the water.
- A sense of ***overwhelming*** is felt as a result of these highly non-ordinary and unusual dimensions, and this is believed to have lasted for two hours.
- This is considered a highly ***unique experience*** with an unlikely meaningful paralleling of events (***synchronicity***), i.e. the link with deep connection and the otter appearance is observed.
- The event is then uniquely ***shared with another (family)*** and this perceived intimate non-local and non-ordinary ***connection*** is the source of extreme surprise and deepens the mystery and awe.
- A ***sense of place*** is cultivated through intensity of the experience such that the power of that place - the landforms and ocean - will be remembered forever (upon returns to the same location).

These thematic qualities are further supported with the recall of a past and subsequent otter encounter, which were omitted from this concept map given that they were not a part of the initial experience recalled, despite having a meaningful retrospective role in Craig's experience of otter synchronicities. However, these two other otter encounters illustrate how synchronistic events may evade a normal linear sense of space and time. Whilst synchronicity is often defined as requiring the attribute of temporal simultaneity (cf. Jung 1969), synchronicity may still be perceived by an individual if the other characteristics of the experience are sufficiently notable, unlikely and meaningful (Main 2007). Craig's previous and subsequent encounters with an otter fulfilled the criteria of paralleling events, not only because of their temporal comparability but because of the perceived unlikely paralleling in content and meaning.

4.4.1.2 Meaningfulness as a motivation for shaping perception and behaviour

'Too much of a coincidence' is the theme which resonates throughout this extended account. This research has explored the question of whether MNE catalyses a shift toward CWN. And if so, is one experience enough? Craig reflected on his own evolution in perception with respect to his MNEs.

> *I would say for me, it wasn't one experience. It was accumulative experiences of nature that was so profound. You know, you might doubt the first one. Say, if I had had that otter experience 25 years ago, I probably would have thought it was just a coincidence, but I pretty much know to myself now that it is not a coincidence, that I was in… that state of balance, and when you're in that sometimes these incredible things happen… I think it is because we are so conditioned to see the world through the window of science, we are continually amazed by these experiences. But perhaps Indigenous people are not amazed… Like my son, who had a couple of incredible experiences like this* [with me] *together, he is not that amazed by it. Because I don't think he's conditioned yet …*
>
> *We know, I mean, absolutely know, that the world is not - and this reality is mighty different to - the story we've been told. But it is so heavily conditioned that part of you believes it is… And just by working with it, you break that conditioning down. But I think it's becoming now, what's exciting, more and more I see,* [with] *the academics and wonderful people we work with* [that] *it is becoming part of science now too. It is becoming part of the scientific story. And that is bloody exciting.*

Seated at Craig's dinner table with its panoramic views of False Bay, it seemed like a reverential alter positioned to perpetually honour the shimmering ocean expanse before it. In completing the interview, I asked Craig what made his cumulated experiences so meaningful.

> *I mean my whole relationship with nature, with wilderness, completely defines my identity. So, these experiences and many others - I've had many many many experiences with animals, plants, rocks - strange and wonderful experiences that have inspired my whole life and have inspired everything I do. It has inspired my house, my art, my film work: every single thing I love to do comes from that. It is kind of who I am. So if you had to take nature and wilderness away, I would be hugely diminished in my capacity to enjoy life… I mean it is just everything. When you say, "What meaning?", it is just "all meaning". I try to bring that into my house - I live for being in that water, and being up the mountain, but especially the ocean…I feel the whole time drawn to it… And today I'm just thinking about how I can fit half an hour into that water - that's my main focus.*

4.4.1.3 A unique or universal experience?

Craig's story is notable and apparently highly unique on many counts. However, during the follow-up interview, he mentioned that his ecstatic experience of oneness as being something which he recognized as being familiar to Indigenous traditions, such as with shamans amongst San Bushmen and Indigenous Mexican (sub-)cultures (see also Section 2.3.2 for 'universal' qualities to these states).

Craig's personal reference point was his knowledge and experience acquired through spending time, some years earlier, within Indigenous cultures. However, it is interesting to observe how a similar (published) experience may be alternatively interpreted within a different (cultural) frame of reference:

> Five years ago, I had a beautiful experience which set me on a road that has led to the writing of this book. I was sitting by the ocean one late summer afternoon, watching the waves rolling in and feeling the rhythm of my breathing, when I suddenly became aware of my whole environment as being engaged in a gigantic cosmic dance. Being a physicist, I knew that the sand, rocks, water, and air around me were made of vibrating molecules and atoms, and that these consisted of particles which interacted with one another by creating and destroying other particles. I knew also that the earth's atmosphere was continually bombarded by showers of "cosmic rays," particles of high energy undergoing multiple collisions as they penetrated the air. All this was familiar to me from my research in high-energy physics, but until that moment I had only experienced it through graphs, diagrams, and mathematical theories. As I sat on that beach my former experiences came to life; I "saw" cascades of energy coming down from outer space, in which particles were created and destroyed in rhythmic pulses; I "saw" the atoms of the elements and those of my body participating in this cosmic dance of energy; I felt its rhythm and I "heard" its sound, and at that moment I knew that this was the Dance of Shiva, the Lord of Dancers worshiped by the Hindus. (Capra 1976: 11)

Capra's (1976) experience is striking in its thematic and structural parallels to the first event in Craig's MNE. We note common themes of the ocean, rolling of the waves, rhythmic breathing and then, in an instant, there is a perceived disintegration of physical matter such that the inanimate becomes animate with a vibrant energy and 'aliveness' which is felt at a level that was only previously familiar at an intellectual level. In both cases, there is a sense of knowing: Capra (1976) 'knows' the experience to be the Dance of Shiva; Craig 'knows' it to be the trance states induced by Indigenous peoples. If they are indeed experiences of oneness, then they must also be, in essence, the same things, even though framed differently according to the cultural and perceptual concepts (or lens) which one has consciously or unconsciously acquired.

4.5 Discussion

At first, I feel calm because for that moment, none of the everyday things that occupy my mind matter. Once my brain has had a chance to assess the situation, I feel giggly, nervous, excited and total awe and wonder. I suppose it is a mixture between an adrenaline rush and a sense of humility and respect. There is also a degree of vulnerability to it because when I connect with nature like that, I realize how very insignificant our lives really are in the greater scheme of things. •

This reflection from an in-depth interviewee, in response to being asked to re-live and re-describe her MNEs, captures and connects some of the key common core themes identified in the phenomenological analysis.

A large and diverse number of themes, relationships and structures of experience emerged from the analysis and could provide the basis for extensive discussion. Over-analytical attempts to reduce the complexity of MNE to a limited set of common denominators could appear 'experientially blasphemous' and futile. As Morse (2011: 182) summarizes with respect to his own phenomenological research:

> While the results illuminated several common patterns that appeared to be the essence of the streams of experience for many participants, there is no escaping the fact that the experiences for each participant were varied, complex and often difficult to describe…experiences, cannot be reduced to a single 'thing'. No one experience over-rides all others; humans are diverse and complicated, so it should come as no surprise that many of the experiences described were unique. One 'type' of experience does not necessarily preclude another from occurring; indeed, one type of experience might contribute towards, or facilitate, another. Equally, placing an experience within a theoretical understanding does not preclude it from conforming to other understandings.

In some ways, results revealed in the analysis are better left 'as is' for readers' own interpretations such that they may be able to form their own 'resonance of meaning' without being unduly influenced by analytical discussion. In this phenomenological sense, readers are directed to the composite descriptions and their essences (Sections 4.3.4; 0) as well as the case study (Section 4.4) in order gain a better feel of the salient themes. Given that from a theoretical perspective, it would be impractical and unrealistic to delve into every detail revealed, the approach for this section is to reflect on some of the most common (Section 4.5.1), notable (Section 4.5.2) and unexpected (Appendix 9.14) themes and relationships as they appeared for me as researcher and in the context of existing literature.

4.5.1 Common themes and relationships

Common themes emerging during the analysis and discussed here in the context of existing literature and personal intepretation are: ***proximity***; ***reciprocity***; ***intensity***; ***novelty and non-ordinariness***; ***aliveness***; ***humility and vulnerability***; ***connectedness***; ***insigh***t; ***spiritual experience***; and ***renewal and restoration***. The discussion concludes with reflection on the interplay and dynamics of ***lived vs. recalled experience*** and how the salient themes should be considered in this context. [88]

[88] These identified themes are intentionally more focused on the personal rather than the situational context of the experience itself. However, note that the results of this analysis also lend support to studies which find that "the physical traits of animals most appealing to humans are large size, juvenile features, and similarity to human shape, type of locomotion, posture, and surface texture and color" (Stokes 2007 in Simaika & Samways 2010: 2). This opens the door to anthropomorphism and 'speciesism' which may or may not support MNE and CWN (Section 4.5.3.2).

4.5.1.1 Proximity

Statements concerning proximity were most frequently identified in respondents' accounts of MNE i.e. the (close) distance of the natural phenomena was mentioned implicitly or explicitly in almost all stories. In their respective studies on profound wildlife encounters, both Smith (2007) and DeMares and Krycka (1998) equally found that proximity was a critical component - or *situational variable* - of the experience. Smith's (2007) study, with an explicit objective to identify which personal (inner) or situational (outer) variables could be manipulated in order to enhance the chances of a profound wildlife encounter, found 'proximity' to be one of the most important situational variables. In her phenomenological study of dolphin encounters, Curtin (2006) cites a range of existing literature which identifies proximity to wildlife as being a key feature of the tourist experience. Curtin (2006) suggests that a craving for proximity is instinctive to human behaviour and relates this theme to the pursuit of connectedness (with nature). Close proximity therefore appears as being an invariant structure to MNE (although this is dependent on species type and can be trumped by other factors, e.g. number of species sighted (cf. Lemelin 2006)). It may be more fitting to consider proximity as the vector through which other more pertinent layers of meaning are carried, e.g. non-ordinariness, visitation, vulnerability, appreciation of (animal) detail, beauty and connectedness. With respect to the latter, it is posited that the fascination with proximity may be a reflection of the distance and disconnect we otherwise experience with the natural world. Proximity draws us closer to connection.

4.5.1.2 Reciprocity

An additional layer of meaning, supported by proximity, is that of reciprocity. DeMares and Krycka (1998) identified 'reciprocity' as including a sense of personal connectedness, synchronicity, animal performance, showmanship or playfulness. However, the authors observe that whilst 'reciprocity of process' involves a number of elements, "the single most universally present aspect was eye contact" which they claim is "crucial to sensing the inner world of another being" (DeMares & Krycka 1998: 167). This study concurs with DeMares and Krycka (1998) in finding that eye contact is influential in affecting meaningfulness derived from the experience. Similarly, results found repeated mention of animal behaviour experienced as an intentional responsive action (i.e. visitation) on behalf of the animal and delivering a sense of personal acknowledgement, communication or destiny (Section 4.5.2).

Reciprocity through eye contact, like the theme of proximity, reveals the centrality of the visual experience - 'the tourist gaze' - to MNEs involving wildlife: we gaze at what we encounter (Urry 2002; Lemelin 2006).[89] Lemelin (2006) identifies three forms of wildlife viewing: 'the gawk, 'the glance' and 'the gaze' representing a continuum of increasing temporal investment (i.e. from seconds in the gawk to hours for the gaze) and also corresponding with temporal, spatial and sensory dimensions (Figure 16). Whilst 'the gawk' is generally

[89] Based on research of polar bear viewing, Lemelin (2006) explores the tourist gaze as a form of 'ocular consumption' - something consumed in the belief that it will generate pleasurable experiences different to those encountered in everyday life and, particularly, how the role of 'tick-box photography' (as form of trophyism) can exacerbate this.

considered to be more synonymous with consumptive (ocular) entertainment, 'the gaze' transforms into a more felt / intuitive attunement, which is likely to deepen one's connection with 'the other' being observed.

Whilst respondents to this research were not specifically asked to recall the duration of their encounter, we would expect that the reciprocity and sense of communication alluded to through respondents' stories of MNEs is more likely to be found in the realms of 'glance' and 'gaze', i.e. a slowing down or stationary position extending from minutes to hours and invoking a range of other senses (e.g. auditory, olfactory) rather than ocular alone. This does not imply that reciprocity cannot be found in a brief encounter or that any brief visually powerful encounter represents only 'a gawk'. In fact, it may be misleading to try and define 'a gawk' or 'a gaze' by an objective time parameter (e.g. seconds, hours) because, phenomenologically, it is apparent that some persons experienced eye contact with a sense of timelessness, e.g. "for long moments". Whilst it is generally expected that more authentic reciprocity of process (i.e. capable of sensing the world of 'the other') will be realized through gazes unconstrained by time (to aid enhanced sensory awareness), there appears to be an additional ineffable dimension, possibly best characterized as a state of *intent* within consciousness, that defines the gaze used to view wildlife and the type of reciprocity attained (Figure 16).[90]

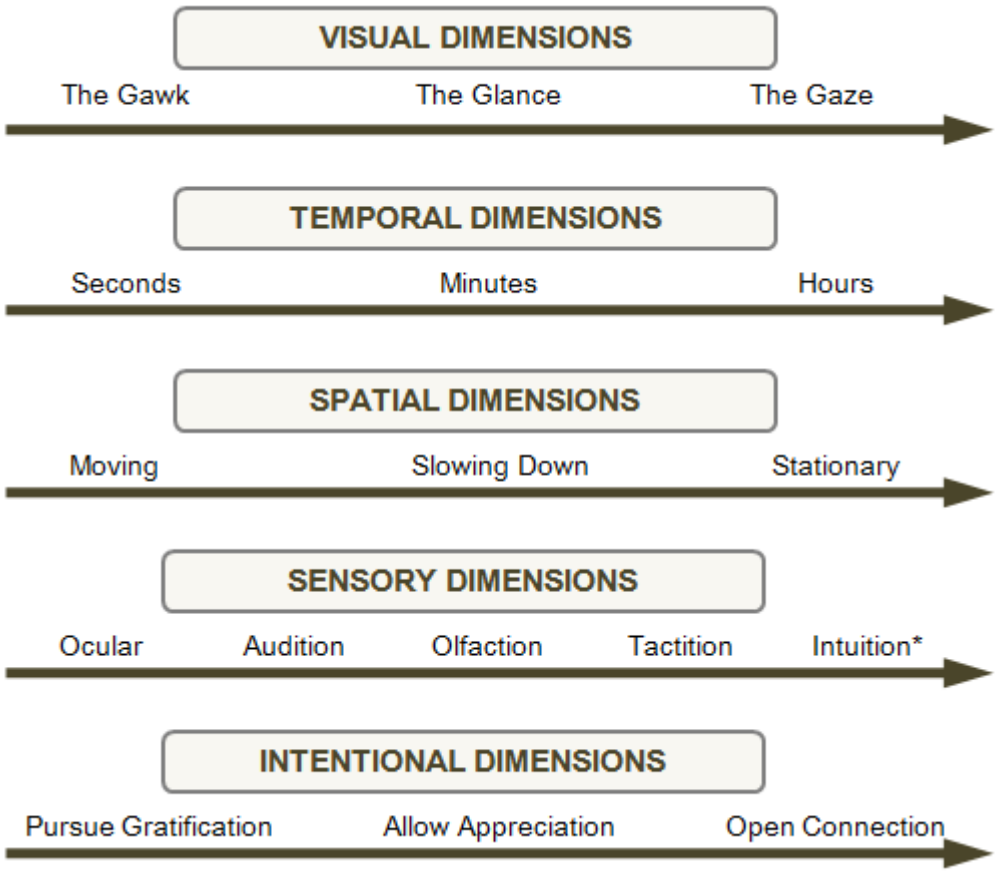

Figure 16: Various dimensions of 'the gaze' in wildlife viewing and MNE (adapted from Lemelin 2006: 529)
*Lemelin (2006) uses 'spiritual attunement' instead of 'intuition'; another option is 'emotional affinity' (i.e. sensing from the heart). 'Intuition' is preferred as it denotes a sensory dimension more generally accepted in common discourse (noting also that the other listed sensory dimensions are all linked to a defined sensing organ (e.g. eyes, nose, ears)).

[90] It is also quite possible that the gaze of connectedness involves the mind's eye as an imagination-inspired intent.

In this study, interspecies communication was found to be a subset of the prevalent theme of 'reciprocity', i.e. a form of meaningful interaction (see DeMares & Krycka 1998). Whilst reciprocity was predominately used in the preceding phenomenological analysis to refer to eye-contact, it can be expanded to include interspecies communication, which is likely to involve additional sensory inputs. Perceiving this kind of interaction tended to be more common when respondents allowed themselves to be drawn into relation with 'the other'. By integrating a range of sensory and extrasensory cues (e.g. from acute observation of the animal's behaviour to telepathic communication), respondents transcended the ocular consumption / pursuit of personal satisfaction and found a deeper sense of meaning by being included within - and connected with - the animal's world and a world of shared intentions and intelligences (Section 4.5.2).

Smith (2007) recognizes the human tendency to perceive animals as acting with 'conscious' intent or expressing feelings as anthropomorphic projection. Despite its controversy and appropriateness, anthropomorphism is a common and important dimension of people's experiences (Smith 2007; DeMares & Krycka 1998; Section 4.5.3.2). Furthermore, "anthropomorphic thoughts about the animal in question may be important in facilitating profound wildlife experiences which can, in some instances, be been linked to positive attitudinal influence and behaviour change" (Smith 2007: 141). Given the growing disconnect from nature, Tam (2013a) highlights recent research suggests that "attributing human qualities to a nonhuman object makes people feel more connected to it. It is thus expected that people feel more connected to nature when they anthropomorphize nature." In fact, a study by Tam et al. (submitted in Tam 2013a) finds that an anthropomorphic belief about nature was significantly correlated with CWN. Whilst my phenomenological analysis does not attempt to find quantitative correlations, the results tend to offer some support to the idea that anthropomorphize supports desirable trails such as CWN. However, Smith (2007) gives a crucial proviso "that the animal is attributed with positive or neutral human traits and characteristics such as curiosity… rather than negative thoughts or emotions such as stupidity or ignorance." Curtin (2006) offers complementary advice in suggesting that it would be wise to re-write the store of 'virtual capital' inspired by Disney-fuelled anthropomorphism such that emphasis is placed on the actual attributes of the animal (in Curtin's (2006) case, dolphins) as opposed to the human-like traits only (Section 4.5.3.2).

4.5.1.3 Intensity

Analysis revealed varying 'intensities' associated with MNE. When reviewing experiences, it is clear that some subjectively appear more striking or incredible than others. However, respondents were not asked – nor did they volunteer – any information related to the relative intensity (e.g. in comparison to others they may have had) of a particular experience. Therefore, there was little basis upon which to assess MNEs according to their perceptual, emotional or physiological intensity. Despite meaning being inherently personal and judgements on persons' scale of experiences to be inappropriate, it is nevertheless important

to note that MNEs do have varying effects and it would be valuable in gaining clearer insight into the inputs and conditions under which more powerful MNEs might occur.

As Taylor (2010) illustrated with awakening experiences, we may conceive such moments as having low, medium and high intensity with each state having potential attributes and indicators for guiding comparative understanding and deeper reflection on such experiences. It may be possible to tap into such dimensions in future research by developing scales or asking questions which invite respondents to report on the traits which they felt were most influential or how their MNE compares with others had. In any case, a critical dimension must be highlighted: the perceptual / sensory and/or physiological intensity of the experience is not always concomitant with meaningfulness. As demonstrated, meaning is made in a multitude of ways. It unconsciously emerges or is consciously formed - triggered by a complex unknowable fusion of sensory input, cognitive concepts, knowledge and life histories. People may have sensory intense experiences without them being overly meaningful. Similarly, an experience can be meaningful without necessarily being impressive to the senses. Whilst intensity is expected to enhance meaningfulness, it need not be a precondition. This is relevant to outdoor adventure, tourism or educational facilitators who doggedly strive for the 'wow' effect, believing that proximity or grandeur may be sufficient to impress. Impress the senses it might, but it could still be relatively meaningless if it does not strike an emotional or cognitive chord.

4.5.1.4 Novelty and non-ordinariness

The perceived novelty or non-ordinariness of an experience is likely to be one of the pivotal factors which change a person's story about their life and give them new memories. A novel experience is also likely to be perceived or felt as more intense as there is no earlier reference point against which to benchmark the experience. Whilst subsequent experiences might objectively be more intense, the initial virgin experience will always have its own incomparable value often retained in its sensory vividness or emotional depth, which remains with - or is enhanced by – the *remembering self* throughout their life. We may consider the novel intensity as being responsible for etching the experience into a person's storyline and acting as the substrate upon which future experiences can be attached and meaningfulness can multiply. However, novelty can be a double-edged sword. In studying peak experiences, Abraham Maslow, in noting that the loss of peak experience for him was in part due to the loss of newness and novelty, reflects:

> There is more an element of surprise, and of disbelief, and of [a]esthetic shock in the peak-experience, more the quality of having such an experience for the first time…maturing and aging means also some loss of first-time-ness, of novelty, of sheer unpreparedness and surprise (Maslow 1970b: 88).

It is evident that Maslow's *remembering self* (and, in all likelihood his *experiencing self* (Section 4.5.1.12)) were not being satisfied as they had earlier in his life, since they lacked the 'newness' which was sufficient to be scored as part of the defining memories comprising the *remembering self*. This might be applicable to peak experiences (which tend to form part of *general MNE*) but can the same be said for *synchronicity as a MNE*? Not only is 'non-ordinariness' a common textual theme of *synchronicity as a MNE* (Table 16), it is also

closely aligned with the operational criteria for synchronicity (Section 2.4.1), in terms of being unlikely or in transcending 'normal cause'. Do repeated experiences of synchronicity also diminish in power and novelty like peak experiences or are its inherent qualities such that repeated experiences amplify meaning by virtue of being a confirmation for far-reaching implications of life, the universe and how one participates with that?

Awe is tied to novelty and non-ordinariness and, as themes, awe and amazement repeatedly emerged from this analysis. Research has found that novelty and perpeptual vastness - as part of an experience of awe - brings us into the present moment and expands our sense of time availability (Rudd et al. 2012). It appears that novel and awe-inpiring moments force the experiencer to create new mental maps to cope with its apparent incomphrensibility and immediate sense of not knowing the world in the way they thought – and this facilitates the leanring of new information (Rudd et al. 2012). Rudd et al. (2012) advise that activities which elicit 'small doses of awe' contribute to more patience, healthier lifestyles and overall llife satisfaction.

4.5.1.5 Aliveness

MNE is found to be commonly linked to 'an awakening' as defined by heightened perceptual awareness, emotional and spiritual arousal and various physiological responses. It is difficult to find a single word which encompasses these relatively intense and non-ordinary reactions to the experience. Given categorisations in literature, 'aliveness' may be an obvious choice. However, respondents rarely specified a sense of 'feeling alive'; therefore it needs to be explored if the various felt intensities are actually constituents of 'aliveness'.

DeMares and Krycka (1998) have used the word 'aliveness' to encompass the elements of non-duality/ wholeness, as recognized by Maslow (1970b) as well as unparalleled experience, indescribable positive feelings - including awe, elation, deep joy, or unconditional love - all of which they identify as being essential to reconnecting with one's inner being, and a return to wholeness. Within a categorization of 'aliveness' DeMares and Krycka (1998) also include the feelings or physiological responses evoked as well as the feeling of being humbled and/or respectful. Whilst it is acknowledged that the intense emotions, heightened awareness and physiological responses (ignited by the surprise and non-ordinariness) could be considered as traits of 'aliveness', this (my) analysis considered it inappropriate to expand 'aliveness' to include all the above elements and identified a number of these themes as being distinct in themselves, e.g. awe and humility. Furthermore, in contrast to this study, DeMares and Krycka (1998) selectively sampled individuals who all had peak experiences with *positive* feelings (with cetaceans); however, my study assessed many more species of animals and also included stories which involved intense fear. Fear-based emotions may still evoke a feelings of 'aliveness', though usually as an instinctual and survivalist adrenalin-filled alertness.

In his phenomenological research of a wilderness river journey as a MNE, Morse (2011) identifies one of the core streams of experience as 'being alive to the present'. However, the use of 'alive' in this context is nuanced to convey the intimate sense of interaction that is evoked when nothing else exists or intrudes in the world for the individual at that moment. Effortless attention is devoted to the surrounding environment

cultivating a presence of being as one becomes totally captured by the experience itself (Morse 2011). A sense of presence and being in the moment also featured in my analysis and may indeed come as a result of the various forms of intensity and awakening. However, results suggest that 'aliveness' may not always lead to a sense of presence or quietness. This could be partly attributed to the fact that, in contrast with Morse (2011), this study includes MNEs which also involve fauna, which may be less conducive to effortless attention, prolonged interaction and the quietening of one's being than interaction with flora/landscape.

In his qualitative analysis on profound experiences with wildlife, Smith (2007) does not identify 'aliveness' as a category as being coupled with the MNEs under study. However, his respondents did report emotions such as fear, revelation, vulnerability, excitement, feeling in touch and privilege (Smiths 2007) - all of which could invoke a sense of 'aliveness'. Situational variables such as 'danger level' and 'species type' may be influential in forming this sense of being (Smith 2007).

In working toward a definition of wilderness spirituality, Ashley (2007) finds awe, heightened sense of awareness and elevated consciousness as salient features of public views and expert perceptions on the topic. However, Ashley (2007) finds that whilst public respondents were more inclined to report sensations of awe and wonder, the expert group did not identify these and instead referred to 'altered states of consciousness' - a term which was generally not used in the public responses. Ashley (2007) posits this to be a result of academics being more prone to 'intellectualization' of their experiences and perception of them. Regardless of the final terminology used, it is clear that this intense sensory wakefulness, survival awareness and fresh alert perceptual lens contribute to an 'in-the-moment' state of being which helps to give MNE its intense affective and sometimes consciousness-altering qualities. If readers find that 'aliveness' encapsulates this description, then it presents itself as suitable terminology and an essential theme of MNE.

4.5.1.6 Humility

This research found that MNE of all forms are capable of evoking a sense of humility. This is derived by feelings of diminishment, vulnerability and the apparent surrendering in the presence of 'something greater than oneself'. Secondary associations with humility might relate to feelings of awe and interconnectedness as part of a bigger system. Explicit reference to humility was not as common as expected within the analysis of *general MNE* although it might be posited that the prevalence of themes such as 'large size' (of animal) or 'vastness' (of landscape) may be implicit and thus influential in creating the diminishment necessary to induce humility. Humility received greater explicit recognition in accounts of *synchronicity as a MNE*. In this regard, 'humility' aligns with 'openness' and is sometimes regarded as a structural variable: i.e. an *a-priori* 'state of mind' necessary to (more reliably) evoke MNEs, particularly synchronicity.

Results from similar studies are helpful in further elucidating how humility may be more implicit in the respondents' MNEs than initially apparent. For example, Morse (2011) finds humility as a central stream of experience around which various other key themes were related (as identified through interviewees'

conversational structures). Specifically, Morse (2011) finds that feelings of awe and wonder (of some magic and mystery bigger than ourselves, though not necessarily Godly), beauty and aesthetics, large size of natural phenomena (scale), power, diminishment, attentiveness to nature / sensory focus (i.e. in the moment) and interconnectedness (i.e. being part of a system) all tap into dimensions of humility. All of these themes were also identified in my study; however Morse (2011) also uncovers the theme of 'exists on own' which relates to the humbling realization that the forces and species of nature go on without us, regardless of whether we are there or not – as witness or caretaker. Simply, it is a realization that nature does not need us to exist. It would seem that such a theme is more likely to emerge during extended wilderness journeys that have *in-situ* opportunities to reflect as opposed to being experienced as part of a more fleeting encounter. This is reinforced by the observation that the other three studies of relevance which explicitly involved profound encounters with wildlife (i.e. DeMares & Krycka 1998; Curtin 2006; Smith 2007) do not make explicitly make mention of humility.

However, Smith (2007) finds that a 'sense of privilege' is an important personal variable and recommends that tourism operators seek to find ways to invoke that emotion. My analysis themed 'humility' and 'privilege' as being distinct; however, it is possible that the two emotions are closely related and feelings of extreme privilege (which encompass 'thankfulness' and 'gratitude') may ultimately imbue a sense of humility.

Positive psychology increasingly recognizes humility as an important trait in fostering well-being and enabling individuals to live a meaningful life (Morse 2011; Harré 2011). This is closely linked with how one perceives oneself in relation - or in *connection* - to another: it entails a "forgetting of the self" in an outwardly directed orientation and seeing ourselves as being just one small part of something inestimably bigger (Tangney 2002 in Morse 2011). Morse (2011) concludes that underpinning the sense of humility is the interweaving of oneself with the world which finds clear parallels to themes of (inter)connectedness.

4.5.1.7 Connectedness

'Connectedness' is a vital theme emerging from the analysis. Clearly, various dimensions and manifestations of connectedness are encountered during MNEs. This concurs with DeMares and Krycka (1998:169) who identify 'connectedness' as characteristic to the cetacean-triggered peak experience and "possibly universal to all wild-animal-triggered peaks". It is a bold statement based on their limited sample size (6) and their analysis of peak experiences only involving cetaceans (as a fixed common situational variable), which are generally known to evoke greater feelings of attraction and awe (than other (terrestrial) species) due to their perceived intelligence (Curtin 2006). Nevertheless, the results of my study align with DeMares and Krycka (1998) despite taking a narrower definition of connectedness. DeMares and Krycka (1998) see 'connectedness' as more broadly embodying a sense of destiny, feeling more connected to self and life, inner affection and appreciation, mutual enhancement of emotional state, possessing and being inspired by family bonds. In articulating the essence of connectedness, the authors describe its paradox as being an artificial perceptual construction, yet sought after by an individual, most commonly through a desire for eye

contact with the cetacean (DeMares & Krycka 1998). In this sense, connectedness very much embodies - or is a derivative from – reciprocity of process. It is through reciprocity that the initial connection is made. Curtin (2006: 313) also found that the desire to make a connection "whether through touch or eye contact or by simply sharing their [the dolphins] space, was deemed to be a magnificent and incredibly important aspect of the encounter." Smith (2007) does not explicitly address connection; however "feeling in touch" was identified (and included under 'anthropomorphism' as a personal variable). Morse (2011: 180) also reveals the importance of connectedness and its paradoxical nature.[91]

> There is a paradox inherent within these heightened feelings of connection to nature, or of being part of this larger assemblage, for we experience this interaction with an other; we are in this 'other'. This apparently separate 'something-other' at the same time binds us into itself. In some ways we lose our 'selves', the importance of our-selves, and in doing so we potentially find our-selves as well, our place in the larger scheme of things, and there is a contentment in that. As Henderson suggests, "one does not sing the praises of the awe of nature. Rather, one comes to see and accept one's place in a grand design at the level of the comforted soul" (1996, p. 140) (in Morse 2011: 180).

Therefore, it is not necessarily a realization about whether we are 'separated' or 'connected' to nature, but rather the revelation that we might be both that places us fully in the world of being (Morse 2011). Naess (2008) notes that when one is totally absorbed in contemplation of a concrete, natural entity or in focused action (and aligning with the dimensions of 'the gaze' discussed earlier (Lemelin 2006)), the subject-object relation is not experienced: the object is always part of the total – a 'gestalt'.

Similarly, the analysis highlights the important way in which the 'inner' and the 'outer' entwine with one another and that, through one, we can find - or connect with – the other. This is particularly apparent during extended wilderness immersions when one realizes than connecting with the inner nature may be a way of (re)discovering the outer nature:

> Yeah, I want to go somewhere where there's trees and water {brief pause}. But it's not like I want to connect with something else, it's that I want to connect with myself, and once I do that, then I *am* {italics added} connected with something larger than myself. For me, to experience 'that which is spiritual' {momentary laugh}, it has to be nature, with water, with trees. Some people believe in a god, but I don't. I don't believe there is someone out there for us. God is not out there looking out for me, it's really about me coming here to myself and discovering my aliveness sic in Mother Nature. (Female Boundary Waters trip participant, age 46 as quoted in Frederickson & Anderson (1999: 34)) [*italics in original*]

In this study, revelations of connectedness appear more pronounced through experiences of synchronicity. This appears largely due to an immediate felt sense that the usual barriers which define boundaries in our

[91] Morse's (2011) study is notably different in that he studied an entire 10-day wilderness river journey as a meaningful experience and was therefore focusing on a particular pre-defined *type* of MNE with known environmental setting (a remote area with striking geology and scenery), activity (river rafting); and social setting – (facilitated/guided group activity). Critically, fauna was absent from – or at least not central to - these experiences. Therefore, for Morse's (2011) research participants, what gave them a sense of something larger than themselves were the elements of the Franklin River landscape: the geology; the power of river; the forests which line the river banks; the waterfall; and the act of travelling itself. These participants were cradled within their surrounds, with the river constantly orienting their experience and their connection to the environment. As a mountainous area, they were always enclosed within this space: an unfamiliar world which afforded them unique views and an opportunity to be immersed in a pristine 'naturalness' which revealed itself in a new way around every bend (Morse 2011).

existence break down in a way not normally experienced or accustomed to. The contact with a 'something other' - through the unlikely intersecting of events - appears far more blatant and undeniable in the pre-reflective sense. There is a felt realization of the possibility that there is an underlying intelligence or patterning linking physical and psychological realities, a unitive consciousness, perhaps. As outlined earlier (Section 2.4.6.2), the coincidence of the two realms – primarily the inner subjective and the outer objective - in synchronistic phenomena may be the best way in which notions of a unified existence can be *experienced* and, in turn, comprehended as an intersubjective 'truth' (Bolen 1979; Main 2007).

Synchonicity as a MNE may help alleviate a 'speciesism' which may otherwise be inherent to many MNEs. Given the human preference for physical traits of animals that resemble their own (Stokes 2007) and that my findings show 'reciprocity' to be more readily apparent with mammals, it is possible that a dichotomy will result from persons desiring to seek out (or drawing enhanced meaning from) animals that are 'like me' as opposed to those that are not, e.g. insects and arthropods (H. Lemelin pers. comm.). Since *synchronicity as a MNE* revealed a tendency to be more associated with animals unlike humans (i.e. birds and insects) (Appendix 9.14), it is possible that newfound connections and appreciations for such species may be realized, as the implications of a (perceived) unified existence solidify within one's conscious awareness.

4.5.1.8 Insight

Insight is a defining feature of MNE - particularly those involving synchronistic experiences in nature. Whilst Morse (2011: 57, in quoting Lowenthal & Prince 1975: 119) acknowledges that "all insight into the relations between man and the environment is grounded in experience", explicit reference to 'insight' is largely absent in the empirical studies used for comparison in this section (i.e. DeMares & Krycka 1998; Curtin 2006; Morse 2011). Is it because such flashes of insight are more attributable to *synchronicity as a MNE* (and which was not explicitly investigated in other studies)? Smith (2007), however, refers to the sense of revelation often associated with profound wildlife encounters and this may be deemed to be somewhat synonymous with that of insight. Morse (2011), whilst not identifying insight as a common theme, also found reference to 'revelation' in conservations with participants as implied within their reflective learning.
In religious terms (particularly in the Christian tradition), 'revelation' is often understood as being a disclosure from God. Since this interpretation is not necessarily how participants experienced their MNE (unless clearly stated), 'revelation' was deemed inappropriate as a 'meaning unit' for coding such moments. However, if the definition of revelation is revised to include "communications to human consciousness from a level transcendent to our normal psychic and physical functioning" (Main 2007: 57) then it may lend itself to broader usage. Based on this definition, it is apparent that some of the existing uses of the term 'revelation' in literature (e.g. Smith 2007) may be better termed as 'epiphany' or 'insight'. This aligns with Peat's (1995) assertion that synchronicity is closely aligned with 'epiphany'- the intuitive flash and striking realization and comprehension of a 'missing link' in one's understanding.

Main (2007) explores in detail how synchronicity may be a form of revelation. A fundamental distinction which needs to be made is between the meanings which can be derived from the essential *form* of synchronicity and those which can be derived from their specific *content*: in other words, revelation is dependent on the content of the synchronicity as well as its form (Main 2007). Whilst revelation may arrive in the external context in a multitude of ways (e.g. sign, omen, metaphor) its primary quality and content is symbolic.[92] In its essence, revelation as acquired through synchronicity is symbolic and this is felt as being communicated from a higher - or deeper - level of (human) consciousness (Main 2007).

A potential problem with 'revelation' and 'epiphany' as used in vernacular is that they may convey a type of peak experience which might exclude or alienate more subtle, yet equally profound, experiences, and as submitted to this research. In identifying key traits of mystical experience, James (1902) noted that they have a noetic quality, i.e. the experience renders 'a knowing' from which significant insights are distilled. It is this 'knowing' which appears more invariant to *synchronicity as a MNE*, since eliciting 'a knowing' does not necessarily require some of the more elaborate properties usually ascribed to revelation and epiphany. Yet the type of knowing revealed is distinctive in that "there is a perceived element of authority in terms of the knowledge imparted" (Morse 2011: 32). It is this deeper type of knowing and transcendent wisdom which the term 'insight' captures and which was revealed in the phenomenological analysis in this chapter.

Finally, it is evident that any MNE and synchronicity in particular, may be insightful (or a revelation) in itself, without necessary delivering a specific message or communication. The analysis shows that the experience of other salient themes such as harmony, reciprocity, connectedness and belonging are in insightful in their own right. Collectively, these 'insights' act as the primary vehicle for discovering a sense of meaningfulness.

4.5.1.9 Spiritual experience

Respondents made scant explicit mention of their MNEs as being 'spiritual' or having a spiritual quality. This is notable and may be an indication that this word carries too much 'baggage' or stigma to be rendered useful. However, when looking deeper at what 'spiritual' might consist of, we are left with little doubt that reported MNEs contained traits tantamount with spiritual experience. Specifically, in working toward a definition of wilderness spirituality, Ashley's (2007: 65) research found defining characteristics to be:

> A feeling of connection and interrelationship with other people and nature; a heightened sense of awareness and elevated consciousness beyond the everyday and corporeal world; cognitive and affective dimensions of

[92] Symbols are signs "pregnant with a plenitude of meaning" (Dulles 1983 in Main 2007: 58) and considered by Main (2007) as being central to what constitutes revelation. They carry four defining properties (Main 2007: 59):

i) *Participation:* a symbol is never a sheer object but speaks through situating ourselves mentally within a universe of ascribed meanings;
ii) *Transformation:* a symbol may be transformative in shifting an element of perception; unlocking an aspect of consciousness; or birthing a new awareness.
iii) *Commitments:* a symbol may powerfully influence intentions toward their own attitudes and behaviour;
iv) *New awareness:* a symbol introduced new forms of awareness – a breakthrough - not ordinarily available to rational and reasoned thought by connecting a person to deeper and more insightful levels of reality.

> human understandings embracing peace, tranquillity, harmony, happiness, awe, wonder, and humbleness; and the possible presence of religious meaning and explanation.

Based on these characteristics, we can affirm that the emergent themes outlined in this phenomenological analysis essentially encompass all that Ashley (2007) uncovers. Not only that, but his defining characteristics are, for the most part, also the most commonly identified traits in this research. However, as highlighted in the literature review (Section 2.3.3.9), a distinction could - and possibly needs to - be made between *spiritual experience*, *spiritual practice* and *spiritual ethos*, as part of one's 'spirituality' (Box 4).

It is important to note that Ashley (2007) focused on *wilderness* spirituality: are other types of spirituality different? If so, what distinguishes wilderness spirituality? Clearly, "nature in all its guises" is central to ascribed meanings and reinforces the sense of connection people have with each other and earth (Ashley 2007: 65). If 'nature in all its guises' is the central element, then we may consider Ashley's (2007) definition transferrable to our own purposes of elucidating essential qualities of MNE. Yet it appears that wilderness holds more: the symbolic, the ethereal, the intangible, the sacred, the non-material and the archetypal - all of which are increasingly obscured in modern urban society (Ashley 2007). Or simply, as Frederickson and Anderson (1999: 37) found, 'wildness' may be sufficient on its own to suffuse MNE:

> …wild and untamed aspects of the wilderness environment that spoke to most participants at a very deep level, and left them open to perceiving the place as more of a transcendent reality.

In some ways, this fining appears to speak more of about the unfortunate reality of modern urban reality than it does about the wildness which, at one point in human history, was an everyday transcendent reality.
In response to four- and twelve-month follow-up emails, Morse (2011) found that many of his participants described a renewed ability to perceive the 'sacred' when returning to the 'everyday world'. This supports the important notion that once the sacred, the ethereal or spiritual is experienced, whether through a MNE or wilderness journey (as a MNE), it may be sought out or replicated in different and more 'everyday' contexts (Morse 2011). As Maslow (1970b: 85) found, the great lesson is:

> …that the sacred is in the ordinary, that it is to be found in one's daily life, in one's neighbors, friends, and family, in one's back yard… this lesson can be easily lost. To be looking elsewhere for miracles is to me a sure sign of ignorance that everything is miraculous.

This lesson also challenges the salient themes of novelty, non-ordinariness and rarity (Section 4.5.1.4). It points to the idea that these vital traits of MNE are better utilized as a gateway - a means to an end – and not to be pursued as the end in itself. As Maslow might have it, the end is living life as a seamless MNE.
Frederickson and Anderson (1999) also acknowledge that, as a result of person's MNE (in wilderness), there is a real propensity for long-term benefits to be carried 'off-site' and back in the everyday world and may manifest as psychologically-balanced environmentally-sound ways of being. Such claims are supported by De Wet (2007) in her study of wilderness experience in fostering environmental behaviour. In this respect, it is important for persons to reflect on the triggers, attributes, dimensions of their MNE so they might be able to simulate or recreate those settings when needed in the future. However, whilst spirituality is a significant part of wilderness and, as a demonstrated MNE, it should not be expected that every person visiting wilderness has - or should have - an expectation of a spiritual experience (Ashley 2007).

> *The fundamental reinforcement of a belief in the spiritual nature of animals' lives (i.e. in the spiritual nature of the landscape itself) comes from a numinous encounter with a wild creature. For many indigenous people (again, in my experience) such events make one feel more secure in the 'real' world because their unfolding takes the events beyond the more readily apparent boundaries of existence. In a numinous encounter one's suspicion, profound, persistent, and ineluctable, that there is more to the world than appearances is confirmed. For someone reared in the tradition of the cultural West, it is also a confirmation that Rationalism and the Enlightenment are not points on a continuum of progress but simply two species of wisdom.* (Lopez 2003: 164)

4.5.1.10 Renewal and restoration

In various MNEs, respondents described their emotional release, healing or rejuvenation – sometimes explicit and sometimes implied. These dimensions, coupled with the ability to bring the sacred back to the everyday world as outlined above, feed into the idea of renewal and restoration. In their study on peak experience in wilderness, McDonald et al. (2009) find renewal and restoration to be a central tent of their experience and also note it as a common theme of Panzarella's (1980) phenomenological study on peak experience. Similarly, Morse (2011) also found that the sense of renewal was something that his participants wanted to hold onto or take with them back into everyday life, but which was difficult to describe or retain.

Themes of renewal and restoration were not as prevalent in my analysis, and this can be largely attributed to the fact that, wilderness (which was the sole focus of McDonald et al. (2009) and Morse (2011)) is a recognized as an optimal 'restorative environment' (Kaplan & Kaplan 1989; Kaplan 1995). Yet, results of this research suggest that MNE outside of wilderness settings can still be a source of renewal. This appears to be primarily achieved through: i) emotional release; and ii) perceptual cleansing in that compelling stimuli direct the focus of attention away from all other distracting or more potent stimuli which would normally be the driver of mental fatigue (James 1902; Kaplan & Kaplan 1989; McDonald et al. 2009); iii) physical rest and relaxation; iv) spiritual renewal; and as part of v) a complete revitalization of the whole-self (Morse 2011). In this sense, MNE is an avenue for feelings of focus, purpose and meaning (Morse 2011) which can be enhanced by active yet comparatively effortless *participation* with the landscape. Being immersed ('losing onself') in an activity - such that one's attention is effortlessly controlled seems to support rejuvenation.

4.5.1.11 Changes in consciousness

MNE is associated with various states of mind (Sections 2.3.6; 2.4.4). In particular, Bolen (1979), Peat (1995) and Combs and Holland (1996) found synchronicity to be associated with periods of transformation, transition, emotional turbulence and/or during states of slightly altered consciousness as achieved through meditation, prayer or ceremony. Results of this analysis found *synchronicity as a MNE* to be commonly associated with structural themes involving both active and passive changes in consciousness. *Passive consciousness change* is used to refer to emotional intensity which arises out of periods of turbulence, transition, uncertainty, grief or loss. In other words, the resulting state of consciousness was a by-product of another life event which was consuming attention and emotion. In contrast, *synchronicity as a MNE* was

also found to be associated with *active consciousness change*, whereby intentional efforts were made on the part of individuals to focus their attention and intent through, e.g. seeking guidance / formulating a question for one's Self or to 'the universe', sensory awakening activities, acts of creativity, participation in ritual or ceremony or introspective observation requiring sustained focus of attention such as achieved through forms of meditation. Active and passive consciousness changes are not mutually exclusive: a person may decide to engage in an activity in the hope of alleviating or addressing emotions being passively experienced.

Results seem to support Taylor's (2010) observation that such (awakening) experiences may be also linked to a disordering of the senses or an acute change in an individual's biological equilibrium or homeostasis. Religion and spirituality (including Indigenous / traditional practices) have been linked with activities such as fasting, sleep-deprivation, asceticism, hallucinogens (e.g. 'power plants'), dance and music (Taylor 2010). The perceptual and physiological changes induced through such activities seem to reliably precipitate meaningful experience. Fasting, in particular, is synonymous with the transformational (solo, wilderness-based) sojourns of religious prophets and mystics; Christians formerly fasted during Lent and Muslim's continue to practice fasting as part of Ramadan. Similarly, Pagan and Indigenous cultures the world over have practiced fasting in order to be more receptive to 'sacred communication' (Taylor 2010). Regardless of how such consciousness change is induced, these states make it *feel like* our mind is 'ranging' or connecting with an underlying intelligent non-physical 'reality' or greater wisdom (David Loyle in Combs & Holland (1996) and drawing on Bohm's (1980) theory of the 'implicate order'). However, these are not 'facts', but merely a string of 'seems like' and 'feels like' in the realm of lived experience. Since no 'facts' exist in a vacuum, there are similarly no pre-packaged phenomena ready-made for consumption. Facts and experiences all:

> …emerge in a complex process of perceptual, emotional, and cognitive negotiation between knower and known…consciousness is embodied in flesh, embedded in nature, and enmeshed in eco-social systems. (Esbjörn-Hargens & Zimmerman 2009: 35)

In terms of recasting the essences of this phenomenological study back in the context of literature, perhaps the description that finds greatest resonance with the potential effects of intense MNE on consciousness is the following account from White (1999), resulting from her research on exceptional human experiences:

> In spite of the sense of estrangement, the experience begins to work in the experiencer like yeast in flour. It is almost as though the experience has altered one's being or shifted it in some way so that one's attention is moved to a new angle, and the "I" that sees, thinks, and experiences is wider, deeper, fuller, and altogether more than the person was aware of before the experience. Thus, the experience itself to some extent distances one from the ego-self. As the experiencer begins to respond constructively to the cognitive dissonance that is created between the prevailing worldview, which says the experience could not occur, and his or her conviction that it did, by continuously affirming that the experience happened (as opposed to suppressing the experience or belittling and dismissing it), the seemingly anomalous event alters the daily life and consciousness of the experiencer. The experiencer becomes aware of being tuned in, at special moments, to what is experienced phenomenologically as a "different frequency." A sense of peace and of the rightness of the world counteracts the sense of discord between what is happening to the ego-self and the promptings of the exceptional experience.

4.5.1.12 Lived vs. remembered experience

This analysis endeavoured to access lived experience; yet, clearly, these are all recollections from memory. It is therefore helpful to reflect on this dilemma in terms of Kahneman's (2010) distinction between the *experiencing self* and the *remembering self*. The *experiencing self* lives in the present and knows the present - it is the immediate beneficiary of lived experience; the *remembering self* is the storyteller which uses memory to 'keep score' and tell stories which embellish, prolong or undermine our MNEs (Kahneman 2010). There is often a conflict between these two selves and, critically, since most moments of the *experiencing self* are lost forever, we inevitably seek out experiences which serve our *remembering self*: i.e. we make decisions and think of our future as anticipated memories not as anticipated experiences (Kahneman 2010).

This phenomenological analysis found inextricable synergies between intensity and meaning; however we must be aware that they can belong to our different 'selves' – intensity tends to be more aligned with our *experiencing self* and meaning more aligned with our *remembering self*. Meaning may in fact be initially absent from some MNE but yet arises, strengthens and becomes more influential over time (on, e.g. beliefs, attitudes, behaviour, outlook). On the other hand, 'intensity', despite being a catalyst or precursor for the experience, can quickly wane. Yet, for intensity to be're-lived' it must also feature prominently in the *remembering self*. The question is whether it is the intensity of the experience in, e.g. imprinting enduring sensory impressions, which has prime influence or whether it is the associated meaning and emotion which has the greatest impact. A clear-cut answer is unlikely - but 'time' is a critical variable (Kahneman 2010).[93]

The implication for MNE research is to be acutely aware of not only how influential memory can be but also that it is not static, but rather fluid and ever-changing. The research has made apparent that the *remembering self* can 'kick in' moments after the 'lived experience', making it almost impossible - from a research perspective – to access the *experiencing self* and to avoid the *remembering self*. However, if the *remembering self* is so central to how we create meaning, happiness and well-being in our lives then the inability to properly access the *experiencing self* may ultimately be inconsequential. Yet, it is necessary to try and pinpoint from which 'self' the meanings are most linked to and why.

The implication for MNE practice is to find ways of creating experiences which better serve people's *remembering self* and the stories they make about their life. Kellert & Derr's (1998) study provides such an

[93] During this research, some persons indicated that they feel that once one speaks of something personally sacred - giving it words - it loses its intrinsic completeness. The implication is that the act of transferring the experience into spoken language can only ever be partial since degrees of sensations, emotions and sacredness will always be left behind (with the *experiencing self*). As opposed to becoming more golden in memory, the experience can become diluted in the retelling and therefore in memory (which serves the *remembering self*). This predicament resonates with the insights offered by Japanese Zen Master D T Suzuki (1870-1966) (in Roland 1995: 89):

> Our language is the product of a world of numbers and individuals, of yesterdays and todays and tomorrows, and is most useful applicable to this world. But our experiences have it that our world extends beyond that; there is another called by Buddhists a 'transcendental world' and when language is forced to be used for things of this [transcendental] world, it becomes warped… Language itself is not to be blamed for it. It is we ourselves who, ignorant of its proper functions, try to apply it to that for which it was never intended. More than this, we make fools of ourselves by denying the reality of a transcendental world.

example in that many of their participants noted the spectacular and awe-inspiring beauty of the area they experienced. Interestingly, the appeal of these environments "remained poignant in their memories long after the programs had occurred, and was frequently cited as an antidote to the pressures and relative unattractiveness of the modern world" (Kellert & Derr 1998: 64). Such findings illustrate the power of MNE to serve the *remembering self* as well assisting psychological renewal and restoration into the future.

According to Kahneman (2010), whilst the *experiencing self* may benefit from more intense, extended or frequent experiences, the *remembering self* may not, unless a person finds factors, e.g. new memories or meanings, in these experiences which give them reason to develop better 'stories' about their experiences. Again, Kellert & Derr (1998) found that persons participating in wilderness programs six or more years ago were just as likely, if not more, than recent participants to view their experiences as highly worthwhile, influential or being the best in their life. 'Endings' of a set experience are very important in this respect, since the final closing of an experience can influence how it will be recalled in the future (Kahneman 2010).

4.5.2 Notable themes and relationships

4.5.2.1 Interspecies communication as reciprocity

Reciprocity appears to be an essence of MNE. Yet unexpectedly, a rather prominent form of reciprocity was the perceived sense of 'communication'. Therefore, a more detailed exploration of the contentious theme of ***interspecies communication*** i.e. intentional and reciprocated verbal or non-verbal interaction between humans and other natural beings (exhibiting a degree of intelligence or sentience) is warranted.

Throughout accounts of *general MNE* and *synchronicity as a MNE,* forms of communication were frequently experienced by respondents. Whether this is dismissed as anthropomorphism or an innate human desire to reach out and be recognized by the animal kingdom (or vice versa?) is largely periphery to this analysis. Yet whilst the focus is instead on the lived experience, it is difficult to discern to what extent communication is perceived pre-reflectively, in contrast to being either embellished or discounted upon subsequent reflection and analysis. The specific challenge is that it be may be argued that certain MNEs identified in the preceding analysis were less about synchronicity and more an actual form of interspecies communication, as a distinct, casual phenomenon in itself. This has conceptual implications with respect to categorizing experiences, applying criteria or drawing implications from their meaning and relevance. For example, Jaworski's (1996) encounter with the ermine (Box 20) is a cathartic moment; however, it may be argued that the experience is not true synchronicity (see criteria, Appendix 9.13) but instead *interspecies communication as a MNE.*

Mainstream science is yet to accept interspecies communication – at least at the level perceived by some respondents during their MNEs. In most cases, the reasoned assertion would be that we do not currently have sufficient scientifically-derived empirical data to reliably support the claim that communication (in the forms described) is actually taking place. In this respect, classifying interspecies communication as a form of synchronicity is a more acceptable approach as it infers that causal links lacking (or not understood) and

meaning is instead the connective construct. As noted (Appendix 9.13.2), this may be an 'interim acausality' until scientific understanding discovers otherwise.[94] This section therefore provides accounts of MNEs that illustrate more pronounced forms of reciprocity (beyond mutual eye contact and survivalist responses).

Analysis of these selected MNEs indicates that interspecies communication may be experienced as an ***observable*** (physical) or ***unobservable*** (non-physical) ***response***, or as a combination of both. For example, an individual may feel that thoughts, intuitions or emotions are verified through subsequent physical displays by the animal. Interactions are not limited to fauna: some respondents also experience a form of communication with flora. Notions of telepathy - intentionally pursued or not - underpin both forms of communication; however, with the non-physical, telepathy is more integral to the reciprocity.

Observable response

Observable (physical) response refers to the outward appearances, displays or audible sounds which are perceived to signify a level of recognition by the natural entity (e.g. plant or animal) in response to the presence, thoughts or intent of the experiencer. The encounter may be interpreted as being telepathic in nature; however the result is capable of being observed by an external and independent third party.[95]

> *We started our yoga practice near these plants and after a while my crew leader told me, "Hey, you know, take a look at these plants with all our energy around." And I noticed that the leaves on these plants would kind of quiver a little bit every time that I would breathe or I would consciously exert energy into this room we were in …And eventually as we started our meditation and our deep breathing, where we really felt this strong energy kind of within our guts, kind of exuding outwards, we could see these leaves completely spinning on the plants. And it was a complete life-changing experience, because I just changed my perspective on energy in this world and how all living things are connected.* •

> *Because he* [the swallow] *edged closer* [to me], *I was encouraged by the physical side of this. You know, it was actually a physically obvious move to make his intentions known. So I very tentatively held out my arm and my hand, which was now about 30cm away from him and he hopped onto my hand… onto my finger… there is actually a series of three photographs that friends of mine took from the wheelhouse of the boat.* •

> *Some years back, I was in Etosha Game Reserve on a hill above a waterhole, watching a herd of elephants coming down to drink. A group of human teenagers were sitting nearby. A young calf stumbled and fell into the waterhole, and panicked, splashing furiously. The teenagers found this amusing and laughed and jeered loudly. The calf's mother ignored them and gently helped her baby out of the water. This took some minutes. Having seen her calf to safety, she suddenly wheeled around and charged, trumpeting, towards the teenagers, who screamed and scattered. I was profoundly touched by the fact that the female elephant understood enough of human communication to read the teenager's heckling as a negative thing aimed at her calf, and that she took care of the calf before expressing her displeasure (and taking some small revenge?) towards the teenagers.* •

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[94] Various traditional ecological knowledge systems recognize forms of interspecies communication with wild animals (Suzuki & Knudtson 1992; Tucker 2001; Foster et al. 2005; Sveiby & Skuthorpe 2006; Bernard 2010). Dismissing such perceptions outright on the basis of disbelief and/or dogma (cf. Sheldrake 2012) appears imprudent and potentially disrespectful to the cultures concerned. Documented cases of dolphin-assisted fishing (http://eyes4earth.org/dolphin-assisted-fishing/) and growing anecdotal and scientific evidence on animal emotion and cognition (e.g. http://eyes4earth.org/mne21-beautiful-mourning/) increasingly bring conventional thought paradigms into question (Appendix 9.23.4; 9.23.6). For a deeper exploration of *interspecies communication* and its link to and implications for human CWN, view the 2012 film *The Animal Communicator* by Foster Brothers Film Productions and NHU Africa.

[95] During the 2012 Wildlands Studies Australia program, a student reported such an encounter when, whilst hiking, she hopefully exclaimed, "I wish one of those beautiful Ulysses butterflies would land on me". Within seconds of that vocalization, the butterfly did just that and this exchange was witnessed and verified by a fellow student.

Unobservable response

Unobservable (non-physical) response is used here to refer to perceived inaudible communication (e.g. 'a voice') originating from the natural entity and being transmitted to the individual participating in the experience. The exchange is not capable of being independently verified through external observation.

> *Once I was hiking in the Knysna forest, and stopped to rest under one of the grandfather trees. I dropped into a deep meditation (not deliberately) and heard a voice say, "If you wish to learn the ways of the greenwood, come to Me." I experienced this voice as that of the avatar/species-spirit of the yellowwood, and along with it came a deep feeling of peace and confidence in the future. Not referring to anything specifically, but that there was a security there. This is the only time I have heard anything in meditation. •*
>
> *I stood there and I had such a tussle internally, because I was sure that this tree was saying, "Come and sit in me, just come and climb in me, it is fine…come and be here - let me put my arms around you." •*
>
> *I just sort of, subconsciously, I guess, in fact, I think even verbalized it, I said, "Hey, what do you want?" Kind of chatty style, you know, as people do talk at animals all the time. And to my surprise I got a little reply back saying, "I want to say hi. I want to be friendly, I want to say hi." That really surprised me. •*
>
> …[I] *had this feeling of being watched. I stopped and stood on a rock and scanned around and saw a small group of mountain zebra looking our way. They were watching peacefully, and I was amazed at the possibility of being almost telepathically communicated with. •*

The above examples demonstrate that interspecies communication may be solicited or unsolicited; in both cases, a sense of telepathy is likely to be experienced. Telepathy may be understood as a form of extra-sensory perception (ESP) which involves the transmission of information without the use of known sensory channels or physical interaction, e.g. mind-to-mind (Watt 2006; Sheldrake 2012; Wikipedia 2013).

4.5.2.2 Interspecies communication as synchronicity

Telepathy may therefore be the trait which distinguishes interspecies communication from synchronicity. This is because perceptions of interspecies communication are, like synchronicity, characterized by a paralleling of events (in this case, a type of feedback loop between one's thoughts and/or actions and 'the other'), the response is considered notable, sufficiently unlikely and, above all, meaningful. However, whether interspecies communication fulfils the criterion of 'no normal cause' is contentious. To the external observer, acausality or, alternatively, a rational casual explanation may be postured. However, to the subject experiencing the encounter, there is a sense of causality: their thoughts, emotions, energy, intent etc. are met with what appears to be an unequivocal response in consciousness from the fauna or flora involved. If telepathy is one day accepted as a valid 'normal' phenomenon then it introduces a causal notion and, therefore, these MNEs cannot be classified as synchronicity. If telepathy remains tenuous and unsubstantiated, then scientifically categorizing such MNEs as synchronicity (where 'no normal cause' is a prerequisite) is a more acceptable stance. As in many of these cases, the actuality may be a 'both/and' rather than an 'either/or' scenario. Patrick reflected upon this situation with a personal example:

> *What I've found, you know, is a crossover between synchronicity when things were happening for a reason at the same time and intertwined with that was the telepathy component. And what I first witnessed for example… was that I noticed when the old man was most emotionally down - you must remember that his pride of lions… a completely wild*

born pride…still had a connection with this old man. ... But what I noticed …during the period that [he] *was away, there was no sign - my job was to keep in touch with the wild pride…And no sign of them, you know, when* [he] *was away. But when* [he] *came back, those lions would pitch up in the evening. And I think that one of the most dramatic evenings that we experienced there was - it was on two occasions - it was* [his] *last New Year* [before his unexpected death] *and I think the anniversary of his wife's* [death]. *I mean, it was a really strange situation…the radio was going, doing the chimes of Big Ben to see the New Year in. And as those chimes went then suddenly* [interviewee mimics lion call] *…there was the wild pride - we hadn't seen them for days - and they pitched up. So that's why I say it is a combination between synchronicity and the telepathy element.* •

The important question relevant to this research is: does the actual classification affect the experience? A preoccupation with eventual classification might at first seem superfluous to what may otherwise be an incredible experience under any 'label', and this may be the case. However, once something is explained though the lens of cause and effect (even if non-physical and unobservable), it may result in a diminished experience, or at least an experience which immediately loses its non-ordinariness because a valid explanation is known which now aligns with a conditioned view of how our world is supposed to work. Does that also diminish the depth of meaning or guidance normally characteristic to synchronicity? Interviewee Anna sees communication and synchronicity as two distinctive but entwined and synergistic phenomena, whereby one may choose to add layers of meaning to the perceived communication.

…I think they [the animals] *are just reacting to the openness and the kind of shared awareness, shared space, companionship possibility in that moment. I don't think that they are necessarily aware of whatever distress or question I might have in my life and that they overtly move forward at the intervention level to resolve that in a greater philosophical context. I think that them doing that though, just responding to my presentness and openness might well have that kind of benefit, for me - almost metaphorically… as I add symbolism into that experience. But I am clear that it is me in my psyche adding in symbolism, which is not only unique to me as an individual but could be totally influenced by my culture as well. If I get meaning out of it, it is because I have added the meaning and the symbolism. The actual purity of that encounter, the purity of shared witnessing and just simply being with another is probably all that is really going on… and that is not a small "all" - it is a big "all", a wonderful "all", that perhaps in that I am finding meaning in it is perhaps because I am pulled into a greater state of awareness. In general, it is going to make me more self-aware and able to figure out whatever question I have, or issue that am trying to resolve.* •

Box 23: Intent, respect and interspecies communication

Whilst isolated accounts cannot be held up to scientific scrutiny in terms of drawing more generalized and universal inferences, these remain important experiences for the individuals themselves in terms of understanding:
i) The perceived role of intent (including mind-body state) in enabling interspecies communication and reciprocity;
ii) How accumulated life experiences enable one to 'test' their own theories to form and reform our worldviews; and
iii) How the 'results' inform and guide dispositions (attitudes and behaviour) toward wildlife and the world at large.

The account on the following page from ecologist Scott draws on contrasting experiences to illustrate these dimensions:

Image 11: Disturbed elephant
(image not associated with the stories recalled on the following page)

Box 23 cont'd: Intent, respect and interspecies communication

And not once did I ever come back to my [field research] *point and ever find that elephants had actually trashed anything. They walked around it, they had sniffed stuff, and they had moved on. That to me seemed particularly important. It was a small thing, but it seemed important as it was almost an affirmation of the idea that if you treat things with respect you generally get respect back. And that's in many ways, I believe, although the nature of communication between us and animals is largely not understood, I do believe there is some degree of communication.*

I know from working with animals [that] *they are very effective in understanding your intention. And I assume it comes through your body language. So if you are completely relaxed and comfortable with the situation, you are probably moving in a smooth and slow manner and no sort of jarring noises or whatever… and when you talk to somebody you are talking in low tones. But if you are nervous, you tend to move rapidly and whisper and I have no doubts that animals can pick up on that. And that's why I don't doubt that that to a substantial degree they do understand what your intent is. You ask any hunter: as soon as they pick up a rifle – pfoof - the animal is gone. And so I don't have a problem with this idea that you can show animals respect. And it is understood for what it is. They might not perceive it as such* [but] *they understand the nature of the relationship.*

That was always something, for me which was really pleasing. I never really had a problem with the elephants. In fact - and again this is my interpretation of the situation - once I had a situation where that had literally happened. I was doing my fieldwork, elephants were coming, I had left everything where it was, and started moving off… I was walking through the bush and I came to a cutline [former fence line]. *And it was a much larger herd of elephants than I had realized. I'm guessing now, but to give you some sense of my impression, about 2 to 300 metres down the cut-line, there was an elephant bull and as I stepped into the cut-line, he sort of stood up and got a fright and started coming straight down to me. And I thought, "Oh shit. What am I going to do now?" And literally he was not more than 50 metres away from me when another big bull - that I hadn't seen - actually stood out into the cut-line between him and me. I have no idea of what that animal's intentions were but he defused the situation completely. The younger bull came up to him, had a little ruffle and that and then stepped aside and moved off. My immediate sense was he had intervened. Whether or not that is true, I don't know. But that was certainly my perception anyway. The other bull showed no reaction or any sort of antagonism to me at all…*

On the same vein - and another example where I didn't show respect and it actually came back to bite me - was when I was working in [game reserve]*…I was driving down the road and in the distance I just saw this butt sticking out of the bush…And as I typically do, I drove up to within sort of 30 metres. But it was late in the afternoon and I needed to get home so I sort of got a little bit kind of anxious... I turned around next to me to get my data sheets and my camera together so I could start recording it. And I was actually planning on going a little bit closer after that. So I grabbed everything and I looked up and suddenly I just saw this bull right in front of me. And the first thing I saw was blood on its tusks and I thought, "Oh f*ck. I don't want to be here." Then I saw he was in full musth and the situation just got worse really quickly.- he just put his head down, put its tusks through the radiator picked up the car and started pushing it backwards. And I thought "f*ck".*

The difference was I immediately recognized the fact that this was a dominant display - he wasn't actually attacking me... It was actually not that bad a situation. I don't know if I thought about it that clearly at the time... And so what I did was I started hitting on the side of the car, shouting at him - that was enough to jolt him out of whatever kind of state he was in. And he put the car down and then moved behind a bush and started trashing a tree. And then came out again and started coming at the car again. And again, I smacked on the side of the car and he backed off and went to the other side and trashed another tree. This went on for what felt like a very long period of time. And I sort of realized that it was actually a little bit more complicated than I thought. If it was just a dominance display then he should have just backed off - and that there was actually something more to it. So that just left me with one option: I needed to get out of there… So to me, clearly, … I feel I need to take some kind of responsibility for that - for the fact that I was kind of hasty and that. •

In light of current understanding, most people may more readily accept this last interaction as normal survivalist behaviour and thus less inclined to attribute the display to the interviewee's intent (i.e. hastiness or lack of respect). This is important because, as noted earlier, there is difficulty in judging – for the purposes of my phenomenological analysis - whether animal displays of aggression or other emotions should be categorized as objective 'outer' behaviour or as 'inner' subjective interpretation. Many would assert that 'animal aggression' can be objectively placed as a natural trait of animal behaviour and is also a form of communication, but different to what is implied by 'interspecies communication' and considered anthropomorphic (Section 4.5.3.2). Charges of anthropomorphism are likely to be levelled at this ecologist's initial story of the elephant 'intervening'. It seems the idea of animal's showing instinctive aggression is more palatable than the idea of them demonstrating calculated discernment and empathy.

It has been suggested that the thread linking telepathy and synchronicity is consciousness (Beddow 2004). Various scholars have, through their interpretations, posited the notion of an all-connecting consciousness: for example, in explaining quantum theory, Planck (1944) brought forward the idea of a *matrix of mind* infusing all matter; Huxley (1954) spoke of a universal and all-encapsulating mind; Watson (1979) referred to a contingent, intelligent and universal force binding life together (Beddow 2004); Laszlo (2004) has reintroduced the idea of an 'akashic field' as the fundamental (quantum) information and energy-carrying field that informs evolution and the universe; and Bohm (1980) spoke of an *implicate order* connecting all phenomena at all scales as part of a holographic 'whole'. Many Eastern traditions accept the existence of an all-pervading *life force*, known in Taoism as *chi* or *Qi* and in Vedic or Yoga philosophies as *prana* (Capra 1976). There is suggestion that a balanced mind (i.e. with both brain hemispheres registering the same frequency) found in states of deep meditation or prayer may be able to 'range' the *implicate order* of consciousness and bring about increased instances or awareness of extra-sensory perception phenomena (Combs & Holland 1996). From a conventional scientific viewpoint, however, such evidence remains highly contestable since inherent issues (e.g. methods) and implications are not easily resolvable (Alcock 2003).

This section identified interspecies communication as a relevant and prevalent sub-theme of 'reciprocity'. Drawing on a number of examples, it illustrated that perceived communication with flora or fauna can be a defining trait of what determines or amplifies the meaningfulness of a particular nature experience. This reciprocity may be categorized as observable, non-observable or as a combination of both. The notion of telepathy is central to interspecies communication and would potentially distinguish it from synchronicity (based on cause-effect criteria) should telepathy become an accepted explanation in scientific discourse. The outcome may affect the experience of interspecies communication although ultimately, we retain sole agency in drawing our own interpretations, explanations, meaning and symbolism forming such MNEs.

> *…and the rational mind (to which many of us acquiesce) posits there is little to be learned from animals, unless we discover a common language and can converse. This puts the emphasis, I think, in the wrong place. The idea shouldn't be for us to converse, to enter into some sort of Socratic dialogue with animals. It would be to listen to what is already being communicated. To insist on a conversation with the unknown is to demonstrate impatience, and it is to apply that any such encounter must include your being heard…When I walk in the woods or along the creeks, I'm looking for integration, not conversation. I want to be bound more deeply into the place, to be included, even if only as a witness, in events that animate the landscape…The eloquence of animals is in their behaviour, not their speech.* (Lopez 2003:162)

4.5.3 Round table dialogue

This final section of this discussion employs a creative dialogue featuring four characters: a (conservation) Ecologist; (environmental) Educator; (land management) Practitioner; and a Student. Each harbours character traits that might be expected to be associated with their respective disciplinary backgrounds. Using dialogue, the aim is to communicate the questioning that has been part of my own lived experience in treading w(e)arily between epistemologies. For this section, the approach is experimented with as a way of showcasing reflection on contentious points concerning: i) methods used and ii) anthropomorphism.

4.5.3.1 Method

Student: Are there particular issues raised in this chapter which you would like to discuss?

Practitioner: Any particular issues?! The length is one of them! This is almost beyond my worst nightmare – saved only by the fact it contains some novel material. I almost found myself scanning until I could reach your composite description and discussion.

Ecologist: Novelty doesn't trump everything, either. If this depth or extent of analysis is par for the course then I can see why phenomenology is having trouble taking off in the natural sciences.

Educator: It is less compatible with short and punchy journal articles, granted; however, this analysis should not be taken as standard practice. Generally, when you see phenomenology articles in literature, they isolate a small number of essential themes and structures, provide select significant statements from respondents and write a discussion around them.

Student: I planned writing this chapter has a series of two short articles - one pertaining to *general MNE* and one to *synchronicity as a MNE*. I soon found it would mean both separating and omitting so many more themes or significant statements that it might only look like a partial analysis. I appreciate the arguments for keeping analysis and synthesis to the point, but since plumbing the essence is integral to phenomenology, it felt more natural to explore key themes in depth - and make the findings transparent - before distilling the essence. Otherwise, the basis of my composite description would be thin and appear as my own flight of fancy. It seemed prudent to make the evidence visible: the wealth of respondents' accounts.

Educator: Have you done the phenomenological approach justice as you outlined and intended?

Student: Honestly, I am not convinced.

Ecologist: So I am not alone then. Would you mind expanding on your doubts?

Student: I was stepping into somewhat unchartered territory, particularly in applying phenomenology as part of a mixed methods framework. I elicited MNEs from a variety of sources and clearly some of the data is more conducive to conventional content analysis than phenomenological analysis.

Educator: Well, indeed, that is one of my key concerns. Should you have even included MNE submissions which were sometimes simple statements from your online questionnaire and did not allow for depth or proper phenomenological analysis as you outlined in your methodology?

Student: I wrestled with that for quite some time.

Ecologist: What is there to wrestle? You choose your analytical methods according to the data you generate. If that means employing or applying different methods in parallel or separately then so be it. And particularly since your sample groups and data are so disparate. Lumping them all together in one analysis doesn't achieve anything in terms of being able to draw out theories or inferences.

Student: Understood, but I am not trying to build a theory. My approach was to face the fundamental question of "*What is a MNE like?*" To this end, any source which builds this picture should be considered. Performing individual analysis across all different data sources seemed to only further move me away from this core question – as there would instead be a tendency to look for other trends or to theorize. That is

not what phenomenology is about and in contrast, it expressly encourages diverse sources to help with the continual building of these rich descriptions which take us closer to the essence of *what it is like*. [96]

Practitioner: One thing is certain: phenomenologists seem to find an element of hedonistic pleasure in rolling around in their own jargon. It's like pigs in mud.

Educator: Show me a discipline which doesn't enjoy a good wallow in their own terminology!

Practitioner: Sorry for the apparent frankness but I struggle with some of the hyperbole in certain sections - at least that's my 'lived experience'! It just seems that very little can be stated simply. I would like some plain conclusive statements as well. And what is this 'pre-reflective' thing you go on about?

Ecologist: I also struggle but more with the idea that anything can actually be 'pre-reflective'… ever.

Student: The aim is to get as close to 'lived experience' as possible in order to capture this 'things' before we rationally reflect and theorize. As noted, the idea of pure 'pre-reflection' is unobtainable. What really constitutes reflection and at what point does it start and end? Ideally, you would position yourself as Morse[97] and accompany participants on a particular (wilderness) experience. Still, to what extent have those participants already reflected before being asked to recall their experiences? In any case, situating myself entirely *in-situ* was neither possible nor made sense in my case: as form of primary data collection it was too unpredictable and risky to rely on the *chance* of a MNE (of the type I was seeking) actually occurring. However, my own parallel MNEs, involvement with teaching field courses and the opportunity to interview persons who had a very recent MNE enabled me to tap into the pre-reflective aspects. I probably did not do this as well as I would have liked or which does justice to the phenomenological ideal, but it is the likely best I could have managed with this exploratory work – in order to stay true to the aims.

Educator: Fair enough. You should bear in mind that just because a MNE was had many years prior, it does not automatically imply that it has been reflected upon. I suspect that for some of your respondents your questions invited recollections which not have been accessed since the event.

Ecologist: I have one last point to raise concerning your methods. In Figure 14, you present three distinct but interlinking circles for types of MNEs: those involving an animal, those without and those deemed as synchronistic. But then instead of going and conducting three different analyses on each, you bundle them all into a single detailed analysis and then conduct subsequent partial analysis on MNE not involving an animal and those involving synchronicity. I found this a little unexpected and, to be honest, confusing.

Student: Yes, at first seems counter-intuitive but, again, I had to continually orient myself around the question "*What is MNE like*?" and my rationale was therefore threefold: i) Three separate analyses might reveal what each *type* are like but would not answer this overarching question; ii) Three separate analysis might ultimately find that they are all essentially the same – so conducting a full analysis of *general MNE* helped show that there are some important distinctions and these unique essences could subsequently be highlighted; and lastly, iii) Three separate analysis would have resulted in much repetition in the analysis – more than was already necessary to arrive at the essences of MNE in general.

Ecologist: OK then. Well, it will still take me some time to process these validations.

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[96] van Manen (1990)
[97] Morse (2011)

4.5.3.2 Anthropomorphism

Practitioner: I have another grave concern that I would like to discuss in greater depth but only if my colleagues share my disquiet. Did you, like me, have troubles with the anthropocentric overtones?

Ecologist: Overtones? That's putting it lightly. I have a massive issue with the anthropomorphism which pervades this chapter and at times so blatant that it looks absurd. Yet, you are almost completely silent on the topic. It is not one of your identified themes and, save for a paragraph in your discussion, it is barely mentioned. Why did you not just code 'anthropomorphism' as a theme instead of giving it some other woolly tag like 'reciprocity' or 'interspecies communication'? It immediately looks like you are buying into that very murky area. I want to know how you reconcile this with good science and conservation practice.

Practitioner: Agreed. Anthropomorphism has attracted much attention in wildlife management. Like me, some argue that subjective evaluations of what an animal may be thinking or feeling are inappropriate.[98] It is highly contentious and, as a result, we struggle with 'species-ism' all the time in our wildlife management.

Student: OK. Well, firstly, the reason anthropomorphism was not identified as a theme is because it is not something which is part of somebody's pre-reflective lived experience. For example, one day, friends and I we were about to go for a surf and a southern right whale was moving along the coast 15-20 m offshore. It paused when directly in front of us, rolled and raised its left flipper clear out of the water. Now, as a group, some spontaneously *experienced* it in that moment as some kind of tacit recognition and/or communication - a welcoming 'wave' of sorts. That this could have 'only' been normal (courtship) behaviour was not something felt *in that moment* and such an abstraction may have undermined the richness, intensity and meaning of this particular shared experience.[99] For one thing, the auspiciousness of entering the water that day may have been diminished. In any case, subjective projections are unavoidable: nine times out ten it could be courtship behaviour; maybe on this occasion the whale was acknowledging us. Maybe I would have seen it that way too had I not been so preoccupied with avoiding anthropomorphizing.

Ecologist: But in your discussion you note that Smith[100] identified anthropomorphic interpretations as one of the key personal variables in profound encounters with wildlife. Why was it acceptable to him?

Student: He had taken a grounded theory approach. And whilst still a form of qualitative analysis, it has a different objective different to that of phenomenology. But I guess he had to make a judgement call too on what is anthropomorphizing.

Practitioner: Look, I appreciate that considering psychological and sociological processes underlying human-wildlife relations is necessary in order to better understand, for example, wildlife tourism.[101] But you must be aware of arguments that suggest that anthropomorphic interpretations of animal behaviour are ambiguous and unscientific.[102] And the danger is that if we revert to its prevalent use, it could lead to misinterpretations of animal behaviour, which might end up further endangering them as a species.

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[98] Smith (2007)
[99] Naess (2008)
[100] ibid.
[101] Bentrupperbäumer (2005)
[102] Wynne (2004); Smith (2007); Biederman in Bekoff (2009)

Educator: "…if we revert?" I assume you are referring to a select group of the scientific community, because whilst I don't necessarily embrace anthropomorphism, I can assure you that we - as in the general populace - have never really converted from anthropomorphism, as much as the natural sciences likes to think it has. And I don't believe we ever will, given this seemingly *biophilic* urge humans are purported to have.[103] I believe the challenge is how to use anthropomorphism intuitively, reflectively and wisely so as not to reduce animals to hormones, cells and neurons - thus losing important information in the process.[104]

Ecologist: W-whoa, wait a minute. I am not yet prepared to accept that argument. Firstly, is it really so much of a part of us - or is it what could be called the "Disneyfication" of animals and their kingdom?[105] I mean, the public does not know how to relate to animals anymore. We experience them through animated films, or exaggerated *Animal Planet* documentaries – one could hardly even call it 'virtual' reality. Oh, and I decided to take a look at Smith's [106] work and he cites an example where one of his participants noted that the whale was, "just having a ball". As he rightly notes, the whale was in shallow water and as a species that dives to depths of hundreds of metres, for all we know, the whale could be signalling distress not joy.

Practitioner: I agree. I can think of many cases where these kinds of interpretations impact the decisions made in conservation management. We look for us in them and see what we want to see: if we are happy, then they are happy; if we're distressed, they're distressed. They are a screen for projecting our ego upon.

Educator: That might be a bit of an over simplification. But, true, we tend to interpret interaction with animals by consciously or unconsciously relating the observed behaviours and attributes to our own self. That is part of the important symbolic value of nature for human psychological well-being.

Practitioner: It's a recipe for disaster. I might be more open if we were talking only about baboons as fellow primates. But it gets more difficult with birds or other lower order invertebrate species which…

Educator: …don't have our level of intelligence?

Practitioner: Well, that wasn't quite what I was going to say. I was thinking more in terms of complex emotions under which intelligence might be included. And I question the 'sentience' of some species.

Educator: Exactly. And where does that leave us with our ethical and moral orientation toward wildlife?

Practitioner: Ok, I see where you are going. You are saying that this perpetuates the human perception as being 'top dog', the dominant complex species – but it does seem a bit naïve to argue otherwise.

Educator: We don't necessarily need to argue otherwise. Alongside our domination, ability to complex reason, we also have the moral capacity to act as stewards for nature, to sensitively step into the world of animals and acknowledge that they might have likes/dislikes, preferences and feelings.[97] 'Objectively' keeping animals in our biological records as lifeless genera, numbers and statistics fuels anthropocentrism.

Ecologist: It always seems to come down to being just about us again: anthropocentrism rewound. Are animals as intelligent as us? Do they communicate and behave like us? Naturally, I do not consider ascribing a behavioural choice to an animal as being anthropomorphic, but when someone suggests that the animal

[103] Wilson (1984); Kellert & Wilson (1993)
[104] Bekoff (2009)
[105] Curtin (2006)
[106] Smith (2007)

chooses to interact, implying reason and motivation on behalf of the animal – this is anthropomorphism.[107] The same goes for claims about an animal 'having a ball' or 'galloping for joy'. I have a problem with that.

Practitioner: So I guess the question becomes what is more important: the experience of the individual or the well-being of the animal? And if that profound experience is misinterpreted, what are the ramifications for the individual or species?[108] Anyway, this was not meant to be our debate - what are your thoughts?

Student: I completed my undergraduate degree with an unquestioning belief that anthropomorphism was a festering blight on human perception. I remember reading an article some years ago which attempted to understand the factors which explain the economic valuation of species, and whether there was evidence about the relationship between human attitudes to animals and the willingness to pay for conservation. In analyzing over 250 studies on 'willingness to pay', the research team found that funding allocation mostly favoured the conservation of species with anthropomorphic and anthropocentric characteristics instead of considering scientific factors.[109] In other words, the less we as humans identify and thus value a species, the less attention it will receive in terms of funding and protection - regardless of its conservation status. The authors also found that people's attitudes toward animals are based on distinct motivation considerations: our affective responses to animals and our perceptions of animals' 'utility' value. So species that are close and physically similar to humans attract more conservation support and admiration, in general.

Practitioner: Jellyfish should better beware! Dive the Great Barrier Reef these days and the attraction for the mass tourist is seeing 'Nemo' – that little clown fish suddenly and unexpectedly got a makeover and hit stardom. It must be wondering where all the sudden attention and affection came from.

Ecologist: Exactly - that's my whole point!! Aagh… it makes me so frustrated. It filters through to funding, and that's when it gets personal, especially if you are an entomologist. It is this lack of anthropomorphic quality to insects which fuels the public's dislike, disgust and intense phobia toward them.[110]

Educator: It is clear that understanding human values and attitudes toward biodiversity is essential to the work of correcting the inherent bias associated with species valuation.[111]

Student: But having read further afield and completing this research, I have softened my views...

Practitioner: I already suspected as much. How do you defend that stance in light of our discussion?

Student: Well, as humans, anthropomorphizing is what we do! We can only see this world through the human lens - pretending to step outside of this box would be denying my default humanness. As we make meaning in this world, anthropomorphic interpretations of animal's lives are expected, particularly given the lack of alternatives.[112] But we forget that animals also view us. It is not unreasonable to believe that animals judge our behaviour through their own behavioural references, instincts and past experiences. This is another paradox in the whole debate: the suggestion that animals see us through their own unique lens. On

[107] Ibid.
[108] Ibid.
[109] Martín-López et al. (2008) and see also Kerley et al. (2003), Stokes (2007) and Lemelin (2013)
[110] Lemelin 2013
[111] Martín-López et al. (2008)
[112] Bekoff (2000) in Smith (2007)

one hand, we implicitly accept that notion when we refrain from being 'non-threatening' when around animals. On the other, we're prescribing a lens through which we presume animals judge our behaviour.

Practitioner: But that is just simple survivalist behaviour common to all life. I am more concerned with ascribing more complex emotions or culturally defined behaviour which is uniquely human. And with our higher order faculties, we as humans should also be able to discern between our errant perceptions.

Student: We have touched on this issue of 'intelligence' already, so I won't debate the matter further. But, from personal experiences and the many stories analysed, I'm not yet prepared to claim a final 'truth' on what animals are capable of perceiving, experiencing or what type of bonds they share. [113]

Educator: I think it is important for us all to remember that our beliefs, dogmas and cultural taboos – even in science – can cloud our best efforts to remain objective and be open to exploring 'truths'. We can never completely separate ourselves from our cognitive, emotional and experiential conditioning.

Practitioner: Hmmm. I think we're going in circles. On another note, do you also think that some species of animals are more prepared to approach humans through habituation and given that they are safer from, e.g. hunting than in the past? Addo National Park comes to mind – many animals are unfearful of humans.

Student: Possibly. A recent study found that fish which mature in marine protected areas are sheltered to the extent that when they leave that safe haven they are fearless of human spearfishers, making them an easy catch[114]. So it is plausible that over time, as our interactions with nature change in response to management regimes to protect biodiversity, what is currently non-ordinary and unusual, becomes ordinary and the norm. We might be having less MNEs or their defining qualities may change.

Ecologist: I think the ecological question remains why some animals seek out human contact. There are potential physiological benefits, such as a search for food, but can we even consider that there are psychological benefits, such as satisfaction of the animal's curiosity, attention or other motivations? [115]

Educator: I saw BBC's *Ocean Giants* showing grey whales off the coast of the U.S seemingly seeking out human touch and dolphins in Brazil helping fisherman net their catch. The film *Sharkman* also shows sharks inexplicably allowing humans to touch them or put them into 'tonic immobility'. So what is the motivation?

Student: It may be a while before we can profess to know the underlying motivations. Can we conceive that animals may have a similar desire to connect with 'the other' and have meaningful *people* experiences? On this imaginative note, this poetic passage from Hillman[116] offers a more mythological standpoint:

> Perhaps they [the animals] fear the loss of human kinship, that they have already been excluded from the next ark, in which virtual realities replace the smell of panther's breath, and sheen of thoroughbreds flank. Maybe they fear the gods have deserted them. So they have become a displaced tribe - merely an ecological "problem" for administrators solutions and charitable pity. Imagine - pity for an eagle! We cannot know what they come for until we first start to wonder.

This process of understanding animal motivation may be at an individual as well as species level – which is why I believe it could open up even more possibilities for meaningful nature experiences.

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[113] See also: http://eyes4earth.org/mne21-beautiful-mourning/
[114] Januchowski-Hartley et al. (2013)
[115] Smith (2007)
[116] Hillman & McLean (1997: 15)

Practitioner: I don't wish to wonder. I shudder at the day when that kind of human-animal interaction becomes acceptable. Everyone will be a 'bunny hugger' and forget that wild animals are now incapable of fending off human encroachment. It's a conservation nightmare – species doomed to extinction through either being loved to death or in the naïve belief that management shouldn't curtail their 'freedoms'!

Student: Interesting viewpoint. You cite the danger of these perceptions in endangering the species yet I think we need to look first at the current drivers of species loss and find out what the real drivers are. If attitudes are the driver is it affective anthropomorphism which is the problem, or is it the regimented divide between us and the rest of nature? Maybe anthropomorphism has the potential to make us more aware of our shared realities. I mean, if connectedness is about feeling a relatedness with nature, how can anthropomorphism *not* play a part in motivating that vital process of kinship and emotional bonding?

Educator: Are you saying that this transposing of human experience into human-centred analogies is actually a way of exploring possibilities for empathy, mutualism and coexistence? [117]

Student: It might be utopian but I tend to think so. We do however need to rewrite some of this accumulated virtual capital residing in media depictions: more emphasis needs to be placed on the animal's attributes and natural behaviour rather than only being a mouthpiece for human personalities. [118] Often there are conflicting objectives between promoting care, concern and action for the species and portraying the animal's true character. Anthropomorphic thought must reinforce positive or neutral (human) traits.[119]

Educator: But then you run into the problem of cherry-picking traits and trying to control people's spontaneous interpretations. I can think of examples here in South Africa where even negative emotions toward a certain species may still instil a measure of respect, although it may be more of a case of negativity in the sense of a 'bad omen' as opposed to negativity in the sense of being a 'stupid' creature.

Student: Good point. In any case, both Smith's results[120] and my own show anthropomorphic thoughts about the animal in question to be potentially instrumental in facilitating MNEs - and, under the right circumstances, real animals can be agents of altering behaviour the same way that animals in fairy tales profoundly affect human children who encounter them through these myths and stories. [121]

Ecologist: I see anthropomorphism as a legacy of the animal metaphor which was necessary to the existence of our hunter-gatherer forebears. But times have changed. I may not always agree but animals play a different role in our lives these days – utilized for raw materials, research experiments and medical advances. So as wild animals disappear from our daily lives, anthropomorphism is more difficult to justify.[122] Also, since animals cannot express their personalities in language which conveys what is going on in their minds, whatever we attribute to them is our own subjective projection. Is there any objective evidence that allows us to give them animals any form of consciousness comparable to that of humans?

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[117] Franklin (1999) in Curtin (2006)
[118] Curtin (2006)
[119] Smith (2007: 141)
[120] Smith (2007)
[121] Katcher (2002)
[122] Berger in Louv (2005: 297)

Student: We need to be careful about making categorical statements if we have not taken an interest in looking for research which might disprove our beliefs or opinions. There is increasing agreement on animal emotion and cognition.[123] Secondly, it is this non-comparability of our respective consciousnesses which perpetuates our separation from the other-than-human world. How can we treat animals as kin if we consider them as a 'resource'? Anthropomorphism may liberate animals from being labelled 'dumb' – a transient view which may be more due to Western society's inattentiveness and dumbness than anything. Anthropomorphism recognizes that humans and animals participate in a common world of understandings where we give up the idea of consciousness as an exclusively human property.[124] Another paradox is that we are happy to proclaim that our pet dogs have intelligence, emotion and other human-like qualities. Yet, we deny their wild kin the same. Why? Is it that we spend more of our lives, observing, interacting and *connecting* with them, coming to know their behaviour better? Or is that what pets are for? To acts as the perfect mirror for our own ego and narcissism? Another paradox: we are much more at ease asserting a complex range of emotions – including joy or mourning – to our pets than with wild animals. Why is that?

Practitioner: Hmmm. I saw a presentation at the ICCB 2011 from a researcher who explored the use of anthropomorphism in cultivating *concern* for the species and motivating conservation action. She cited studies showing that animals have language and culture and tried to balance the anthropomorphic push with the ecomorphic concern for all species. It was provocative. Incidentally, the study was funded by zoos.

Educator: This dialogue could continue. But I think we all agree we have expressed our core views here. Remember we share a passion for positive conservation outcomes and, given the current state of ecological affairs, we need to be open to all options. If anthropomorphism supports that end, it must be considered.

Student: From my own experience, when one has a series of authentic MNEs your underlying disposition transcends surface anthropomorphism. It moves beyond speciesism to a deeper respect, reverence and relatedness with all life – and the essences we share. You might still engage in anthropomorphism but it is coming from a different place. It is tough to explain but it relates to deep concern and fascination for all life: everything has intelligence, not just the big charismatic mammals. Neither pure anthropomorphism nor naturalistic objectivity will provide the solution. Both have their place and should be considered in the appropriate context. Anthropomorphism is a part of our humanness: it is in our mythologies, collective unconsciousness and the archetypal meaning we need in this world – it cannot be suppressed. But equally it should not be corrupted by fanciful Disney notions or narcissistic human projection. The educational lesson is about eco-literacy and interconnectedness. If we restore an intimate ecological awareness and become familiar with patterns of animal behaviour through regular observation, it would be easier for us to discern between distress, aggression or even joy. We would be able to more confidently assert what is ordinary and what is not. We would get closer to understanding the drivers and, dare I say it, the 'objective' needs which motivate animal behaviour. We can then choose if we wish to create meaning from that or not. Ultimately, we need to again learn how to closely read – to *sense* and *feel* - the 'book of nature' in order to improve an experiential lexicon which is far more empathetically in tune with all our animal kin.

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[123] De Waal et al. (2008); see also the Cambridge Agreement plus articles in New Scientist here and here

[124] Hillman & McLean (1997: 22) and see also Rolston (1994) for discussion on the values and richness of animal life.

Summary and key messages for Chapter 4

Methods:

- The core question orienting the study was "What is it like to have a *meaningful nature experience* (MNE)?"
- Phenomenological analysis was used to transform accounts of respondents' MNEs into a textual expression of its key themes, structures and, ultimately, its essence;
- Respondents' MNEs were elicited from the online and public questionnaires; in-depth, *ad hoc* and telephone interviews; and email submissions. Supporting material was sourced from diverse literature and electronic media. Field-based observation and my own experiences complemented the data production;
- MNEs were analysed through a rigorous process involving transcription, coding, theming and grouping, relational mapping, journaling and the writing and re-writing of textual and structural descriptions;

Preliminary results:

- The most frequently assigned codes were: amazement; beauty / aesthetic; connection; diminishment; (emotional) intensity; insight; proximity (to the phenomena); reciprocity (of process); unusual behaviour.
- Textual themes common to *MNE involving an animal*, *MNE not involving an animal*, *MNE as synchronicity* were: non-ordinariness; unexpectedness; excitement; amazement; awe/wonder; proximity; (emotional) intensity; reciprocity / communication; insight; knowing; connection; and something greater than myself.
- Common themes of *synchronicity as a MNE* (as defined by respondents) were: co-occurrence; openness; connection; meaningfulness; confirmation & personal guidance; unexpectedness; and flow.

Phenomenological outcomes:

- *General MNE (all types)* has the following invariant structure: expanded sensory awareness, emotional response and a perception of the non-ordinary. In consciousness, MNE informs one's views on the nature of the world. Externally, natural phenomena suddenly capture attention. Perception of authentic beauty is integral. If an animal is involved, close proximity, extended length of time and reciprocity are prerequisite. For MNE not involving an animal, perceived vibrancy and aliveness within the 'scape' is primary. 'Inner' and 'outer' dimensions meet: with a diminished sense of self, there is an innate feeling of connectedness. The privilege to commune with 'the other' shapes one's own sense of being and place in the world.
- *Synchronicity as a MNE* has the following invariant structure: Parallel events of comparable content strikingly intersect; coinciding in an unlikely and meaningful way, whereby at least one event involves natural phenomena. A 'normal', accepted and causal explanation is elusive. Connection(s), insight and a sense of 'knowing' characterize the experience. The event is recognized as a response related to one's focus of attention, state of consciousness and/or purpose or stage in life. The intensity of the personal context through thought and emotion feels as though it provokes the physical context into conversation.
- The *case study* found the following themes (in conversational order): physical activity; sensory awakening activity; oneness; animal sighting and visitation; unusual animal behaviour; amazement; communication; overwhelming; unique experience; co-occurrence; shared with family; connection; and sense of place.
- *Common themes and relationships identified for discussion*: proximity; reciprocity; intensity; novelty and non-ordinariness; aliveness; humility; connectedness; insight; spiritual experience; renewal and restoration; and changes in consciousness. An important distinction was made between lived and recalled experience.
- *Interspecies communication* was a notable and prevalent theme: it was experienced as either an observable (physical) or unobservable (non-physical) response. It is linked with synchronicity, reciprocity, telepathy.
- *Anthropomorphism* may be one initial way of helping persons empathize with wildlife in building CWN.

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One day when I was freediving with some dusky dolphins and they were playing and squeaking, I swear I could understand them. Then one swam right next to me, putting a tentative pectoral flipper on my shoulder as we swam down together, playmates, friends and equals. A powerful thought resounded in my head –

I WOULD DIE FOR THIS,

for these incredible creatures to be protected and have this life of freedom and joy, and for us to be able to experience them. Later that day when my dramatic revelation had subsided a bit, I realised the only action to take would be to live for this and dedicate all I have towards its conservation. And this is how the I Am Water Conservation Trust came to be.

...[It] aims to foster ocean conservation through human experience.

~ Hanli Prinsloo (2011: 32)

5 MNE and relationships with CWN, IAS and EfS

This chapter presents quantitative and qualitative results covering research questions three, four and five:

5.1. What is nature of the relationship between *meaningful nature experience* (MNE), *connectedness with nature* (CWN) and other key variables?

5.2. What is the nature of the relationship between *invasive alien species* (IAS) and MNE?

5.3. What are the implications of the above for *education for sustainability* (EfS)?

This section follows the conventional format of: introduction; methods; analysis; results and discussion.

5.1 Relationships between MNE and CWN

5.1.1 Introduction

The interdisciplinary challenge of reconnecting people with nature has been recognized as "the most pervasive underlying threat" to achieving success in conservation biology (Balmford & Cowling 2006: 694). Section 2.2 reviewed interdisciplinary literature to identify attributes, impacts, criteria and benefits of CWN. Based on the wide-ranging positive influences on intellectual, emotional, physiological and moral-spiritual well-being, CWN appears a desirable trait. CWN broadens identity formation such that it becomes the extent to which individuals' perceive themselves to be part of - or in relation to - the natural world (Schultz 2002; De Lange et al. 2010). The greater the identification, the higher the sense of belonging and realization that destruction of nature is destruction of oneself (Roszak 1995; Mayer & Frantz 2004; Frantz et al. 2005; Bratman et al. 2012).

Increasing evidence suggests the affective component of CWN may be a strong predictor for ERB (Kals et al. 1999; Mayer & Frantz 2004; Nisbet et al. 2009; Gosling & Williams 2010). CWN can be an emotional experience which motivates changes in cognition, worldview and a sense of environmental responsibility which may include the desire to become involved in conservation (de Pater et al. 2008; Justus et al. 2009; Havik 2011). Research also shows that affective attachment can be an independent predictor of intentions to engage with nature (Hinds & Sparks 2008). In exploring the human dimensions of wildlife interactions, Bentrupperbäumer (2005) highlights the human need for contact with nature and notes that an emotional attachment to wildlife might play an important role in motivating ERB.

To rouse an emotional response, direct experience appears as a necessary prerequisite. Emotional affinity should become stronger with more frequent and specific contact with nature (Kals et al. 1999) and this engagement is capable of moving an individual toward greater CWN (Maiteny 2002; Schultz et al. 2004). Ballantyne et al. (2011) found that, in the context of wildlife tourism, emotional experiences provoke deeper thought, concern and respect for both the individual animal and the species as a whole. This trend of pro-environmental attitudes as a result of increased nature interaction is compatible with the view that,

when persons directly experience an object, their evaluations of that object tend to be more affectively based compared with those who have only indirect experience (Hinds & Sparks 2008). Direct experience of an object may also facilitate stronger behavioural consistency, such that exposure to the object (i.e. nature) forms cognitive identification, emotional bonds and positive behaviours (De Lange et al. 2010). However, insufficient attention has been given to understanding the 'right times' and 'right types' of nature exposure for tapping into motivation which engenders a commitment to conservation (Zaradic et al. 2009). What types of nature exposure might galvanize affective bonding and equally elicit desirable cognitive and behavioural shifts? What types of experiences are capable of forming a consciousness aligned with CWN?

A fledgling body of research (Section 2.3.5) indicates that *meaningful nature experience* (MNE) may be one of the more effective avenues through which this consciousness and culture-shift can be achieved (Smith et al. 2011). MNE is defined as a non-ordinary experience with/in nature that is particularly profound, significant, affective and difficult to wholly describe (Swan 2010; Morse 2011). The definition of MNE is broad so as not to presuppose or bias descriptions of what people may find meaningful (Morse 2011). Individuals inevitably need to judge the meaningfulness of a given experience themselves (Smith 2007). The benefits of MNE can be found within the limited studies which have explored MNE in relation to: wilderness (Frederickson & Anderson 1999; Russell et al. 1999; Ashley 2007; Maller et al. 2008; McDonald et al. 2009; Morse 2011); forest environments (Williams & Harvey 2001); and wildlife interaction (DeMares & Krycka 1998; DeMares 2000; Smith 2007; Smith et al. 2011; Ballantyne et al. 2011). Potential benefits are detailed in Section 2.3.7.

From the evidence available, it appears that various types of MNE, in rousing emotion, may facilitate feelings of connectedness. DeMares (2000) and Smith et al. (2011) found that participants felt a sense of lasting connection with the individual animal and species encountered during their MNEs. Morse (2011) found that the MNE of a river rafting wilderness journey invokes an intimate sense of connection felt between oneself and 'the something other' arising in nature i.e. an interweaving with elements of the natural world. The connection may run deeper than only the biophysical aspects of nature: McDonald et al. (2009: 382) found that the "most powerful and enduring element" of participants' peak experience in wilderness was the transcendent connection with the "unseen world" and its forces as an ultimate form of belonging and merging with the natural environment. In addition, experiences of synchronicity have been described as facilitating a 'collapsing of boundaries' between oneself and nature to form a sense of 'interconnectedness" between the individual and the animal concerned, the place of the encounter or with nature in its incomprehensible entirety (Jaworski 1996; DeMares & Krycka 1998; Swan 2010). The results of Chapter 4's analysis show consistent – although sometimes only fleeting - links between MNE and notions of CWN.

The evidence for MNEs to facilitate more enduring CWN therefore lacks a strong empirical base. Given the depth of analysis required, many previous studies have been carried out using manageable but limited sample sizes. Drawing on a larger sample groups, this study investigates whether CWN is more commonly linked with people who have had MNEs and explores potential variables influencing such associations.

5.1.2 Methods

This study employs Mayer and Frantz's (2004) Connectedness to Nature Scale (CNS). The CNS measures an individual's cognitive beliefs about their felt connection to nature (Mayer & Frantz 2004; Perrin & Benassi 2009; Bratman et al. 2012). Affective identification with nature underpins the CNS. The CNS has been shown as a reliable predictor for ERB, degree of life satisfaction, overall happiness, perspective-taking and ability to resolve interpersonal problems and moral dilemmas (Mayer & Frantz 2004; Mayer et al. 2009).

Mixed methods research was used as a "class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study" (Johnson & Onwuegbuzie 2004: 17). This approach is best-suited to an interdisciplinary study: it combines epistemic norms and practices from multiple disciplines and emphasizes the influence of the inner world of human experience and its effect on behaviour (Johnson & Onwuegbuzie 2004; Given 2008). To produce quantitative data, questionnaires containing a mix of five-point Likert-scale and 'all that apply' questions were used (after Creswell 2007). For qualitative elements, short open-ended questions, which also invited respondents to provide additional information to quantitative questions, were used.

Data were gathered using an *online* (OQ) and face-to-face *public questionnaire* (PQ). Common to both the OQ and PQ were questions pertaining to the frequency of MNEs (*f*MNE) encountered, the extent of childhood and current contact with nature, and various demographic questions. All questionnaires included the five-point CNS (Mayer & Frantz 2004) as well as additional statements on the perception of synchronicity and expressions of gratitude toward nature (Appendix 9.8.1, 9.8.2, 9.8.4) Notice of the OQ was disseminated through my and supervisors' personal and professional mailing lists which had national (South African) and international reach. The OQ was also advertised in various public areas (Section 3.3.3).

Since OQ respondents were likely to form a biased sample on the basis of voluntarily partaking in a survey which required them to have had a MNE, the PQ was used as a control to further test the hypothesis that people who had (more frequent) MNE exhibit greater CWN (Section 3.3.4). The PQ was an abbreviated version of the OQ and focused on eliciting the *f*MNE, CNS scores and relevant demographic data (Appendix 9.8.4). Based on preliminary results from the OQ, the PQ also included a question about life (e.g. spiritual) practices in order to see whether such activities align with higher CWN or greater *f*MNE (with a view toward education). The PQ was administered in Cape Town; Plettenberg Bay; Jeffreys Bay; and greater Durban area. PQ sampling targeted White persons (i.e. of Anglo-European descent (Section 3.3.4).

Thirdly, a *revised online questionnaire* (r/OQ) explicitly targeting *synchronicity as a MNE* was administered to a purposively sampled group consisting of members from the Foundation for Natural Leadership (FNL) (Section 3.3.3.3). Responding FNL members were familiar with the notion of synchronicity, resided in The Netherlands and were largely educated and engaged in business/corporate enterprise. The aim here was to explore whether *synchronicity as a MNE* may return different or stronger results linked to aspects of CWN.

5.1.3 Analysis

Quantitative data were analysed through the use of *STATISTICA v10/11* statistical analysis software. Internal reliability tests were performed on collated data using Cronbach's α (alpha). To identify relationships between dependent variables, e.g. *f*MNE, contact with nature and engagement in specific life practices and CNS scores, Spearman's correlation analysis was conducted. ANOVA was used to test the difference between OQ and PQ respondents' mean CNS scores and *f*MNE as well as between r/OQ respondents and OQ and PQ respondents combined. ANOVA was also performed on the relationship between gender and: CNS scores; and the two types of MNEs (i.e. with and without an animal involvement) to reveal whether differences may be due to gender. Descriptive statistics were carried out on remaining variables of interest. For the qualitative analysis, standard content analysis was applied. Written responses were analysed using *atlas.ti v6* as a tool for assigning codes and identifying themes for the open-ended questions. Only selected and relevant subsets of the qualitative findings are presented here (more results in Sections 5.2, 0, 5.4).

5.1.4 Results

CNS scores were internally reliable (Cronbach's α = 0.87) as were data accumulated on the frequency of reported MNEs (Cronbach's α = 0.81). Data were therefore deemed sufficiently reliable to be used for subsequent correlation and ANOVA.

5.1.4.1 Basic demographics groups

Respondents to the PQ (n=118) were predominantly younger with 40.7% under the age of 25 and 63.6% under the age of 35 compared to 16.1% and 40.3% for the OQ (n = 62) respectively. A notable 25.8% of respondents to the OQ were situated in the 46-60 age bracket, compared to just 12.7% for the PQ.

5.1.4.2 Country of residence

The OQ elicited a more global response with 50.0% of respondents residing outside of South Africa. Almost all PQ respondents permanently resided in South Africa. For the aggregated data (i.e. OQ and PQ combined), 73.3% of respondents were from South Africa; 21.5% from the rest of the world and 5.1% unanswered. The ANOVA found a significant difference (p=<0.01; Mann-Whitney U p=0.02) between country of origin in terms of reported *f*MNE: respondents from the Rest of the World reported significantly more MNEs in their life than those respondents from South Africa.

5.1.4.3 Life occupation

PQ respondents engaged in a wide range of occupations and professions, predominantly conventional retail, business and commercial pursuits. Largest groupings were: retail, sales and marketing (17.5%); (academic) studies (17.5%); film / arts (9.2%); and tourism / hospitality (15.0%). Other recorded occupations included:

management, finance and business administration (8.3%) and tourism and hospitality (7.5%). Students rarely specified their field of study; however, business, law, architecture and psychology were mentioned.

Questions concerning life occupation were originally omitted for the OQ. Respondents were subsequently recontacted and requested to volunteer this information to which there was a 60.3% (*n* = 38) response rate and notable contrasts detected. Of the respondents, 23.7% were students of conservation-related disciplines; 13.2% were involved in mostly environmentally related teaching and education; and 10.5% were engaged in an environment and sustainability related profession. Essentially, 68.5% of respondents reporting their profession were linked to conservation endeavours. The other common and contrasting occupation field was management, finance and business administration (31.6%). In summary, the most distinguishing demographic characteristics between OQ and PQ respondents were: i) country of residence; and ii) occupation or studies in natural environmental-related fields.

5.1.4.4 Comparison of OQ and PQ MNE frequency and CNS scores

There was a significant difference between OQ and PQ respondents' mean CNS scores (F (1, 181) = 17.82, *p*=<0.01) as well as between their frequency of MNEs (*f*MNE) (F (1, 182) = 29.14, *p*=<0.01). For both variables, OQ respondents scored significantly higher (Table 18) (Note: since all OQ respondents were responding to an invitation to report their MNEs, we can assume they had at least one MNE worthy of reporting). Of PQ respondents (*n*=114), 33% reported that they had never had an MNE and only 27% reported that they had experienced them regularly (8%) or occasionally (19%).

Table 18: CNS scores and *f*MNE for the OQ and PQ respondents

Questionnaire source type	*CNS Score (Mean)*	*CNS Score (Std. Dev)*	*CNS Score (Std. Error)*	*n*
OQ respondents CNS Score*	55.90	10.09	1.27	63
OQ respondents *f*MNE **	7.70	1.72	0.21	69
PQ respondents CNS Score*	50.42	7.30	0.66	121
PQ respondents *f*MNE **	5.76	2.66	0.25	114
r/OQ respondents CNS Score*	55.25	7.08	1.77	16
r/OQ respondents *f*MNE **	7.56	1.31	0.33	16
Aggregated Sample CNS Score*	52.30	8.74	0.64	184
Aggregated Sample *f*MNE **	6.49	2.53	0.19	183

* CNS Score Max = 70

** *f*MNE Max = 10

Note: *The Aggregated Sample includes OQ, PQ, r/OQ respondents. However, in comparing CNS scores and their relationships r/OQ results were removed from overall OQ results; i.e. the r/OQ group was statistically compared with OQ (- r/OQ) + PQ.*

5.1.4.5 Relationship between MNE and CNS

Respondents who have had MNEs scored higher on the CNS. From the aggregated sample (OQ + PQ + r/OQ), a significant positive correlation between the reported *f*MNEs and CNS scores was identified (Table 19). A stronger correlation between the CNS and MNE was found for those MNEs involving a wild animal.

When disaggregating the sample groups, distinct discrepancies were found between the OQ, PQ and r/OQ. Respondents to the OQ did not register significant correlation between their *f*MNE and the CNS scores (Table 19). In contrast, respondents to the random PQ showed positive and moderate correlation on the same variables (Table 19). Further, ANOVA found that r/OQ respondents reported a significantly higher *f*MNE with an animal than compared to OQ and PQ respondents combined (F 1, 190) = 8.76, *p*=<0.01).

Table 19: Correlations between type of MNE frequency and CNS scores

Type of MNE	*Spearman's r_s*	*Spearman's p-value*	*n*
Not involving a wild animal (correlated with CNS score)	0.31	<0.01	173
Involving a wild animal (correlated with CNS score)	0.39	<0.01	181
All types (combined) (correlated with CNS score)	0.39	<0.01	172
OQ respondents only			
Not involving a wild animal (correlated with CNS score)	0.03	0.80	63
Involving a wild animal (correlated with CNS score)	0.02	0.90	63
All types (combined) (correlated with CNS score)	0.06	0.61	63
PQ respondents only			
Not involving a wild animal (correlated with CNS score)	0.37	<0.01	110
Involving a wild animal (correlated with CNS score)	0.45	<0.01	118
All types (combined)	0.45	<0.01	109

The male to female ratio of respondents in the aggregated OQ and PQ sample (*n* = 195) was 1:1.125 (8:9). Within this sample, females recorded a higher mean CNS score (*mean* = 52.71) than males (*mean* = 51.83); however, no significant relationship was found to exist between gender and CNS score (F (1, 179) = 0.45, *p*= 0.50 (*p*>0.05); Mann-Whitney U, *p*=0.45 (*p*>0.05).

Females also reported a higher frequency of MNEs in general as well as higher incidences of MNEs which did not specifically involve an animal, i.e. with flora and landscape, whilst males reported a higher frequency of MNEs involving an animal. However, again, the differences these in frequencies were not significant:

MNE in general (all types): F (1, 172) = 0.39, *p* = 0.53 (*p*>0.05); Mann-Whitney U *p* = 0.64 (*p*>0.05);

MNE not involving an animal: F(1, 173) = 2.59, *p* = 0.11 (*p*>0.05); Mann-Whitney U *p* = 0.16 (*p*>0.05);

MNE involving an animal: F(1, 181) = 0.68, *p* = 0.41 (*p*>0.05); Mann-Whitney U *p* =0 .40 (*p*>0.05);

5.1.4.6 Relationship between synchronicity and CNS

No significant difference in CNS mean scores was found between the OQ and PQ respondents (*p*=0.13). A moderate but positive correlation was found between the regular perception of synchronicity (as defined by Statement A) and CNS scores (Table 20). When disaggregating the data, the PQ respondents returned stronger moderate correlations between perceived frequency of synchronicity and the CNS.

Table 20: Correlations between perceived synchronicity as a MNE and CNS scores

Sample Group	*Spearman's r_s*	*Spearman's p-value*	*n*
Statement A: Aggregated sample (OQ and PQ respondents) (correlated with CNS score)	0.31	<0.01	183
Statement A: OQ respondents (correlated with CNS score)	0.38	<0.01	63
Statement A: PQ respondents (correlated with CNS score)	0.41	<0.01	120

Statement A: *"I often experience coincidental moments when something that I am thinking is suddenly linked to / reflected / mirrored in the natural environment around me."*

5.1.4.7 Relationship between contact with nature and CNS

Table 21: Correlations between contact with nature and CNS scores and MNE frequency

Type of contact with nature (with correlation variable)	*Spearman's r_s*	*Spearman's p-value*	*n*
Aggregated data			
Regular childhood contact with nature and the outdoors (aggregated) (correlated with CNS score)	0.13	0.08	180
OQ respondents only			
Regular childhood contact with nature and the outdoors (correlated with CNS score)	-0.27	0.03	60
Regular childhood contact with nature and the outdoors (correlated with *f*MNE)	-0.02	0.88	60
Regular current contact with nature and the outdoors (correlated with CNS score)	0.37	<0.01	56
Regular current contact with nature and the outdoors (correlated with *f*MNE)	0.44	<0.01	56
PQ respondents only			
Regular childhood contact with nature and the outdoors (correlated with CNS score)	0.38	<0.01	120
Regular childhood contact with nature and the outdoors (correlated with *f*MNE)	0.56	<0.01	113

For OQ respondents, no significant correlation was found between childhood contact with nature and both CNS scores and the reported *f*MNE (Table 21). OQ respondents returned a positive moderate correlation between having more regular contact with nature (hours per week) and both their CNS scores and their reported *f*MNEs (Table 21).

Conversely, PQ respondents found positive moderate to strong correlations between reported extent of childhood contact with nature and both CNS score and *f*MNE (Table 21). Note that for the abbreviated PQ, only the statement related to childhood contact with nature was included. Despite these discrepancies (Table 21), OQ and PQ respondents did however report a similar level of agreement to the statement: *"I had regular contact with nature and the outdoors when growing up as a child (between 0 -14 years)"* at 83% (OQ: 43% strongly agree; 40% agree; and PQ: 41% strongly agree; 42% agree, respectively).

5.1.4.8 Life Practices and CNS

There was a weak but positive correlation between respondents' reported engagement with specific awakening / spiritual / religious practices and CNS scores (Table 22). Marginally stronger correlation was found between these practices and reported *f*MNE. These results pertain only to the PQ respondents (this statement on life practices was included in the PQ after initial qualitative analysis in the OQ revealed that a number of MNEs were perceived to be associated with engagement of such practices (Section 4.3.1).

Table 22: Correlations between specific life practices and CNS score and MNE frequency

Sample Group	*Spearman's* r_s	*Spearman's p-value*	*n*
Statement B: PQ respondents (correlated with CNS score)	0.28	<0.01	120
Statement B: PQ respondents (correlated with MNE frequency)	0.34	<0.01	113

Statement B: *"I regularly and actively engage in some kind of personal awakening / spiritual / religious practice." (e.g. church / temple visits, prayer, ancestral rituals, yoga, meditation, breathing exercises, sensory awareness practices, extreme sports, martial arts, use of consciousness altering substances, ceremonial song/ music/dance)."*

PQ respondents were asked to list the specific life practices or activities they regularly engage in (as exemplified by Statement B). Standard content analysis was then applied to responses scoring higher than average on the CNS (CNS score ≥ 50 n = 79). Activities were tallied, noting that respondents may have – and usually did - list more than one activity. The seven most frequently cited activities were ranked as follows: sports (19 citations, of which surfing was cited 8 times and martial arts 3 times); meditation (13); church (10); dancing (6); prayer (6); yoga (5); and use of consciousness-altering substances ('drugs') (4).

The level of agreement to the statement *"I often 'give thanks' or feel gratitude for the things / benefits nature provides me"* returned a stronger moderate and positive correlation with the CNS scores (r_s = 0.44; p<0.01; n = 62). These results pertain only to the OQ respondents as this statement was not included in the PQ.

5.1.4.9 Qualitative analysis

The OQ respondents to shared their stories of MNEs and considered if and how their MNEs had changed them. Selected statements which emphasize the recurring themes of *connectedness* or *interconnectedness* are listed (Table 23). Statements are split according to whether they were included as part of their recall of their MNE or specifically in response to the prompt of how the MNE may have influenced their life (Table 23). (Additional statements reflecting respondents' changes in commitments to conservation, ERB, personal motivation and life outlook etc. are addressed in Section 5.2)

Table 23: Statements from OQ respondents referring to themes of 'connectedness'

Statement
Statements recorded during respondents' recall of their MNE:
It makes me believe that there is more to life than just chance and that there must be some spiritual connectiveness between us and all living things.•
It filled me with a sense of a greater understanding of nature and how it all fits together. •
It was a wonderful visceral experience connecting with a wild organism, and so also my own inner animal. •
I felt somehow connected, but at the same time distanced. •
I have always been attracted to dolphins and feel a spiritual connection to them, so this was truly mystical. •
I felt utter peace, and such gratitude for being able to feel a connection, a deep respect with this wild soul. •
My emotions moved from anger to peace, and a deeper connection that was private, yet shared with nature. •
This experience made me feel like we are still connected after physical death, and I felt her soul was pure, unlike having all those layers that cover up our true selves in our human form. •
A tremendous love and sense of connectedness followed between me and the surrounding environment. •
It felt as if the whole beach was pulsating and as if all the separate elements, the water, the sand and cliffs, were all part of one entity. •
It's a sense of reconnecting with my past and my relationship to 'home'. •
So, there is actually no boundary between outside and inside, or nature and myself. I breathe, and the oxygen penetrates to the very centre of my body and back out. •
Really signifies the interconnectedness of nature on our magnificent planet. •
Once above my head exactly at that point he [the bird] circled and then went directly to an adjacent island where another person of our trail group was seated, as if indicating a connection. •
Statements recorded in response to the prompt:
"Feel free to tell us more about the way you think your meaningful experiences may have changed you…"
My experiences made me realize how connected things are. •
I am part of the greater whole (the earth). •
I am only dust, like everything else, and will return to the soil (and thus plants and animals) one day. Just because I am not separate from everything and everyone else. •
Connections with wildlife are by far the most strongly I have felt toward any other living thing. •
I feel I have a stronger connection to nature due to my experiences. I see the connection between things and how taking care of habitats benefits all things that live in it (including humans). •
My experiences influenced how I view the world around, they have helped to me to make the connection of how the entire world is linked together. •
I desperately want to help other people make this personal connection with the world around them. •
How necessary it is, that when I get back in the car and go back to the city, what I do there must be done mindful of what it's doing to the wilderness I was just in. •
I think my encounter or my connection with nature has opened the possibility for me that we can 'connect' with and be in relation with nature - nature energies - nature spirits, whatever we want to call them. •
I started looking at nature aspects as if I were seeing them for the first time, and my relationship with nature changed from a human looking at 'biological' features to something inside that human appreciating and being in awe of the shapes and colours and aromas and feeling of nature. •
With more meaningful experiences I feel more connected to this universe and more in touch and at one with the nature around me. •
All the experiences that I have had in nature and with Animals have made me more aware of my environment and strengthened my beliefs of interconnectedness with animals, the planet Earth and Nature. •
The experiences make me even more strongly aware of the interconnectedness of everything. •
More trust in self, own course of action, positive outcome of things, connectedness, and in the natural course of things. •

5.1.5 Discussion

> …when the natural world reawakens in every fibre of our being and the primal knowledge of connection graces us with a few moments of sheer awe, it can shatter the hubris and isolation so necessary to narcissistic defence. Once this has happened, ongoing contact with nature can keep these insights alive and provide the motivation necessary for continued change. It is these experiences that will ultimately fill the empty self and heal the existential loneliness so endemic of the consumer culture (Roszak et al. 1995: in De Lange et al. 2010: 49-50).

5.1.5.1 MNE as a catalyst for CWN

This study investigated whether: i) people who have had MNEs exhibit greater CWN; and ii) specific demographic or experiential variables might be able to inform correlates or lack thereof. Whilst many variables may be involved, the strength of (and relationships within) the results provide justification for furthering efforts aimed at exploring the potential of MNEs as an effective intervention in fostering CWN and thus providing motivation for adopting ERB.

The quantitative analysis supports the claim that people who have had MNEs exhibit greater CWN, as measured by the CNS. However, this alone does not imply that MNEs have causal power in establishing this trend, but merely that an association, albeit an important one, exists. Further research is needed to extend and validate this premise. Whilst the effect sizes were rarely strong, they are notable given the range of other variables which could influence CNS scores. Furthermore, results of the qualitative research do provide additional evidence that MNE evokes feelings of CWN alongside emotions associated with ERB. A number of reported MNEs were 'first time' encounters subsequently reflected upon as being a pivotal moment in defining orientations toward nature (Section 5.2). These experiences may have a catalytic effect in being able to foster CWN. This resonates with tourism and environmental education literature exploring the impact of significant life experiences on a person's activism and engagement with environmental issues and environmental learning (Tanner 1980; Bögeholz 2006; Chawla 2006; Ballantyne et al. 2011).

The aggregated quantitative results show that people who have experienced a higher frequency of MNEs (*f*MNE) also scored higher on the CNS. For PQ respondents (33% of whom never had an MNE) this correlation had moderate strength (r=0.45, p<0.01) and suggests that people who more frequently experience MNEs perceive themselves to have greater CWN. However, for OQ respondents (almost all of whom were reporting at least one MNE), there was no significant correlation between reported frequency *f*MNE and CNS scores. Similarly, the lack of correlation found between OQ respondents' reported regular childhood contact with nature and the CNS contradicts findings in literature. The larger PQ sample did however return positive and relatively strong correlations on these variables. There may be multiple intertwining explanations which cannot all be addressed in detail here. However, two questions immediately arise: i) Can a MNE catalyse a process of CWN? ii) How influential are specific demographic variables (e.g. why did the OQ return no correlations between childhood contact and CWN)?

5.1.5.2 Quality or quantity?

Ample evidence suggests that childhood experiences with nature are critical in cultivating an individual's attitudes and actions toward the natural environment (Kals et al. 1998, 1999; Kahn & Kellert 2002; Chawla 1999, 2006; Ewert et al. 2005; Bögeholz 2006). Notably, Kals et al. (1998, 1999), in their survey of 281 adults, found that the present frequency of time spent in nature *as well as* the time spent in nature at age 7 to 12 ('past frequency'; cf. Tanner 1980; Chawla 1999, 2006) were the most powerful predictors of affinity towards nature (Bögeholz 2006). However, can a given MNE surpass an otherwise incremental lifelong process toward cultivating CWN? If so, this would provide hope in that in some cases MNEs could 'trump' other dimensions which are known to foster long-term CWN, e.g. childhood contact with nature. For example, a (former) commercially-oriented respondent from Europe strongly disagreed to having regular childhood contact with nature and only reported his first MNE between the ages of 45-55. Yet he subsequently scored well above average on the CNS and strongly agreed that his MNEs heavily influenced his outlook on life and current behaviour towards the environment (Section 5.2). He additionally stated that his MNE gave him the realizations that: *"…there is no reason to put all other life forms in a ranking below the human being…I am more aware than ever that I am 'a paddle in a bigger machine'* ".[125] This diminished sense of self and feeling part of nature is critical to CWN and fostering values aligned with ERB (Schultz 2002; Schultz et al. 2004; Frantz et al. 2005; Nisbet et al. 2009). Such results open the door to the dictum that 'it is never too late' and provide encouragement that MNEs (as an intervention) may be appropriate at any age and not only limited to childhood and adolescence. However, it is necessary to look beyond isolated cases in the quest to uncover more reliable variables which may cultivate MNE and CWN.

5.1.5.3 Demographic variables

Demographic variables may have been highly influential in reinforcing the values, beliefs and experiences which may otherwise be associated an individual's high CNS scores. In their study on relations between urban bird /plant communities and well-being and CWN in Australian residential neighbourhoods, Luck et al. (2011) found that variation in environmental variables (i.e. species richness and abundance of birds, neighbourhood vegetation cover and density, and urban development) had little association with CWN. Stronger associations with CWN were found with demographic variables (i.e. age, gender, neighbourhood activity, general activity level, length of residency and social- economic status, as a composite variable comprising income, home ownership, education), in terms of explaining the greatest proportion of variance. Luck et al. (2011: 824) conclude that:

> Demographic variables, particularly neighborhood and general activity levels, had much stronger associations with residents' level of connection to nature. This emphasizes that physical and social activities, particularly those occurring outdoors, may increase humans' sense of connection with the natural world…

[125] Translated from original in Dutch: "*een rader in een grote machine*"

Other studies have also shown that regular contact with natural areas matters to CWN and may be the greatest influence on a person's commitment to environmental protection (Kals et al. 1999; Bögeholz 2006; Chawla 2006). This finding is supported by results in my study showing regular contact with nature as being positively correlated with both CWN and MNEs (Table 21).

A more vexing question concerns the influence of formal education and whether higher education (i.e. at least a bachelor's degree) positively or negatively influences CWN. This is particularly relevant to this study given the predominance of formal education in ecology-related fields applicable to OQ respondents. If demographics are influential on CWN, to what extent does education 'prime' individuals for MNEs and CWN? Can they ameliorate effects arising from a perceived lack of childhood exposure to nature? Results from this study showed that, of the OQ respondents (n = 64), 63% reported their first truly MNE within the first 14 years of their life and almost 90% had their first MNE by the time they were 35 (noting that 53.8% of OQ respondents were aged under 35). This suggests that their MNEs may have come before or at the time of deciding on education and career paths and may have motivated their choice of education and occupation – with the ensuing process likely to reinforce these early held convictions. Qualitative results further support the notion that MNEs were considered pivotal in respondents' vocational choices (Section 5.2.5.2). However, given the multiple variables and the limited extent to which they were measured in this study, further research is needed to establish whether these results hold over alternative contexts.

5.1.5.4 More connected than disconnected?

Mean CNS scores for both the OQ (CNS mean = 55.90) and PQ (CNS mean = 50.42) respondents were well above the average which would be expected to fall in the region of CNS mean scores, i.e. 40 – 44. Are respondents more connected than we might assume or do they perceive themselves more connected than they really are? Without being in a position to monitor a range of complex indicators related to behaviour and attitudes, this cannot be verified. However, this finding highlights at least three possible interpretations: i) People routinely engage in self-deception to improve or preserve their self-image, i.e. social desirability bias (De Lange et al. 2010; McRaney 2011); ii) People do not know how to live in a way that is consistent with their stated values and beliefs (C. Frantz pers. comm.); iii) People's (perceptions of their) CWN is constrained or displaced by systemic barriers (e.g. economic, political, technological) which do not consistently support ERB (McKenzie-Mohr 2000a; Kollmuss & Agyeman 2002; Stern 2003).

All these scenarios may be involved. Although no evidence of self-presentational concerns was found when two different measures of social desirability were used to determine whether they would affect the CNS (C. Frantz, pers. comm.), these issues highlight the added value of using the CNS in conjunction with longitudinal research and instruments expressly aimed at measuring actual ERB. However, instrumental actions, e.g. recycling, using energy-efficient appliances etc. do not always reflect heightened CWN as these behaviours may be driven by multiple or even conflicting motivations (De Lange et al. 2010).

People who perceive themselves as having greater CWN may also be more partial to:

i) Have a greater tendency to consciously seek out or be subconsciously 'open' to MNEs;
ii) Perceive their nature experiences as being more meaningful than others who may have had similar experiences, but whom do not otherwise consider them to be non-ordinary; or
iii) Seek meaning from their experiences in order to reinforce existing beliefs patterns.

This latter tendency may be seen as a form of 'confirmation bias' – people's conscious or unconscious tendency to only pay attention to information that supports or confirms their worldview (McRaney 2011). Rather than undermining the potential value of MNEs, this subjectivity reinforces the fact that intentionality is fundamental to shaping consciousness. Section 2.2 found that disconnectedness from nature is a problem of consciousness and stressed the role of selective attention in addressing this. Therefore, individuals who 'seek out' MNEs may cultivate a consciousness aligned with CWN, irrespective of whether the phenomena may be objectively judged to be 'real'. Whether this behaviour is a result of confirmation bias or another psychological 'delusion' (cf. McRaney 2011) is largely irrelevant in terms of outcomes for CWN and ERB.

5.1.5.5 Self-awakening practices

Significant correlations between specific self-awakening / religious / spiritual practices and both *f*MNE and the CNS were found. Whilst the relationships were not strong, the results suggest that a significant symbiotic relationship exists. Our analysis included all practices submitted by the respondent, even though it is doubtful if all listed practices conformed to what might objectively be considered as spiritual, religious or 'awakening'. Omitting such questionable practices may have returned stronger correlations. Additional qualitative analysis shows common themes of ritual, ceremony and other forms of self-awakening practice (e.g. meditation) as being associated with MNEs (Section 4.3.2.2).

The most frequently cited practices covered three themes: spiritual activity (i.e. church, meditation); physical activity (e.g. surfing, martial arts); and creative activity (i.e. dancing, music). Understood in the context of cognitive, affective and experiential (or the colloquial *mind – body - spirit* or *head - heart – hands*), these practices address the affective *(spirit, heart)* and experiential (*body, hands*) dimensions which may be otherwise suppressed by a predominance of cognition (*mind, head*). Given the importance of affective and experiential dimensions in cultivating CWN (Section 5.1.1), conscious efforts to balance or overcome a intellectual or sedentary activity may be critical in cultivating a consciousness more predisposed to CWN.

It is beyond the scope of this section to discuss how each specific activity may enhance CWN. In general, however, it is important reflect on the potential of each in being able to focus an individual's attention or affect intrapersonal feedback processes in a way that results in significant disturbance to the mind-body homeostasis and thus shifts ordinary perception and consciousness (Fengler 2010b; Taylor 2010). The resulting awakening / heightened awareness may be characterized by greater self-observation and increased feelings of unity outside of a person's sense of 'self' (Fengler 2010b; Taylor 2010).

Expressions of gratitude toward nature were more strongly (i.e. moderately high) correlated with the CNS. This finding supports literature which links this important, but often neglected, emotion to physical and psychological well-being (Emmons & McCullough 2004; Bono & McCullough 2006). Similarly, CWN is also prominent among Indigenous cultures known for routinely expressing gratitude to earth, wildlife and/or non-physical forces and entities (e.g. Great Spirit, cosmos, ancestral beings) (Suzuki & Knudtson 1992; Emmons & McCullough 2004; Bernard 2010; Young et al. 2010; Arrien 2011).

5.1.5.6 The experience of interconnectedness

Perceived experiences of *synchronicity as a MNE* were moderately correlated with CNS scores. This finding is supported by the relatively high CNS scores returned by r/OQ respondents – a group that was reporting only their experiences of *synchronicity as a MNE*. Part of what makes such an event meaningful is being able to make thinkable that which is intuitively felt during a synchronistic experience: an underlying invisible *connection* between everything in the universe (Bolen 1979). Through such intuitive experiences, an individual may be afforded a powerful glimpse of the totality of interconnections invisible to the senses (Kellert 2002). It is this perceived collapse of boundaries between an individual and nature that may draw them into affective relation with 'the other' (e.g. wild animal) (Jaworski 1996; DeMares & Krycka 1998). It is therefore also interesting that this 'other' for r/OQ respondents was primarily a wild animal such that they reported a significantly higher *f*MNE with animals than OQ and PQ respondents combined (Appendix 9.14).

Synchronistic moments, particularly those involving another living being, may bring a realization of a sense of attunement, oneness or instigating a shift in cognitive functioning so as to recognize the self-created boundaries in all areas of one's life (Jaworski 1996; Taylor 2010). Perceiving boundaries as being permeable between distinct elements of systems is compatible with *complexity theory* / thinking and its relevance in understanding interconnected social-ecological systems (Roszak 1995; Cilliers 2000a; De Lange et al. 2010).

> Complex thinking enables us to our re-imagine our connectedness to the world, to 'see' the links between our thinking and doing, between our thoughts and actions and, most importantly, to re-gain a sense of responsibility for the consequences of our fragmented thought (van Breda 2007: 3)

Our reconnection to the world is dependent upon our ability to perceive the subject and object as a mutually interdependent relationship, such that we can see "our coming into consciousness as a process in which the subject becomes aware of its 'otherness' in the world in a self-affirming and inclusive way" (van Breda 2007:3). In addressing cognitive, affective and experiential dimensions, MNEs hold potential in making powerful and enduring contributions toward a consciousness embedded in CWN.

Initial evidence from this exploratory study supports earlier findings (Chapter 4) that MNE is entwined with CWN. Furthermore, certain mindsets, activities, life histories and practices appear pertinent or influential in shaping one's ability to (consciously) cultivate and/or enhance MNE and CWN. Additional research is needed in order to clarify: i) the validity and strength of these associations across different contexts; ii) the nature and dynamics of these associations, particularly in isolating key variables and causal relationships; and iii) whether such findings translate into changes in environmental attitudes, behaviour and life outlook.

Box 24: Reflections and recommendations on methods used for this study

General sampling design

Modifications to the sample design should improve future studies. A 5-point CNS scale was used but it is instead recommended that using a 7- or 10-point CNS scale would allow for a greater spectrum of responses. For the PQ, sample sizes should be increased and sampling from a greater representation of the population performed. With sufficient resources, it is recommended using widespread randomized (postal) questionnaires or improved publicity through a variety of channels. This has the added (transdisciplinary) Trojan effect of prompting awareness and self-reflection on a topic not usually considered and which might otherwise be 'shut out' by persons if it were delivered in the form of a specifically-designed awareness campaign. We found evidence of this 'research legacy' as a pique in curiosity and sense of "I've never really thought about this before" while administering the PQ. Numerous respondents commented that they found it to be an interesting, important topic and often one which they had not previously attended to. In some cases, persons expressed an interest in the outcomes.

Childhood and current contact with nature

As reported, there were some unexpected findings in relation to these variables. However, it should be noted that both childhood and current contact with nature were elicited through single item self-report measures. i.e. one statement for each variable which asked respondents to reflect on their childhood contact (in terms of level of agreement to having had regular contact with nature and the outdoors between the ages of 0-14) with and current contact with nature (expressed in terms of the numbers of hours set aside to make contact with nature per week) (Appendix 9.8.2). As such, these measures and the correlations returned are open to criticism of being unreliable. It is also a highly subjective measure (given a lack of objectives alternatives, relying on respondents' memory recall appears to be the only way of measuring childhood contact with nature) and may therefore be biased by respondents' selectiveness in memory recall (Curtin 2006; McRaney 2011) or a combination of personal 'shifting baselines' (Pauly 1995) or 'environmental generational amnesia' (Kahn 2002) in terms of how an individual's perception of "regular childhood contact with nature" changes over time. On a tangent, it would however not be unreasonable to suggest that persons (scientifically) educated or occupied with environmental matters may view their childhood contact with nature more critically or harshly (given their knowledge of alternatives or ideals) than other persons. This would be worth investigating.

It is regrettable that education level was not included in the PQ. However, judging by the occupations provided by PQ respondents as compared to the OQ respondents, there is relative certainty that OQ respondents had attained higher formal levels of education levels and that these mostly aligned with environmental endeavours.

Cultural transferability

The CNS was not administered on non-Western socialized persons. It is however recommended that the CNS and other related scales seek to test the reliability and transferability of the scale across other cultural groups. In particular, there is an urgent need to test the applicability of these outside of a North American and European cultural demographic (Section 2.2.7).

Flux of connectedness

In feedback on the OQ and, specifically, on completing the CNS, one respondent made the comment:

> *…just to say that nowadays I'm not feeling much connected with nature, as I spend very little time in it, however, the experiences I wrote about were at a time when I was living on a ranch in the mountain, with a stream nearby, and just being connected....Living in suburbia with a strange pace of life is taking it out of me.*

With reference to the CNS, this statement recognizes that the 'state of being' during or after an MNE is not necessarily enduring and may be in a state of flux according to context, such as the current life situation of an individual. This may affect responses to the CNS which ask respondents about how they "often feel" with respect to a particular criteria of CWN. Luck et al. (2011) acknowledge that level of CWN may reflect past rather than current circumstances. Given that many respondents were reporting on experiences which occurred many years prior, the finding of a significant correlation with CWN suggests that catalytic validity and long-term residual effects are a possible explanation. But this requires further supporting evidence.

Box 24 cont'd: Reflections and recommendations on methods used for this study

Social desirability bias

Instances of social desirability bias were suspected when applying the CNS during pilot studies (not included in this study) where the respondents were known to the researcher(s). There is evidence to suggest "that people tend to deceive themselves to believe that they are in various ways 'better' than what they really are, including in ethical issues, in order to improve or preserve their self image...even in cases [where they are] anonymous" (Brekke and Johansson-Stenman 2008: 18 in De Lange et al. 2011). However, no evidence of self-presentational concerns was found when two different measures of social desirability were used to determine whether they would affect the CNS (C. Frantz pers. comm.). This would suggest that CWN (as presented in the CNS) in the USA does not appear to be highly socially desirable (C. Frantz pers. comm.). The case may be different for this study's respondents. Should social desirability bias have been responsible for inflated CNS scores in our sample groups, we may draw encouragement from the possibility that individual's have a cognitive desire to want to portray a self-image that embodies values and worldviews aligned with CWN. Conservation education may benefit by tapping into that dimension.

Positively framed statements

Respondents to pilot studies and in-depth interviews commented that more CNS statements should be framed with negatively worded items. Perrin and Benassi (2009) also note the overly positive tone of the CNS as being a potential limitation. However, Mayer and Frantz (2004) found that negatively worded statements reduce the reliability of the CNS by consistently loading more weakly than other statements. This lends support to the assertion that disconnectedness from nature is not simply the opposite of connectedness (C. Frantz pers. comm.) and that the process of reconnecting with nature is not simply about 'reversing the fall' (Pyle 2003).

Improving the CNS

Perrin and Benassi's (2009) critique asserts that the CNS is a measure of people's cognitive beliefs about their CWN rather than an experiential emotional connection as originally conceived by Mayer and Frantz (2004) (Perrin & Benassi 2009; Luck et al. 2011). Perrin and Benassi's (2009) suggest, like Kals et al. (1999), that it is possible to have a cognitive interest in nature without an emotional connection and subsequently provide recommendations for revising the CNS. Nisbet et al. (2009) also observe that the CNS "misses the physical aspect of human-nature relationships, a key element of individual sense of connectedness." Based on these critiques, it is recommended that future studies consider adapting the CNS or using it in conjunction with alternative scales which more effectively measure emotional and experiential dimensions, since CWN should be understood as comprising cognitive, affective and behavioural attributes (as a state of consciousness). However, a recent study by Tam (2013a) which aimed to study similarities and differences among various CWN measures (e.g. CNS, NRS, EID, INS) found strong intercorrelation, similar high correlation with other variables and did not show much unique predictive power when their common factor was controlled for. However, given some areas of divergence (e.g. some measures having stronger correlations with criterion variables than others), multi-dimensional scales that address cognitive, emotional and experiential dimensions (e.g. NRS, EID) consistently performed better (Tam 2013a).

Given these critiques, Tam's (2013a) outcomes and personal experience in applying the CNS, the CNS is considered a reliable measure for assessing an individual's perceptions about their CWN, based on its reported high internal consistency, test-retest reliability and correlations with other instruments which purport to measure biospheric values (Mayer & Frantz 2004). Given the prospective importance of CWN to the conservation endeavour, it is suggested that future research continue to test such measures across (social and cultural) contexts and refine where necessary. In this regard, it is also recommend that future research employ multi-dimensional instruments, with the NRS (Nisbet et al. 2010) the personally preferred choice.

Summary and key messages for Section 5.1

Core rationale for the study:

- Connectedness with nature (CWN) is considered a prime motivation and necessary prerequisite for ERB;
- CWN has been found to be a reliable predictor for ERB;
- Affective and experiential dimensions of CWN may be the most powerful motivations for ERB;
- The 'right types' of nature exposure needed for to form such motivation has not been well explored;
- MNE is, by definition, associated with important, profound and affective direct experience;
- MNE might be able to facilitate feelings and perceptions of CWN; however whether MNE is a necessary ingredient or avenue for more enduring CWN lacks a strong empirical base.

Summary of methods:

- Questionnaires: online (OQ) and public face-to-face (PQ) surveys which included:
    - Likert-scale questions (incl. frequency of MNE (*f*MNE));
    - Short open-ended questions;
    - Connectedness to Nature Scale (CNS) (Mayer & Frantz 2004) as a proxy for CWN.

Key results from the study

- Respondents who had MNEs scored higher on the CNS (from the aggregated OQ + PQ sample group);
- Positive significant correlation exists between *f*MNE and CNS scores/CWN;
- Stronger correlations between the CNS and MNE were found when a wild animal was involved;
- OQ respondents did not return the significant correlations found with the PQ sample group;
- Childhood contact with nature positively correlates with CWN and *f*MNE (For PQ strongly; not OQ);
- Current contact with nature positively correlates with *f*MNE and CWN (For OQ; PQ not asked);
- Awakening/spiritual/religious practice positively correlates with *f*MNE and CWN;
- Regular displays of gratitude toward nature more strongly positively correlates with CWN;
- Strongest positive correlation exists between perception of synchronicity and CWN (especially for PQ);
- Qualitative analysis of respondents' recall of MNE as well as reasons on how they think their MNEs changed them returned multiple statements referring to (inter)connectedness.
- MNE appears to act as a catalyst for CWN – one powerful MNE may be sufficient to kick-start the process; however, the greater the *f*MNE the more likely for heightened CWN;
- Demographic variables (e.g. education level, occupation, activity levels) appear highly influential on outcomes although the exact way in which this influences outcomes in this study remains unclear;
- This study affirms the idea that MNEs facilitate seeing the 'subject' and 'object' as a mutually interdependent relationship – a relational perception necessary for a consciousness attuned to CWN.

What was the Moment

What was the moment
when I turned from building
trophies and shallow edifices
to selfless actions that made the turn?

What was the moment
when I changed from talk
to doing the small things
that lead me closer to myself and the land before me?

What was the moment
when the mountains became
more than playgrounds but
wisdom whispering a wild truth
at first I refused to hear?

When did I first throw my life into the forest
and the mountains, deep into the sea and the rivers
to almost drown in a fight for their salvation for my own salvation?

Was it because years before I stood in the shade of an acacia tree
and saw a swallow fly through the air, and then turn and touch me with her blue wings?

Was it then?

Or was it the moment
I went into a wild night to escape
only to find after nights alone beneath a sea of stars
there is no escape
but the courage to return and so turn the tide?

What was the moment when I knew
what needed to be done, or was the knowing always there
just waiting for me to hear it?

I find others too who walk unknown
in a land pathless to the horizon
and know the moment never was a moment
but the only choice, once I had turned to listen.

~ Galeo Saintz, Patagonia, 8th March 2010

5.2 Influence of MNE on attitudes and behaviour

5.2.1 Introduction

With widespread losses of biodiversity, marginal conservation support bases and increasing indifference toward environmental issues (Zaradic et al. 2009), the most urgent task for conservationists is to find ways in which people can be motivated to engage in *environmentally responsible behaviour* (ERB) (Wilhelm-Rechmann & Cowling 2008; Schultz 2011). Research shows that the experience of nature and the extent to which an individual perceives them as being connected with nature are the most influential factors in firming commitments to ERB (Kals et al. 1998; Schultz 2002; Mayer & Frantz 2004; Bögeholz 2006; Chawla 2006; Dutcher et al. 2007; Hinds & Sparks 2008; Nisbet et al. 2009; De Lange et al. 2010; Schultz 2011). This appears to represent an essential part of an individual's (re)discovery of 'ecological self' and, in deepening conscious awareness of their connection with earth, it presents a platform for ERB (De Lange et al. 2010). Cognitive, affective and behavioural processes are inseparable in the quest to change consciousness.

Many of these findings are based on research using psychology constructs which have been designed and applied to quantitatively measure individuals' stated beliefs, perceptions, attitudes and behaviours as they relate to *connectedness with nature* (CWN) (e.g. INS (Schultz 2000; 2001), CNS [126] (Mayer & Frantz 2004) and the NRS (Nisbet et al. 2009)). These measures and constructs return consistent, reliable correlations with ERB and other variables (Schulz 2011; Tam 2013a). However, a weakness with some of this research is that sometimes only single item self-report measures are used and can may be criticized as being unreliable (Mayer et al. 2009; Tam 2013a). Whilst consistency in results over repeated studies minimizes unreliability, it is recommended that future research in this domain should employ multi-item scales or behavioural measures which allow opportunity for the respondent to reflect (Mayer et al. 2009; Tam 2013a).

In Section 5.1, a statistical link was established between individuals who have had a MNE and their levels of CWN. Based on the findings of Mayer and Frantz (2004) and Mayer et al. (2009), we might also infer that respondents in our study who had MNEs and scored higher on the CNS are therefore likely to exhibit ERB, have more positive outlooks on life and a diminished sense of 'I' in their conception of Self and nature (Frantz et al. 2005), amongst other benefits. However, given the caveats identified (Box 24), such as the study being based on only two self-report measures and used only in conjunction with the CNS (which has identified limitations, including limited cross-cultural testing), it possible that these results (Section 5.1)

[126] In developing their CNS, Mayer and Frantz (2004) tested whether the scale could be assumed to be a reliable predictor for ERB. This was carried out by identifying evidence of the discriminate and convergent validity of the CNS with the New Environmental Paradigm (NEP) (after Dunlap et al. (2000) as well as determining if the CNS was actually associated with environmental behaviours and identity as an environmentalist (Mayer & Frantz 2004). In subsequent research, the CNS was used to test whether an individuals' sense of CWN also affected mood and more complex socio-emotional processes such as the ability to reflect on life problems (Mayer et al. 2009). In all cases, the CNS was found to be a reliable measure for these behaviours (Mayer & Frantz 2004; Mayer et al. 2009).

might also be disputed. In response, additional self-reporting measures were used to verify results and address the above concerns by aiming:

i) To measure the extent to which MNEs were perceived to be influential in shaping respondents' attitudes and behaviour toward nature as well as their general outlook on life;
ii) To analyse respondents' qualitative reflections on the ways in which they believed MNEs may have changed or influenced them;
iii) To identify key themes, their interrelationships and consistency with existing literature.

Smith et al.'s (2011) study on profound encounters with wildlife found that the perceived impacts on interviewees' attitudes and behaviours varied greatly. In addition to different types of attitudinal impact, they noted that some interviewees altered their behaviour in both hedonic (e.g. seeking out similar experiences) and conservation-oriented ways (e.g. volunteering to help wildlife) (Smith et al. 2011). However, given their small purposive sample size, Smith et al. (2011) note that it is inappropriate to draw firm conclusions and therefore recommend further qualitative (including phenomenological) investigation be conducted with a wider population of people known to have had MNEs in order to better understand cognitive, affective and behavioural outcomes. In addition, Smith et al. (2011) argue for the need to investigate whether the impacts of MNEs can be expected to influence a person's thinking and behaviour later in life. To this end, this study therefore also aims to address these outstanding aspects, specifically in broadening the sample population and examining longer-term impacts attributable to MNE.

5.2.2 Methods

This study draws on data elicited from questions included in the initial OQ[127] (Appendix 9.8.2). As per Section 5.1.2, the OQ consisted of six sections containing a mix of five-point Likert-scale questions, all that apply and open-ended questions. This particular study included questions which invited self-reported reflections on changes in perception following respondents' MNE(s). The three Likert-scale questions asked respondents to state their level of agreement to:

i) *The meaningful nature encounters which I have experienced with wildlife are largely responsible for shaping how I now view nature and its biodiversity.*
ii) *The profound and meaningful nature encounters I have experienced in my life have had little or no influence on my current behaviour & actions toward nature & the environment.*"
iii) *My meaningful nature experiences have heavily influenced, changed or transformed my outlook on life.*

In response to initial feedback on survey length from initial respondents, the OQ was abbreviated and the first statement was subsequently omitted. Smaller sample sizes are therefore recorded for this statement.
The non-mandatory open-ended question (asked after the above three statements) was:

Feel free to tell us more about the way you think your meaningful experiences may have changed you…

[127] Responses included in this analysis combine both versions of the OQ, i.e. the initial OQ targeting general MNE and the amended OQ targeting *synchronicity as a MNE*.

No restrictions were placed on the length of the response. However, given that the overall OQ was lengthy, and that this question was posed near the end, detailed responses were not anticipated. This question was asked after the three preceding statements seeking level of agreement on how MNEs had influenced their attitudes, behaviour and life outlook. It is possible that respondents felt that, having already answered those statements, repetition of attitudinal or behaviour change were not warranted and were subsequently more inclined to reflect on other dimensions of personal importance to them. The questions aimed to gauge the perceived impact of the MNEs to verify results recorded on the CNS (Section 5.1.2) and to thus provide multi-item measures for assessing the impact of MNEs on critical dimensions such as attitudes, behaviour and life outlook. The statements were intentionally worded with stronger language (i.e. "heavily influenced", "largely responsible", "little or no influence") to elicit more conclusive interpretations (see Section 3.3.3 and Appendix 9.8 for further information on OQ design).

5.2.3 Analysis

For the Likert-scale questionnaires, descriptive statistics were used, reporting the results as percentages of level of agreement recorded within the respective sample sizes. For responses to the open-ended question, *atlas.ti v6* was used to facilitate the qualitative content analysis.

Phenomenological principles were used to guide how codes were assigned. All respondents' statements were given equal value prior to the coding procedure (as a variation of *horizontalization*, cf. DeMares & Krycka 1998). When ambiguous, a phenomenological interpretation was used to guide how codes were assigned, i.e. according to how the meaning appeared to explicitly present itself to the individual as part of their lived experience, as opposed to coding classifying and extrapolating in ways which would support the building of, e.g. an explanatory theory. For example, an individual might have felt greater 'connectedness' but, in their brief response, only mention feeling a greater sense of 'inner peace and calmness'. Therefore, only the latter was used as a basis for coding.

However, in order arrive at a manageable and meaningful code list, it is necessary to makes assumptions which address the broader implications or themes underpinning that which is bring explicitly conveyed. For example, to the statement *"I do not use as much plastic bags anymore, use cups several times, separate waste etc."* 'Sustainability / ERB' was coded. Whilst neither 'sustainability' nor ERB were mentioned, in this case, we can consider such an interpretation to reflect the essential meaning being conveyed.

Codes were grouped into 'families' of similar themes. The network analysis function of *atlas.ti* was used to develop schematic diagrams which represent the interrelationships between the codes within the families identified. This processes also involved importing 'co-occurring codes' and, in cases where it added interpretative power, 'neighbouring codes'. This process conceptualizes relationships between codes (themes) occurring alongside each other within respondents' statements. The links between codes create inter-family relationships. Links made in the schematic diagrams (Appendix 9.15) were based on *atlas.ti v6*

identification of co-occurring codes in conjunction with the researcher's judgement on the observed strength and regularity of association between codes.

5.2.4 Results

The level of consensus reached for each of the three statements was over 90% in support of the impact of MNE(s), varying only in strength of agreement. Strongest consensus was reached on the negatively worded Statement B with a total of 98.4% respondents in disagreement (Table 24).

Table 24: Perceived influence of MNE on environmental attitudes, behaviour and outlook on life

Statement	*Strongly Agree (%)*	*Agree (%)*	*Neutral (%)*	*Disagree (%)*	*Strongly Disagree (%)*	*n*
Statement A:	58.3	33.3	8.3	0.0	0.0	48
Statement B:	0.0	0.0	1.6	24.6	73.8	65
Statement C:	64.6	29.1	5.1	1.3	0.0	79

Statement A: *"The meaningful nature encounters which I have experienced with wildlife are largely responsible for shaping how I now view nature and its biodiversity."*
Statement B: *"The profound and meaningful nature encounters I have experienced in my life have had little or no influence on my current behaviour & actions toward nature & the environment."*
Statement C: *"My meaningful nature experiences have heavily influenced, changed or transformed my outlook on life"*

Responses which did not fall within the 90% consensus bracket assumed a neutral position or, in one case, an opposing view of disagreement. This was registered for Statement C where one individual indicated that their MNE had not been responsible for heavily changing or transforming life outlook.

The qualitative analysis was based on short-answer open-ended responses (Appendix 9.15). A total of 65 (*n* = 65) respondents to the OQ elected to share additional short answer responses on how they felt their experience(s) changed them (Appendix 9.15). All of these responses were used as a basis for coding and thematic grouping as part of the subsequent qualitative and network analysis (Appendix 9.15). Codes were grouped into four thematic families: i) *emotions & feelings;* ii) *awareness & realizations;* iii) *motivations & inspiration;* and iv) *behaviour changes & actions* representing the key areas in which respondents felt that they have been changed by their MNE. Codes assigned with highest frequency across these thematic families were: 'connectedness' (14 times) and 'respect for nature / all life' (7) (family: *emotions & feelings*); 'interconnectedness / interdependence' (9) and 'new ways of seeing' (7) (family: *awareness & realizations*); 'career choice' (8); and 'knowledge and learning' (2) (family: *motivations & inspiration*); and 'using nature as a teacher / guide' (6) and 'sustainability/ERB' (family: *behaviour changes & actions*) (Appendix 9.15, Table 49).

Network analysis produced schematics for each thematic family (Appendix 9.15.2). The schematics illustrate the multiple interconnections between codes and thematic families. The following paragraphs focus on those themes as they relate to the core aims of this study and the broader dissertation. Therefore, emphasis is mainly given to dimensions of 'connectedness' as well as 'sustainability / ERB'.

'Connectedness' was associated with multiple codes in its own thematic family (i.e. *emotions & feelings*) as well as finding multiple other associations with codes/themes from other thematic families. Within its own family, explicit links were found between sibling codes 'awe', 'diminishment' (i.e. a reduced sense of Self), 'oneness/ wholeness', 'respect for nature / all life' and 'positivity' (Figure 43). Multiple inter-family links were also found for 'connectedness'. Within thematic family *awareness & realizations*, feelings of 'connectedness' were associated with experiential awareness of the 'interconnectedness / interdependence' of life, 'separation & disconnection' (in recognition of the anethism to connectedness) as well as realizations of 'relations with other beings' (Figure 44). Within thematic family *motivations & inspirations*, 'connectedness' was considered to have its most prominent link between 'helping others (in connecting with nature)' (Figure 45). Finally, within thematic family *behaviour changes & actions*, 'connectedness' was most explicitly associated with 'sustainability / ERB' and the conscious act of 'using nature as teacher / guide' for personal development (Figure 46). 'Interconnectedness / interdependence' found linkages with awareness of the 'influence of mind on perception' and 'human impact' (i.e. as 'siblings' in the same family), and with 'connectedness' and 'respect for nature / all life' (i.e. as 'cousins' in other families) (Appendix 9.15.2).

Other codes which were found to have links with sibling and cousin codes across multiple families included:

- 'respect with nature / all life': with siblings 'connectedness', 'empathy' and 'patience' and cousins 'interconnectedness / interdependence', 'career choice', 'childhood influence' and 'sustainability';
- 'appreciation': with siblings 'awe' and 'knowledge & understanding' and cousins 'lack of knowledge and understanding', 'news way of seeing', 'uniqueness & significance of life (biodiversity);
- 'using nature as a teacher / guide': with cousins 'connectedness', 'openness & self-awareness', 'life enhancement', 'trust in self & in life' and 'non-ordinary animal behaviour';
- 'career choice': with sibling 'knowledge & learning' and cousins 'respect for nature / all life', 'childhood influence', 'urban-wild nature contrasts / benefits' and 'sustainable thinking'; and
- 'sustainability / ERB': with cousins 'connectedness', 'interconnectedness / interdependence'; 'respect for nature / all life'; and 'preciousness / sanctity of all life' (Appendix 9.15.2).

Respondents specifically recalling experiences of *synchronicity as a MNE* identified several unique codes: 'life enhancement' (through more ease, meaning and excitement in life); 'openness & self-awareness'; 'positivity'; 'inner peace & calmness'; 'values as reference points' and awareness of 'non-ordinary animal behaviour'. This does not imply that other respondents have not observed or experienced similar changes in their lives; however, only respondents who participated in the revised OQ focusing on *synchronicity as a MNE* explicitly noted these changes in their life.

Box 25: Empirical evidence for the core attributes of CWN

Based on a review of literature, Section 2.2 identified 11 core attributes of CWN: inclusiveness; relatedness; belonging; interconnectedness; wholeness; thankfulness; interactiveness; inquisitiveness; aliveness; happiness; and pervasiveness which draw on cognitive, affective and experiential traits. Results of this study identified respondents' statements which provide additional support to these attributes. Here, a significant statement is provided for each of the CWN attributes:

i) ***Inclusiveness:*** *"I am only dust, like everything else, and will return to the soil (and thus plants and animals) one day."*

ii) ***Relatedness:*** *"…opened the possibility for me that we can 'connect' with and be in relation with nature."*

iii) ***Belonging:*** *"I am still very fond of the bushveld (the vegetation type or biome of the Pretoria area where I grew up)."*

iv) ***Interconnectedness:*** *"The experiences make me even more strongly aware of the interconnectedness of everything."*

v) ***Wholeness***: *"It has made me understand the concept of wholeness/oneness."*

vi) ***Thankfulness:*** *"…made me appreciate life as a real gift."*

vii) ***Interactiveness / Experientialism:*** *"I take every opportunity to experience natural things."*

viii) ***Inquisitiveness:*** *"…it was eye opening and I wanted to know more, I wanted to learn more. And 6 years later I'm still a student in the conservation field and I'm learning so much everyday."*

ix) ***Aliveness***: *"…They* [synchronicities as MNEs] *make my life more easy, more exciting and more meaningful."*

x) ***Happiness:*** *The experiences have given me 5 new basic principles that I (try to) live up to. As an example: the principle "you may enjoy" reminds me of just not being too rational and just experience and laugh more.*

xi) ***Pervasiveness:*** *"I think that having meaningful experiences with nature throughout my childhood gave me a respect for nature and an interest in wildlife and conservation. Without these I am not sure if I would have chosen an environmental profession, or stuck with it as a career option…"*

5.2.5 Discussion

Discussions around sustainability / ERB always seem to return to motivation: "Efforts to educate the public and raise awareness must include a motivation element – that is, a reason for action" (Schultz 2011: 1081). In literature, these motivations or 'inner influences' regularly find their roots in emotional responses resulting from significant experiences (Kals et al. 1999; Kollmuss & Agyeman 2002; Schmitt 2003; van den Berg et al. 2005; de Waal 2008). Maiteny (2002) argues that a personal sense of meaning is the key motivator for ERB and that this is derived from emotional responses, usually based on direct experiential contact *with* nature rather than from intellectual knowledge *about* nature (Hartig et al. 2001; Mayer & Frantz 2004; De Wet 2007; Hartig et al. 2007). MNEs are, by definition, significant direct embodied experiences imbued with emotion and meaning. In the context of Gardner and Stern's (1996) four general typologies of interventions for ERB,[128] MNE, as part of a CWN program, could extend to three of them by: changing worldviews; informing and educating; and being a non-monetary incentive to engage with nature. With the right approach, behaviour aligned with CWN could also become a community convention. This is critical as the most effective ERB programs involve combinations of all intervention types (Stern 2000).

[128] The four general typologies of interventions are: i) religious-moral approaches targeting general worldviews; ii) education-information approaches; iii) incentive-based approaches of a monetary and non-monetary nature; and iv) community management approaches to establish common conventions (Gardner and Stern 1996).

5.2.5.1 MNE as motivation for ERB

The results from this study of self-reported impacts of MNEs reaffirm earlier results of the strong links with CWN (Sections 4.5.1.7 and 5.1). Further, results emphasize the explicit links made between MNE and ERB, particularly when ERB is considered as comprising both how people behave towards nature *and* care about (or value) nature (Saunders 2003). The striking consensus attributed to MNE as being highly influential on attitudes toward nature and wildlife and ERB suggest that MNE has a compelling causal power that has been consistently neglected, particularly in relation to motivations for engaging with conservation or broader sustainability. Respondent statements such as "*I am driven to minimize my negative impact on the earth by recycling, saving water, saving electricity and minimizing consumption of products*" show resolve and commitment toward ERB. In their study of outdoor wilderness experience, Kellert & Derr (1998: 60) also identified

> …a stronger commitment to conservation and stewardship of the environment, a desire to learn about nature, and interest in supporting environmental causes and organizations.

In studying the effect of wilderness experience on ERB, De Wet (2007) found that, prior to the experience, participants could not see their role or responsibility in creating or solving environmental problems. However, immediately after the experience and in the following 3-4 months, insights on personal responsibility increased in almost all participants. De Wet (2007: 53) concludes that the most important outcomes in terms of ERB were that the wilderness experience:

> …appears to have created not only a newly perceived connection to nature, but as a result of this, a stronger sense of ownership and responsibility for the problems and solutions.

Similarly, my results show that realizations of 'human impact' are linked to themes of CWN, such as 'interconnectedness / interdependence', 'diminishment' and 'separation & disconnection' (Appendix 9.15.2). This link with 'diminishment' is an important one. Previous studies have illustrated that an expansion of the sense of 'self' to include the natural world is linked to heightened environmental concern / ERB (Schultz 2001; Frantz et al. 2005). For this expansion to happen, it usually requires a corresponding 'diminishment' of the current importance given to self in everyday contexts, a humbling sense that earth does not need humans to flourish or, in its full expression, that it may even be better off without us. In their vastness, grandeur and ability to invoke vulnerability, many wilderness environments provide a setting conducive to feelings of diminishment. Morse (2011) also highlights how his study's participants commonly reported feeling diminished in the face of something larger than themselves and feelings of humility arising from that.

Likewise, this study's self-reported reflections also found evidence of diminishment as expressed in statements such as: *I think that meaningful experiences have shaped me as they are a constant reminder that it is not all about me or about mankind.* In addition to supporting key results revealed through the phenomenological analysis (Section 4.5), this suggests that MNEs - in fostering humility and diminishment - lead to increased attention and concern toward the needs of the non-human world. This concurs with Kellert & Derr (1998: 60) who found that "most respondents reported far greater respect, affinity, appreciation, sense of humility and spiritual connection with the natural world as a consequence of their outdoor experience."

Ballantyne et al.'s (2011) research on visitor's memories of wildlife experiences found that it was the combination of emotional affinity and subsequent reflection which, in provoking deeper thought, appeared to have the most powerful impact on visitors, leading to a concern and respect for both the specific animal encountered in the experience as well as the species as a whole. Such results resonate with Smith et al. (2011) who found that profound wildlife experiences deliver outcomes which have the potential to benefit both the people involved and the animals they encounter (through efforts to conserve / care for them). This is mainly achieved through positive attitudinal and behaviour change resulting from MNEs making the related environmental issues more personal and relevant (De Wet 2007; Ballantyne et al. 2011). Ballantyne et al.'s (2011) finding that MNE results in fostering respect toward wildlife aligns with results of this study, with 'respect for nature/ all life' the fourth most commonly coded theme as a driver for sustainable actions.

Whilst this study did not objectively measure ERB over time nor was it focused on wilderness programs, it is important to note that Kellert & Derr (1998) and De Wet (2007) found a limited degree of change in ERB over time and which diminished over the time since participation. This serves as a reminder that internal motivations arising out of MNE must be accompanied by enabling external environments: i.e. systems which recognize that an individual's inability or reticence to overcome old habits as barriers to 'doing change' (Pfeffer & Sutton 1998; Kollmuss & Agyeman 2002) is embedded in social-cultural, economic, political, institutional, legal and technological contexts that shape thinking, feeling, and action (Stern 2003).

5.2.5.2 MNE as motivation for conservation careers

The observation that numerous OQ respondents are involved with occupations related to the environment might serve as a counter-argument that such persons have vested interest in answering in ways which would be seen to support conservation. Whilst this assertion has merit, it could equally be contended that this tendency - and indeed their avenue into an environmental profession - was a direct by-product of their MNE(s), and which has subsequently instilled a motivation for conservation. To support this claim, it is noted that respondents made multiple references to MNEs as being instrumental in fuelling a lifelong passion for conservation and in supporting better understandings of nature and ecology. In fact, motivation and inspiration for 'career choice' was one of the more frequently sighted themes. Further, it was commonly linked with themes of 'childhood influence', 'sustainable thinking', 'knowledge & learning', 'urban-wild nature contrast / benefits' and 'respect for nature / all life'. Kellert & Derr (1998: 59) also found that participant's viewed their outdoor wilderness experiences as "significantly affecting their career interest and inclination to contribute community service." After decades of research on the subject, Swan (2010: 7) has little doubt about such linkages:

> While there are many paths to becoming a committed conservationist, almost all dedicated conservationists can trace their passion for nature to exceptional emotional experiences: early positive encounters with nature involving intense beauty and wonder in childhood, usually in the presence of loving adults; and later, in adulthood, extraordinary moments filled with healing, creative inspiration and spiritual qualities that may have a transpersonal dimension.

Box 26: Spiritual motivations - scarce or secretive?

Spiritual and transpersonal dimensions of MNE are rarely made explicit by respondents in this study. Given that many OQ respondents were tertiary educated, there may be a reluctance to broach spirituality, since it is often associated with 'the supernatural' - a position largely rejected by science (Schroeder 1991). Beyond science, there similarly appears to be "a cultural roadblock that might inhibit people from discussing experiences that are labelled, from the outset, as spiritual or religious but which may well fall within the bounds of meaningful experience" (Tacey 2003 in Morse 2011: 28). Swan (2010) concurs with Tart (1995) and suggests that the reason more has not been written about the critical importance of MNE in forming attitudes about conservation and in serving ERB may be due to concerns about perceived spiritual and transcendent experiences being seen as symptoms of mental illness.

Yet spirituality may be aligned with ERB. In her MSc thesis on whale-watching tourism and ERB in Plettenberg Bay (SA), Vargas Fonseca (2009) found both spiritual connection and experience with nature to be significant indicators for ecocentric behaviour. According to her findings, stated spiritual connections with nature had three times more positive impact on participants' stated ERB than did prior experience or revealed knowledge about nature.

5.2.5.3 MNE as a catalyst for transformation

Ballantyne et al.'s (2011: 778) results "clearly demonstrated the power of wildlife to evoke lasting memories and transformative experiences." Similarly, this study's results illustrate the multiple ways in which MNEs are considered to have been a catalyst change agent for multiple forms of personal change relating to emotions, awareness, motivations, behaviour and, importantly, overall outlook on life. It is also possible that the impressive positive impacts of MNE on personal and character development may be sustained and even increase over time (Kellert & Derr 1998).

Respondents acknowledged that their MNEs enhanced their life outlook in positive ways, including being a better person, finding heightened well-being by making time to have contact with nature or simply finding greater peace and contentment in life. Respondents made reference to multiple dimensions of the MNEs as being influential to their personal development and wellbeing, such as health appreciation, mood, feeling 'normal', feeling at peace, life insight and orientation and fostering a positive outlook. Kellert & Derr (1998: 74) found "an extraordinary number [of participants] remarked on how much happier and competent they felt as a consequence of participation [in outdoor wilderness experience programs]." These results are complemented by more recent research by Nisbet et al. (2011) and Zelenski and Nisbet (2012) which focused on the distinct role of nature relatedness (i.e. CWN) in cultivating happiness. In a world increasingly consumed by crises and grief (Section 1.1 Section 2.2.12), inner peace and happiness is not only a necessary antidote but possibly some of the most powerful attributes for inspiring social change.

Rarely does transformation 'just happen'. If MNE is the gateway, then lifelong learning (as mediated by, e.g. continued direct experience, newfound knowledge, social facilitation or formal education processes) is the pathway beyond. Ballantyne et al. (2011) emphasize that the important elements of the wildlife (tourism) experience need to be maintained and developed in order to build on the natural impact of contact with wildlife and encourage visitors to adopt greater ERB in their everyday lives. Specifically:

> By capitalising on the emotional affinity between visitors and the animals they are observing, encouraging a reflective response to the experience, and providing suggestions for manageable but meaningful behavioural responses that visitors could make… environmental interpreters can provide the conditions that are most likely to result in long-term behavioural change (Ballantyne et al. 2011: 778).

Whilst Ballantyne et al. (2011) refer to the tourism context, the statement is equally valid for education (EE/EfS) which affords the opportunity or creates the space for MNE. Emotional arousal can often prompt curiosity, inquisitiveness and exploration and can lead to greater concentration and willingness to learn (Ballantyne et al. 2011). However, it is vital that this affective dimension be integrated with other more cognitive ways of learning, which should extend beyond just 'facts about wildlife' and encourage deep reflective thinking about the relevance of the MNE to learners and their ability to personally respond (through, e.g. new behaviours) (Ballantyne et al. 2011). Social interaction, facilitation, discussion and dialogue - particularly when family or 'significant others' are involved - can mutually influence and amplify insights gleaned from the (shared) experience (Kals et al. 1999; Ballantyne et al. 2011).

De Wet's (2007) findings suggest that adoption of ERB is unlikely to occur without prior development of eco-literacy to a certain level or the realization of some bond with nature. Education therefore has a key role to play in building such competences or in making interdependences with nature transparent and tangible. De Wet (2007) found that current relationships with nature were largely based on: childhood contact with nature; adult encounters with wild nature; exposure to nature images and information from an early age; and participation in outdoor activities with family or 'significant others'. Notably, these influences are mostly experiential and this forces EE/EfS programs to reflect on whether contemporary experientially-deficient curricula are really capable of having the transformative impacts envisaged. Orr (2004: 212) states: "…part of the truth cannot be told, it must be felt." This is a subjective truth, a temporary truth and one which will evolve as individuals immerse themselves in lifelong learning aimed at cultivating CWN. Motivations for ERB must be felt; but it must also be meaningfully lived such that CWN becomes an embodied and reflexive practice. MNEs are a necessary component of this journey.

5.2.5.4 Further research and refinements

This type of research still requires longitudinal analysis in order to draw reliable conclusions on the impact of MNE on ERB. Part of this longer-term research agenda should include measures of concrete actions aligned with both CWN and ERB and this requires looking at other measures alongside self-report items. Additionally, even without capabilities for longitudinal research, this study design can be improved.[129] Therefore, the results of this study should not be viewed as standalone but rather as complementary to other results in this dissertation establishing links between MNE, CWN and ERB (Chapter 4, Section 5.1).

[129] For example, questions included in this study were positioned near the end of an extensive OQ which investigated multiple dimensions of MNE. To preserve brevity and avoid respondent fatigue, additional questions which would have increased reliability (e.g. asking about specific environmental behaviours) were not included.

Perrin and Benassi (2009) recognize the limitations of purely rational / cognitive methods for explaining ERB and point to Kals et al. (1999) construct for measuring emotional affinity towards nature as making the important distinction between emotional bonding with nature and an intellectual interest in nature, with the latter possible without the former. Based on this pretext, Perrin and Benassi (2009) critique the CNS (Mayer & Frantz 2004) by arguing that, as opposed to measuring emotional connection to nature as intended, the CNS instead taps into a cognitive 'interest' in nature alongside people's beliefs about their CWN. This critical observation therefore emphasizes the value of open-ended questions (as part of the qualitative dimension of mixed methods research) as employed in this study. However, and in possible support of the CNS and Kals et al. (1999), it is notable that respondents' statements concerning MNE and 'connectedness' were mostly related to emotions and feelings.

If human actions lie at the heart of the conservation dilemma (Ehrlich & Kennedy 2005) or, more succinctly, that "conservation means behaviour" (Schultz 2011) then the enduring challenge for the conservation community, particularly educators, is to find enduring interventions which reach the heart of the individual in order to effect desired behaviour change at the speed required. As Maiteny (2002: 299) argues:

> …pro-environmental behaviour change is more likely to endure in the long term if it is rooted in, and driven by, significant and meaningful experience--if a person's 'heart is in it'…

If respondents' reflections in this study are considered reliable indicators, then the role and impact of MNE must be acknowledged and prioritized for EE/EfS or other efforts aimed at action for sustainability.

A reflection from in-depth interviewee 'Craig' (see also Case Study, Section 4.4) on if his MNEs influenced his behaviour toward the environment:

Oh yeah, it goes without saying. If you've had that experience - or anybody has - it would be very very hard for them to desecrate nature in any way. Say, with this house [my house]*, everything single thing is from a sustainable forest or reused - from the paint to the wood… every single thing. You know, we harvest rainwater, we use all our water to feed the garden, we do as much as we possibly can…*[and]*…certainly it costs a whole lot more to do that. There is no* [financial] *help in terms of trying to do that.*

You generally try and go out of your way as much as possible to have the least impact, because you love the environment. But it is frustrating because still your whole way - you know, your whole way of life - is still pretty damaging - and that is frustrating…And a lot of people who are really close to nature and love nature have this continual worry and are in pain because of the problems. But what is interesting is when you have the massive out-of-body experiences and that expansion of consciousness, it is revealed to you that there is this weird sense of perfection - that even with all of this [i.e. environmental problems] *going on, it is just how it is…*[But] *It doesn't say that you must now become like that* [i.e. environmentally negligent]*, but just that life and life forms and nature is unstoppable – it is everywhere …every cranny of the universe is just waiting to explode with life…*

[And] *This is just, you know, a strange phase, where our planet is experiencing a lot of difficulty. And on one level, it is painful but on another level, not at all. Are you with me? And in the vastness of time, it is just like a blip. So…I always come back to that* [these insights from my MNEs]*…I experienced such a massive shift and I completely changed.*

Summary and key messages for Section 5.2

Core rationale for the study:

- Verify results from Section 5.1 by
  - Employing measures which allow opportunity for respondents to reflect
  - Employing additional qualitative analysis to verify quantitative CNS findings
- To gauge the extent to which meaningful nature experience (MNE) was perceived as being influential in shaping respondents' attitudes and behaviour toward nature as well as their general outlook on life;
- To analyse respondents' qualitative reflections on the ways in which they believed MNEs may have changed or influenced them;
- To identify key themes, their interrelationships and consistency with existing literature.

Summary of methods:

- Online questionnaire which employed
  - Three self-report Likert-scale (reflective) statements;
  - Short open-ended question.
- Analysis consisted of:
  - Descriptive statistics (quantitative);
  - Content analysis (including simple network analysis) (qualitative).

Key results from the study

- Over 90% agreement was found between respondents on the positive impact of MNEs in:
  - Shaping their views on nature and biodiversity;
  - Influencing their current behaviour and actions toward nature and the environment;
  - Heavily influencing, changing or transforming their outlooks on life.
- Most common themes to emerge on how MNEs were perceived to have changed respondents:
  - 'Connectedness' (in thematic family: *emotions & feelings*);
  - 'Interconnectedness / interdependence' (in thematic family: *awareness & realizations*);
  - 'Career choice' (in thematic family: *motivations & inspiration*);
  - 'Respect for nature / all life' (in thematic family: *emotions & feelings*);
  - 'New ways of seeing' (in thematic family: *awareness & realizations*);
  - 'Using nature as a teacher / guide' (in thematic family: *behaviour changes & actions*);
- Themes of 'connectedness' and 'interconnectedness / interdependence' found multiples linkages with other themes both within their own thematic families and across other thematic families;
- Respondents' statements provided additional empirical to support the core attributes of CWN;
- Results concur with other literature which has also established that:
  - MNEs are prime motivation for ERB (based largely on emotional connections formed);
  - MNEs can motivate life paths into conservation careers;
  - MNEs can be catalysts for transformation (toward ERB, sustainability or personal growth) when complemented with, e.g. reflection, social facilitation and eco-literacy.
- Longitudinal research over broader and larger sample groups would benefit this research agenda;
- ERB is more likely to result if people are emotionally engaged; MNE provides that gateway.

5.3 The impact of IAS on MNE

Previous sections have highlighted how meaningful nature experience (MNE) and connectedness with nature (CWN) are inextricably tied to psychological variables and influenced by demographic variables as they relate to an individual or community. A critical question is therefore: if a sense of connectedness and meaningfulness are the makings of the mind, do environmental variables, such as biodiversity (loss), really matter? This section explores this provocative question through the issue of invasive alien species (IAS) as it relates to MNE. In doing so, it also reveals a number of unexpected and complex themes which illustrate the power and malleability of perception and the inseparability of social and ecological systems.

5.3.1 Introduction

Invasive alien species (IAS) are considered as one of the largest threats to global biodiversity and the ecosystems services which support human livelihoods and well-being (Sala et al. 2000; de Wit et al. 2001; MEA 2005; Mittermeier et al. 2011). IAS have been known to impact upon economically important industries such as agriculture, forestry, fisheries, tourism, power production, and international trade (de Wit et al. 2001; Lovell & Stone 2005; García-Llorente et al. 2008; Carruthers et al. 2011; Kull et al. 2011). Biological invasions are closely tied to historical and current human activities, which are underpinned by changing human perceptions, ethics, values, needs, contexts and socio-political and economic priorities (García-Llorente et al. 2008; Carruthers et al. 2011). As Richardson et al. (2008: 297) state:

> Humans cause invasions, humans perceive invasions, and humans must decide whether, when, where and how to manage invasions.

Humans are therefore involved throughout the entire process (García-Llorente et al. 2008).

Although the urgency to formulate a better understanding of societal perceptions towards IAS has been acknowledged, relatively few studies have achieved this (García-Llorente et al. 2008). Most research on IAS has focused on either assessing ecological impacts or focusing on the direct economic costs. Whilst increasing attention is being paid to social-cultural dimensions of IAS (cf. Kull et al. 2011), such research has primarily focused on utility and consumptive uses. If non-consumptive uses are considered, it is in relation to society's critical reliance on clean and healthy ecosystems and the provision and regulating services delivered, such as water and hydrological functioning. It has been suggested that the evaluation of non-market costs and benefits associated with IAS impacts has been largely limited due to inherent valuation difficulties and controversies (Philip & MacMillan, 2005; García-Llorente et al. 2008).

People have a tendency to express their relationship with nature in more intangible terms of aesthetic beauty, inspiration and meaning (Harmon 2004; Ashley 2007; Maller et al. 2008; De Lange et al. 2010). Where the impacts of IAS on cultural services have been made explicit in ecological research, the suggested negative impacts on recreation, tourism experience and sense of place appear to be assumed or inferred

from generalized perspectives rather than based on empirical evidence (cf. Le Maitre et al. 2011). Yet as García-Llorente et al. (2008: 2980) demonstrate:

> …different stakeholder groups have remarkably different perceptions about the impacts and benefits generated by IAS, and different attitudes toward their introduction or eradication...

García-Llorente et al. (2008: 2980) argue that effective IAS education and awareness programs need to be targeted at specific stakeholder groups and include elements concerning "stakeholder interests, personal socio-demographic characteristics, environmental behaviour, and personal experiences." It appears that little empirical research has been carried out on the actual impact of IAS on personal nature experience, with opinions in literature often based on supposition. The recent compilation by Rotherham & Lambert (2011) is one of the first texts to address the awkward and complicated issue of human perception and IAS. However, even this effort has been critiqued for offering little empirical evidence to support various assumptions, assertions and conclusions (Nuñez & Nuñez 2011).

Perception defines how persons experience nature (Sections 2.2; 2.3). Since direct nature experience is one of the most important factors in shaping people's orientation, concern and commitments toward the environment (Chawla 1999, 2006; Schultz 2000; Kellert 2002; Bögeholz 2006; Wells & Lekies 2006; Zaradic et al. 2009), it is essential to gain insight into the perceptions responsible for creating certain experiences. How do perceptions of IAS shape nature experience? How do experiences involving IAS influence perceptions? Specifically, since MNE may be influential in establishing a sense of CWN, fostering ERB and even transforming one's outlook on life (Chapter 4; Sections 5.1; 5.2), how might IAS affect the richness, integrity and frequency of MNE? What is the role of CWN in terms of perception of IAS? This question follows Luck et al.'s (2011) recommendations which emphasize that more attention should be given to associations between native versus alien species in terms of human well-being and CWN. Is CWN and MNE always compatible with the perception of IAS as 'bad' and requiring eradication?

Increasing attention has been devoted to the evocative language and value judgements used in invasive biology (Larson 2005; Rotherham & Lambert 2011; Davis et al. 2011; Carruthers et al. 2011) and that such terminology may represent a "thinly veiled form of xenophobia" (Simberloff 2008: 867). However, as Nuñez and Nuñez (2011) point out in their review of Rotherham and Lambert (2011), additional data lending support to the claims of the presence of xenophobia, racism, pseudoscience and eco-fascism in related disciplines would be useful, since it is unclear whether such claims are anything more than the opinion of the authors. This study therefore aims to address selected dimensions of this debate, particularly with exploring evidence of such sentiments and value-orientations conveyed through the conscious or unconscious use of language and metaphor. The following three studies seek to gain insight into:

i) How IAS are perceived to affect individuals' MNE;
ii) How MNE influences perceptions on IAS;
iii) The role of language and metaphor in shaping perception and experience of IAS;
iv) The relevant implications for education for sustainability (EfS).

5.3.2 Methods

'Alien species' refers to an organism whose presence in a given area is due to intentional or accidental introduction as a result of human actions which enabled the species to overcome fundamental biogeographical barriers (Richardson et al. 2011). Synonyms include 'exotic'. 'foreign', 'introduced', 'non-indigenous' and 'non-native' (Richardson et al. 2011). 'Invasive (alien) species' denotes naturalized organisms that produce reproductive offspring and sustain self-replacing populations (often in large numbers) that have dispersed (potentially over long distances) without active human assistance beyond sites of initial introduction (Esler et al. 2010; Richardson et al. 2011). Scientists are increasingly aware that terms such as 'alien' and 'invasive' do not have a single value-free meaning comprehensible to all (Carruthers et al. 2011). In this regard, whilst IAS is used throughout this chapter it is understood that respondents may have at times been only referring to 'alien species' and not what may be biologically regarded as 'invasive' (IAS) (see Footnote 130). This will be elaborated upon later in this chapter.

Social change and the diversification of worldviews has given rise to a broad range of research contexts and perspectives which demand methodology that is pragmatic, adaptive and flexible in being able to comprehensively mine, measure and describe the perceptions elicited (Flick 2009). Single-dimensioned research design may inadvertently oversimplify complex issues which involve affective considerations requiring an individual's reflection (Johnson & Onwuegbuzie 2004). This research therefore adopted a mixed methods approach utilizing both quantitative (Likert-scale surveys) and qualitative techniques (short open-ended questions, in-depth interviews and content analysis) to emphasize the influence the inner world of human experience and its effect on reported perceptions and behaviour (Johnson & Onwuegbuzie 2004; Given 2008). This study involved three separate 'parts' to provide insight into how the presence of IAS may be perceived to influence MNEs. These parts were conducted chronologically so that the latter in-depth interviews (Part C) could narrow focus and deepen understanding of essential themes emerging during research involving the original *online questionnaire* (OQ), *public questionnaire* (PQ) and *revised online questionnaire* (r/OQ) (i.e. purposive sample of members from the Foundation for Natural Leadership (FNL) reporting on *synchronicity as a MNE*) employed for this PhD research (Part A and Part B) (Section 3.3).

5.3.2.1 Part A

Part A used the OQ, PQ and r/OQ administered as part of the broader research (Section 3.3). Specifically, concerning perceptions of IAS, the OQ (including r/OQ) and PQ respondents were invited to provide a quantitative rating to the statement:

> *Rate to what extent a large presence of alien / exotic species could have influenced the quality of your meaningful nature experience.*[130]

[130] The use of the words "large presence" was intended to give an impression of 'invasive' without actually using the word 'invasive' since this might immediately give a negative connotation and introduce bias. It is acknowledged that species may be deemed 'invasive' without necessarily having a 'large (visible) presence'. Alternatively, they may have a large presence and not be considered 'invasive'. In this sense, 'IAS" is used here as an assumption: it is noted that respondents, in their mind, may not necessarily be referring to species that ecologists may regard as 'invasive'.

5.3.2.2 Part B

Part B employed the same questionnaires and sampling conditions as Part A. However, it focused on an open-ended question included in the OQ and PQ with the purpose of tapping into affective considerations and reflections on the perceptions of IAS as reported in Part A. Respondents to the OQ and PQ were invited to expand on their rating of how and why IAS might influence their MNE. For OQ respondents answering the more detailed questionnaire, the following was asked:

> *If your natural environment had a large presence of exotic / alien / non-native species (i.e. plants or animals originally from another region/country which have been introduced into your area), how do you think this might affect your chances of having a meaningful nature experience?*

PQ respondents were simply asked to justify their previous rating on the influence of IAS on their MNE.

5.3.2.3 Part C

In-depth interviews were carried out to explore the subject of IAS (Section 3.3.5). This component was addressed in the same interview session which also asked about interviewees' MNE (Chapter 4) and the relevance of MNE and IAS to education (Sections 5.4 and 5.5). All interviewees reported MNEs and all were familiar with the challenges that IAS present in South Africa. Part C therefore aimed to probe themes elicited from the previous two studies by seeking insight from individuals who were regularly and sometime intensively engaged with their particular environments in multiple and meaningful ways (e.g. research, management, recreation, guiding, artistry and inspiration). All interviews were recorded on a digital audio recorder and transcribed by the lead researcher with the aid of voice recognition software.

5.3.3 Analysis

For Part A, data were analysed using *STATISTICA v10/v11*. Statistical tests performed were; an internal reliability test on data using Crombach's α (alpha); ANOVA to test for the difference in OQ and PQ means as well as the difference in r/OQ mean and the combined OQ and PQ mean; Spearman's *r* to detect correlation between statement ratings and CNS scores; and descriptive statistics.

For Part B, standard content analysis was used. Written responses were analysed using *atlas.ti v6* for assigning codes and identifying common themes. The *atlas.ti v6* co-occurrence analysis tool was used to determine which themes commonly occurred alongside each other within interviewees' statements.

For Part C, analysis consisted of three parts: i) notes were taken during the interview and key themes immediately reflected upon afterwards; ii) content analysis was applied to interview transcripts using *atlas.ti v6*; and iii) emergent themes from initial note-taking and qualitative analysis were triangulated with each other as well as with themes arising from Part A and Part B. These were subsequently referenced against existing literature to produce a richer picture of the perceived impact of IAS on MNE.

5.3.4 Results

5.3.4.1 Part A: Quantitative analysis - OQ and PQ

The majority of both OQ and PQ respondents viewed the presence of IAS as being detrimental to the quality of their MNEs (Table 25). No significant difference existed between OQ and PQ respondents' perspectives on the extent to which IAS influenced their MNE ($F(1, 185) = 0.05$, $p = 0.82$; Mann-Whitney U $p = 0.76$). However, for r/OQ respondents there was a significant difference ($F(1, 185) = 7.49$, p=<0.01) in that they perceived the influence of IAS on MNE far more positively than the OQ and PQ respondents. When filtering out PQ respondents who reported never having had a MNE, the negative perception toward IAS remained (Table 25). In OQ and PQ groups, over half of respondents perceived IAS to have negative impacts on MNEs. However, around 30% of respondents in all sample groups assumed a neutral position.

Table 25: Extent to which IAS are perceived to affect respondents' MNEs

Sample Group	*Highly Negative* %	*Negative* %	*Neutral* %	*Positive* %	*Highly Positive* %	*n*
Statement A: Aggregated sample (OQ and PQ respondents)	34.8	21.4	27.8	8.6	7.5	187
Statement A: OQ respondents	32.3	21.5	32.3	6.2	7.7	65
Statement A: PQ respondents	36.1	21.3	25.4	9.8	7.4	122
Statement A: PQ respondents where MNE = Never	45.8	12.5	33.3	0.0	8.3	24

Statement A: *Rate to what extent a large presence of alien/exotic species could have influenced the quality of your meaningful nature experience*

For the aggregated sample, no correlation was found between an individual's CWN as measured by the CNS (Section 5.1) and the extent to which IAS would influence their MNEs ($r_s = -0.05$, p=0.55, n=177).

5.3.4.2 Part B: Qualitative analysis - OQ and PQ

Respondents' justifications as to why IAS would influence their MNEs returned multiple themes (Table 26).

Table 26: Influence of IAS on MNE - common themes from the OQ and PQ

Influence	*Common themes*	*Q*	*Themes co-occurring with common themes (i.e.'rationale')*
Positive	Alien species (for)		
	Beauty	P	Context dependent; Sanctity of all nature; Alien vegetation;
	Enjoyment	P	Alien vegetation removal (activity); Novelty;
	Novelty	P	Irrelevant (makes no difference); Enhances experience; Exotic animals (positive); Learning experience (discovery);
Positive or Negative	***Context dependent***	P	***Beauty (dependent)***; Agriculture (positive); Impacts ecology
		O	Irrelevant; Naturalness; Specialness (of some alien species)
	Irrelevant (i.e. makes no difference)	P	Sanctity of all nature; ***Beauty (in all nature);***
		O	Context dependent; State of mind dependent (e.g. awareness)
	Knowledge dependent	P	***Impacts ecology;*** Awareness of impacts;
		O	Naturalness; ***State of mind dependent*** (e.g. directed attention)

Q = Questionnaire type: O = Online questionnaire; P = Public questionnaire;
Bold italics: Common themes shared between online (O) and public (P) questionnaires

Table 23 cont'd: Influence of IAS on MNEs - common themes from the OQ and PQ

Influence	*Common themes*	*Q*	*Themes co-occurring with common themes (i.e.'rationale')*
Negative	Alien spp. (against) Belonging elsewhere	P	Detracts/diminishes experience; Personal preference/Value judgement; Human-induced;
	Impacts ecology	P	***Dominating / destructive***; Resource consuming; Balance (loss of);
		O	Detracts / diminishes experience; Knowledge dependent;
	Dominating / destructive	P	Impacts ecology; ***Invasiveness***; Value-judgement
		O	Diversity (as argument for native spp.); Detracts / diminishes experience; Beauty (of native spp.)
	Native spp.(for)	P	Beauty; Agriculture (non-appreciation of); Authenticity
	Naturalness	O	Detracts / diminishes experience (as argument for naturalness); Context dependent;
	Diversity*	O	Dominating / destructive; Detracts / diminishes experience (as arguments for diversity); Native spp. (in support of diversity)

Q = Questionnaire type: O = Online questionnaire; P = Public questionnaire;
Bold italics: Common themes shared between online (O) and public (P) questionnaires
*Whilst 'diversity' was identified primarily only in the OQ, it is possible that 'dominating/destructive' is another way of expressing [lack of] 'diversity' without using the specific terminology.

Part A indicated that PQ respondents had a marginally more positive perspective on the influence of IAS than OQ respondents. With a larger sample size, PQ respondents therefore returned a greater number of themes available for co-occurrence analysis in Part B.

5.3.4.2.1 Positive influence

Positive perceptions of PQ respondents toward IAS favoured three themes: novelty; beauty; and enjoyment (Table 27). ***Beauty*** was a common theme among positive ratings of IAS. The expression of beauty of some IAS may have been absolute but it was often linked to context (Table 27; Table 29). ***Enjoyment*** was linked with two types of experiences: i). those which returned a positive experience involving alien species, e.g. *I love riding through the alien pine forest* and ii). Those which paradoxically involve the removal of alien vegetation and found it a *Great joy to get rid of exotic veg*[etation] or saw their participation in the volunteer removal of alien species as *positive as this is a rewarding experience*. ***Novelty*** was occasionally linked to enjoyment but also found to be a common theme among positive ratings. ***Variety*** was cited as being desirable irrespective of whether it was a native or alien species.

Table 27: Selected respondents' statements reflecting a positive influence of IAS on their MNE

Theme	*Supporting statement*
Beauty	*Agriculture can be beautiful but not if invading into pristine land*; • *…potentially beautiful…* • *I appreciate the beauty of both native and alien species.*
Enjoyment	*I love riding through the alien pine forest* • *I have been to sanctuaries (not zoos) with alien animals and enjoyed the experience immensely;*
Novelty	*Alien fauna looks unusual & interesting, e.g. pine forest in SA is striking, enhances the experience*; • *Alien and exotic are unexpected/different;* • *Nice to experience a little more than just everyday things;* • *To be able to learn about them* [alien species]; •
Variety	*As long as its plants, exotic or not its fine…the more variety the better.* • *Larger presence and variety of anything natural is likely to increase my experience with nature;* •

5.3.4.2.2 Negative influence

Negative ratings of IAS were driven largely by the perceived ***impacts on ecology***. The OQ respondents, with a tendency to have an education or vocation in the environmental field (Section 5.1), placed greater emphasis on these impacts than PQ respondents. Both sets of respondents expressed dislike toward the dominating and overpowering effect of many alien species on the landscape (Table 28). It is clearly implied that in these cases alien species are automatically equated with the theme and quality of ***invasiveness.*** Impacts on ecology were also implicit in respondents' views that IAS would diminish the chances - or the necessary prerequisites – for their MNEs to occur.

PQ respondents more regularly reasoned that IAS ***do not belong***. A few PQ respondents tapped into notions of national pride and patriotism, flavoured with more personal value-based judgements. In comparison, the theme of "not belonging" was not made as explicit between OQ respondents.

A sense of ***naturalness*** was considered an important factor for both OQ and PQ respondents in terms of how it may affect their MNE (Table 28). These feelings were most often associated with ***beauty*** and linked with ***authenticity*** in the sense that non-naturalness is what diminishes the experience. Other respondents said the experience would be diminished by feeling 'fake' or 'contrived'.

The OQ respondents cited ***diversity*** with greater prevalence when expressing concerned with loss of diversity in disrupting ecology and homogenising the environment such that it "*decreases the effect or the potential of such an occurrence"* [i.e. MNE] (Table 28).

Table 28: Selected respondents' statements reflecting a negative influence of IAS on their MNE

Theme	*Supporting statement*
Impacts on ecology	*Alien species over take local species and can wipe them out; • Because they are intruding; • …are often dominant, rather than 'fitting in'; •… because they suffocate most of our indigenous trees and plants and create little deserts once they have been cleared; • I find that invasive species tend to dominate and affect the fragile ecosystem equilibrium. Invasives are…unruly and aggressive and tend to reduce biodiversity (plant, animal, insects etc. • … it can affect the occurrence of the wildlife in the first place; • …it*
(implied)	*diminishes the possible experience by lessening all animal species; •*
Do not belong	*They* [alien species] *do not belong here, but somewhere else. • It always takes away from the experience because I know they are not supposed to be there. •*
Naturalness	*It will diminish the experience for being literally less natural; • …it is not nearly as satisfying to see a wild animal that is an introduced species, as it is not special; • I would prefer my experience with nature to be "natural" which would not be the case if "alien" species were present •*
Beauty	*Any biome is beautiful in its own right, bringing in exotic species that don't belong there is like plastic surgery to a already uniquely beautiful face; •…especially the beauty of how native species create beautiful scenery. • …introduced ones look messy and out of place…rather than 'fitting in'… •*
Authenticity	*…prefer to imagine landscape as it was back in time (pristine); • I would appreciate more the things that are naturally meant to be. •*
Diversity (native)	*…more variety of native plants = better experience.• As invasive species becomes dominant chances for nature experiences would be diminished as diversity decreases. • …less variety and less micro-magic. • It causes monotony and decreases the effect or the potential of such an occurrence* [MNE] •

5.3.4.2.3 Positive or negative influence

The majority of OQ and a significant proportion of PQ respondents recognized that the influence of IAS on MNEs could be ***positive or negative***, even if they personally found the presence of IAS to be objectionable. The themes which clearly emerged as influencing judgement were related to context, knowledge (of IAS) and, as a result, could render the presence of IAS as potentially irrelevant (Table 29).

Context was the most frequently mentioned theme between both OQ and PQ respondents in terms of being a pivotal factor for whether and how IAS would affect MNE. Numerous responses commenced with, "It depends…" and the way in which 'context' was perceived varied markedly: some PQ respondents cited 'agriculture' as an example where IAS in that context would be acceptable (Table 29). Each of the themes in this section may be assumed to be implicitly and intimately tied to context in one way or another.

Beauty was cited as pivotal among PQ respondents in determining the whether the context was positive or negative; however, OQ respondents also recognized the role of beauty in determining the influence on their experience (Table 29). However, the appreciation of beauty may be surpassed by knowledge of the impacts of IAS on ecology: *Although potentially beautiful, they do interfere with our natural biodiversity.* Perceived ***naturalness*** was cited when referring to context and that this can facilitate or support MNE (Table 29)

OQ respondents alluded to their ***personal attachment*** and ***specialness*** of some species as informing the context (Table 29). The specialness or attachment may be defined by the personal meaning ascribed to a repeated encounter: *But the* [alien] *squirrel that I see every time that I go jogging at home, is also special to me.* However, respondents indicated that this sense of attachment may be malleable according to ***temporal*** and ***spatial context***, both of which may be ultimately determined by a person's knowledge (Table 29).

Knowledge was therefore a common theme to arise for both OQ and PQ respondents in terms of determining whether the presence of IAS would be felt as positive or negative. Whilst the influence of 'knowledge' was not made as explicit as often as 'context', it is highly evident that respondents' answers were, in the majority of cases, dependent on their knowledge and awareness of whether they knew that: i) alien species were present; and ii) they had adverse impacts. A number of respondents alluded to their personal experience to illustrate this sentiment (Table 29). OQ respondents also viewed the influence of knowledge in the context of their experience in observing and interacting with others. However, some respondents' indicated that their knowledge of IAS did not interfere with their MNE (Table 29). The influence of ***knowledge*** is therefore linked with other themes such as ***beauty*** and ***impacts of ecology*** in the sense that knowledge shapes perceptions of those traits and, ultimately, the quality of the experience.

Many OQ and PQ respondents found IAS to be ***irrelevant*** to MNE, even if their own feelings tended otherwise. The sense of IAS ***making no difference*** to MNE may have been stand alone or, as a result of (a blend of) 'context' and 'knowledge'. Statements ranged from the categorical to the nuanced (Table 29).

However, the additional co-occurring themes of ***sanctity of life*** and ***beauty of nature*** paradoxically gave the theme of 'irrelevance' specific relevance to MNE, in the sense that the relative importance of these traits to the respondent outweighed other considerations. PQ respondents placed more emphasis on the beauty dimension. OQ respondents, with an opportunity to provide greater detail, reflected more on the ***sanctity of all life*** and the unifying ***connection*** associated with their MNEs. These feelings may be tied to one's ***state of mind (consciousness)***, including modes of awareness or how one's attention or emotions are engaging the landscape. For example, the novelty or 'out-of-place' character of IAS has the potential to divert a person's attention away from other landscape features and, in most case, will have a detrimental effect on the experience (e.g. *…might be distracted from just being or experiencing.*). Alternatively, other components more central to the MNE may be sufficiently powerful to negate the presence of IAS (Table 29). It is evident that this process of ***directed attention*** may be consciously controlled in order to create the experience desired: *…I tend to keep my eyes focused on the fynbos and not on the pine plantations…*

Image 12: Pine plantations in Jonkershoek challenge some visitors in terms of where to focus attention

Themes such as sanctity, state of mind, attention, knowledge and attachment are all entwined with meaning, meaning-making and the relative ***meaningfulness*** of that particular experience in its unique context. This intercoursing with an individual's state of mind or 'inner life' appears to be a primary determinant as to whether IAS will ultimately be perceived as having a positive or negative influence on the MNE. 'Meaningfulness' is unpredictable – a 'wildcard' of sorts – since it can have convoluted outcomes which, whilst initially appearing at odds with conservation, might ultimately work in its favour, e.g. *These* [IAS] *should be experienced as threatening, but I've experienced them as meaningful, since it makes me realize how much still needs to be done* [in conservation]. Meaningfulness is therefore married with context (Table 29).

Many respondents did not answer with explicit relevance to their own MNE(s), but rather speculated or asserted opinion according to what they knew or had experienced. Evidently, the two components of knowledge (though education) and experience (through perception) are inextricably entwined and difficult to isolate within such an analysis. Whilst not specifically referring to IAS, an OQ respondent summarizes this tension:

> *It is only through education that one knows what animals are native and not. I get disappointed when I see that cattle have been let back into the high country, or the damage that feral cats, goats, dogs and rabbits have on the environment, but only because I understand.*

Table 29: Respondents' statements reflecting a positive or negative influence of IAS on their MNE

Theme	*Supporting statement*
Context	*Really difficult question, for me this really depends. It depends on the situation and the species involved.* • *Could be neg*[ative] *or pos*[itive] *nature experience depending how alien species interact with rest of environment.* • *if alien invaders = 1* [negative], *but if ordered agric*[ulture] *that takes pressure off natural areas then = 5* [positive]. •
Beauty	PQ: *I guess it depends on the beauty of the species;* • *Alien plants can detract from surroundings but also* [can] *be very beautiful;* • *Alien& exotic* [are] *better than barren.* • OQ: *I think that it is easier for me to have a nature experience in a visually beautiful area… I think that beauty is the key. The type of beauty that relaxes the mind and overcomes one's sense of separateness… so long as there is beauty and expansiveness (which need not be the typical definition of beauty as 'pretty');* • *…because the big gum trees around the house were spread out and not planted in a grid pattern, and they were all beautiful individual trees with characters of their own, which is not typical of dense alien stands or plantations of course;* • *Mangos trees and many species like this are exotic but are beautiful and create food,* [and] *beauty in the landscape.* •
Naturalness	*…if the introduced species has only a very low negative impact on the environment I do not think it will affect the chances of a meaningful experience so long as it does not overtly break the sense of naturalness.* • *…these experiences also happen in urban environments. However, the profound feeling of being one with nature is easy to get into when in a pristine environment.* •
Specialness / Attachment	*I don't think these gum trees or other aliens negatively impacted my experience in this case, partly because we'd been going there since I was a small child and they were just part of the place for me… I do feel a deep connection with these trees all the same, though I know they don't belong here in the strict biological sense, and would deeply regret it if they were all removed.* •
Temporal and spatial context	*If one grows up with a particular plant in the area, used/unused for some purpose, they grow attached to it, and learning later after the experience that it's an invasive might be met with mixed feelings* • [As a South African,] *If I moved to another continent and* [the South African vegetation] *fynbos suddenly invaded the area, it would be very meaningful to me.* • *Every alien is indigenous somewhere else in the world, so they are still special organisms. They just have their own place, and should be restricted to that place.* •
Knowledge (1) (personal experience)	*If you know they are there it changes your perspective (negative);* • *When I was in SA* [South Africa] *and I was told which plants were alien, that is the moment you realize how invasive it is. As long as you're not aware of it, you won't notice it.* • *It always takes away from the experience because I know they are not supposed to be there;* • *It interrupts the flow of things - especially if I know something shouldn't be there.* •
Knowledge (2) (observed experience)	… [people are] *heavily influenced by the information one has on the particular exotics and when they have it;* • *I have learnt that you need to know which species is not native. People often perceive a landscape as pretty till you point out that the greenery is actually all invasive/alien species actually destroying the area. This creates a totally new perspective for some but not all.* •
Knowledge (3) (insufficient to interfere)	*I know that the* [exotic] *forest is not good for the natural environment but in that moment of watching the baboons this thought did not come up.* • *Alien vegetation and fauna eventually alters the natural ecosystem. But in my previous meaningful experiences there were aliens.* •
Knowledge (4) (in shaping perception and, ultimately, experience)	*I do not like aliens, it's a major eye sore especially now that I know how bad they are* • *However, knowing that the alien organisms are replacing creatures and plants that should be there and possibly disrupting the system, might hamper my ability to have a deep experience of nature* • *I think the turning point for me is if the exotic species is negatively affecting the environment, … this would have a very large negative impact on the experience and decrease the chances of such an experience happening, as I would know that this is not a good situation for the environment.* • *It did not* [affect my MNE]; *however… in other areas / experiences* [IAS have] *profoundly influenced my perception/ enjoyment because I am very aware of the effects of on native fauna and flora.* •
Irrelevant / makes no difference	PQ: *Whether exotic or indigenous makes no difference;* • *It does not affect the experience.* • OQ: [My] *particular experience…occurred in an urban area* [where] *almost every plant is exotic;* • … *I don't think the existence of these* [IAS] *would have affected my experience in nature.* •

Table 26 cont'd: Statements reflecting a positive or negative influence of IAS on respondents' MNE

Theme	*Supporting statement*
Irrelevant (*due to Beauty*)	*…nature is beautiful and conducive to meaningful experience, no matter if local or exotic. • All of nature is beautiful.* •
Irrelevant (*due to Sanctity of life*)	*Because trees are part of nature e.g. Give us fresh air/02 • Animals and plants are still part of nature, no matter their origin • i feel like i do not need to know the name of the plant or its functions to appreciate the miracle of its existence and admire it as a manifestation of the universal spirit and creativity. They just are.* •
Connection	*The unifying love that I experienced as a result of collapsing boundaries, or dropping of my sense of separateness, did not discriminate between alien or indigenous vegetation. I felt a connection and love for the blade of grass next to me and the Bluegum tree. • Mostly it was about a universal feeling of 'life' rather than an awareness of the presence of indigenous/non-indigenous species...* •
State of mind (Focus of attention)	*…the landscape was secondary to the primary experience but probably contributed subconsciously…• In that* [environmentalist] *mode, I am unlikely to have a mystical-type experience while viewing such vegetation. But at other times, when I am not in that mode, but a more meditative mode, it doesn't seem to matter… • When I am in the Jonkershoek mountains I tend to keep my eyes focused on the fynbos and not on the pine plantations (the overall image however is still beautiful even with the plantations). • Because I am not used to those species, I pay more attention to them. • I don't think that many people will notice the vegetation if there is something "more exciting"* [i.e. exotic animals] *to see.* •
Meaningfulness	*It depends on the awareness of that person, and if that species has meaning; • So in the end it is not about how special the species are, but it is about the timing and meaning of the event and how this is resonating with my innerlife; • You could easily have a profound experience with an exotic species, and this experience could be beneficial for you. • Agricultural animals could also have meaningful connection with people. • So the context of such situations makes this a very difficult question to answer fully. Sometimes exotics would make no difference, the majority of the time exotics would negatively impact on the experience* [and] *very rarely they may enhance it (i.e. Namibia's feral desert horses)* [a desire to see these feral horses was considered meaningful by the respondent]. • *These* [IAS] *should be experienced as threatening, but I've experienced them as meaningful, since it makes me realise how much still needs to be done* [in conservation]. •

5.3.4.3 Part C: Qualitative analysis - in-depth interviews

In-depth interviewees exhibited a high degree of CWN (CNS mean = 62.29, *n*=14). These scores were significantly higher than those recorded by OQ (CNS mean = 55.90) and PQ (CNS mean = 50.42) respondents. The two lowest scores were recorded by an ecologist / biodiversity manager (CNS = 52) and an environmental educator (CNS = 58); the two highest scores were recorded by an author/ environmentalist (CNS = 69) and an animal communication specialist (CNS = 68). Most interviewees referred to specific areas which were of significance to them and with which they felt a sense of place.

Themes emerging from this qualitative analysis captured more philosophical arguments for or against IAS (e.g. in terms of accepted perceptions and impacts). Identified themes also contained greater depth than that which was uncovered in the OQ and PQ in Part B. Whilst most interviewees took a position on IAS, they equally demonstrated an openness to engage with alternative perspectives, illustrating the complex and multi-faceted nature of the IAS issue. Therefore, this section organizes and presents specific statements according to their thematic nature, such that a given individual may provide contrasting opinions, as an expression of the need to consider multiple points of view.

Interviewees generally agreed that the presence of IAS would have a negative influence on their propensity to have MNEs. Similar to findings in Part B, negative perceptions were closely associated with reflective and emotive themes of 'belonging elsewhere', 'impacts on ecology' and the more sensory experience of (lack of) 'diversity'. However, and as noted in Part B, sentiments appear to be largely ***knowledge dependent***, despite this not always being made explicit. So whilst interviewee statements are categorized according to more manifest themes, it should be understood that these opinions are often underpinned by tacit intellectual and experiential knowledge, as well as mental concepts which are rarely identifiable. This theme recurs throughout the analysis and whilst the influence of knowledge on the formation of perception may be logical, this research reveals the salient perceptions residing with persons with high CWN. For many responses, it is difficult to separate and extract identified themes without also reducing and sacrificing the context, meaning and coherence of statements. Therefore, key emergent themes have been selected and clustered as sub-headings and inter-dispersed with other relevant interlinking themes (Table 30).

Negative experiences of IAS were primarily underpinned by themes of ***belonging***; ***diversity***; ***impacts on ecology***; ***naturalness / authenticity***; ***aesthetics / beauty*** and ***dominance***. Additional themes to emerge related to the inability to achieve the same sense of CWN in areas with IAS and that these areas may be associated with ***unease*** and ***unsavoury events***.

Table 30: Core and associated themes arising from in-depth interviewee perspectives on IAS

Core themes	*Associated with themes*
Belonging	Naturalness, diversity, knowledge (of place, ecology), sense of place, authenticity, familiarity
Diversity	Sensory impressions (monotony), aesthetically unappealing, dominance, inhibits CWN
Unease	Oppression, danger, darkness, sense of place, belonging, unfamiliarity
Beauty (Age)	Attractiveness, emotional attachment, aesthetically appealing, sentimentality
Impacts on ecology	Interconnectedness (ecological interactions), motivating – displaces / overrides other positive emotions, e.g. beauty, appreciation; fuels negative emotions, e.g. hate
Balance	Invasiveness (level of), context dependent, belonging
Sanctity of life	Interconnectedness (social-ecological system), common essence of all life, love for all life
Learning: metaphor; and experience	Metaphor, insight, xenophobia, mirrored social and ecological historical and contemporary issues, compassion, empathy, atonement, diversity (value of), nature as teacher, adaptability. Impacts on ecology, shift in perception, sensory impressions, emotions, reflection, behaviour
Knowledge dependent	Perception, beliefs, conditioning, experience (tainted), education, judgemental (rejection of other perspectives). *Knowledge types:* direct experiential; self-taught; informal interpersonal; formal institution-based – augmenting different ways of knowing and learning.

5.3.4.3.1 Belonging and naturalness: "not supposed to be there"

The negative influence of IAS on MNE entwines themes of ***belonging*** and ***diversity***. This view appears grounded in sensory impressions, ***knowledge dependent*** place-based understandings of ecological interactions but linked with more emotional reactions pertaining to where things are "supposed to" belong.

> *Because it gives you a bit of a strange experience when you go to a place and there is supposed to be little birds there. But there are not. So where are they? Why aren't they here? Because there are gum* [Eucalypt] *trees over there and the sparrowhawks are taking them* [the little birds] *out!... the problem is that those trees are not supposed to be there in the first place… And invasive aliens will come in, will change the dynamic of the veld* [Eng: 'field']*, will change the animal species we get, will change the behaviour of the species. It taints your environmental experience.* [Jeremy]

These observations are underpinned by concerns about the ***impacts on ecology*** and the interconnectedness of altered interactions.

> *Well the thing is that invasive aliens alter the face of the environment, where they infect. So, the management of alien invasive species is very important with regards to an environmental experience, because of the changes. For example, pine trees do not belong here. They belong in the northern hemisphere. And with it, they bring other aspects… They are altering the terrain of that mountain and indigenous animals that are supposed to be there are not there because of those trees, because they are bringing other species in…*[Jeremy]

These combined impressions are sufficient motivate a behavioural response:*… And I would aggressively remove anything else to bring back what should be there…* [Jeremy]

Whilst this argument appears largely grounded in existing knowledge pertaining to where something should belong, it equally exhibits sufficient eco-literacy and awareness to understand local ecological interactions and how that affects the ***naturalness*** and ***authenticity*** of the nature experience. In her role as a wilderness and contemporary rites of passage facilitator, Bridget speculates:

> *I think it* [the negative reaction to alien species] *would be more from the standpoint of people feeling that they are not in true wilderness, like "it is not wild enough yet for me". And I guess that the people that would love to go truly into the wilderness would not like to be necessarily in a blue gum forest* [an alien species in South Africa]. *They might like to be in a pine forest, I am not sure… I know that most of the* [participants] *who have been with us* [on our guided trips] *have not enjoyed the fact that the roads on some of the* [nearby] *orchards have pine trees as windbreaks… So for some, the puritans, it did bother them - any form of civilisation or alien* [vegetation]… [Bridget]

A more puritan perception of naturalness and 'alien' may extend to extralimital species: those species which whilst South African in origin, were not historically occurring in the particular area (usually defined by biome or ecosystem type) under question.

> *You are getting a false experience. You're going into a bush and saying, "My goodness, there is a guinea fowl! These guinea fowls live in this area… in the Western Cape." It doesn't! It comes from the Eastern Cape or the Southern Cape. See, it is a tainted experience.* [Jeremy]

However, some interviewees questioned the extent to which this view should be taken:

> *…the whole idea of alien is a strange concept to me because it is so judgemental and so subjective… Even a simple matter like pollination by wind, for example: where is this idea of territories beginning and ending? You know, it is all in the great cycle of things, the ever-changing cycle of things moving. The concept of alien seems like a strange thing in this era of fast moving times and transportation mechanisms, whether they be natural or man-made…* [Anna]

> *…because what is natural and what isn't?* [Tony]

Box 27: An insight into the impact of IAS on cultural values and experiences

This dissertation maintains a primary focus on Western socialized persons of Anglo-European descent. However, an in-depth interview was also conducted with a Xhosa park ranger (with a strong *sangoma* (diviner) family lineage), to explore whether the impacts of IAS on cultural (traditional and Indigenous) values and if there was a basis for these to receive greater attention in conservation literature. Research has focused on how more positive attitudes toward IAS might be cultivated with "greater knowledge and appreciation of how local communities make constructive use of introduced species and may have a different philosophical and conceptual approach to them" (Carruthers et al. 2011: 814). Kull et al. (2011) make inroads in addressing this call with their examination of the different uses and perceptions of introduced Australian Acacias (wattles) by rural households and communities across eighteen landscape-scale case studies around the world. With a focus on the utilitarian dimensions, their findings show that economic conditions play a key role in shaping reliance on acacia use (Kull et al. 2011).

Utility may also shape cultural practices. For example, a former Coloured colleague of Xhosa descent told me that he and fellow Xhosa initiates (*abakhwetha*) used *A. mearnsii* and *A. saligna* to construct 'bush' shelters, due to their malleability ("*the fynbos just breaks*"). The shelters are required during the prolonged period spent outdoors after the *ulwaluko* rites (including circumcision) marking the transition from boyhood to manhood (this example also cited in Kull et al. 2011). Such cases illustrate how cultures and cultural practices can adapt to changing conditions and circumstances. However, Boll's (2006) anthropological study with the Yolŋu Aboriginal people of northeast Arnhem Land, Australia, revealed that the invasive cane toad (*Rhinella marina*, formerly *Bufo marinus*) was capable of threatening both tangible and intangible cultural aspects, including loss of traditional food and alteration of totem species, such as Garkman. Garkman includes all frog species, but most notably the green tree frog (*Litoria caerulea*). The cane toad was called *Yätj Garkman* (evil or bad frog) or *Mulkuwu Garkman* (foreign frog). Donald Wunungmurra, a concerned Dhalwangu clan member, explains:

> We are upset…We feel hurt…It [the influential presence of the cane toad] stops the interest of elders to take young ones out in the bush to find and show them bushtucker [native foods] …Cane toads are shocking; they take the enjoyment and the meaning from the land. All that really affects me. I feel upset, sad, frustrated, confused. I feel like that especially for my grandchildren." (Boll 2006: 8)

Similarly, in my interview, Mavo – a Xhosa park ranger - expresses sentiments of unhappiness relating to both to the lack of utility of Australian acacias as well as the impact that has on the ability to heed the requests of the river dwelling ancestors. These tangible and intangible dimensions may be particularly disconcerting if it impacts traditional practices and spiritual connections.

> [IAS] *are no good at all because you cannot even make medicine out of it. And they are developing everywhere and now it makes other useful plants unable to grow. Because if there are some people* [ancestors] *there in the river, they will tell you which medicine you can go and heal people. Now these* [*A. mearnsii, A. saligna*] *are all over now - they are invading what is supposed to be…In that area now, I don't feel much happiness when I am surrounded by them because they have got an impact. It is hard to explain it.* [Mavo]

Interestingly, when presented with the scenario of a dry riverbed (due to excessive water uptake from Acacia infestations), Mavo did not appear to consider that as a threat to the presence of the ancestors in that location. Kate, who has researched Xhosa and Zulu traditions, clarified:

> *… if there is no sign* [appearance of meaningful and timely phenomena], *it does not mean that the spirits are not there, it means that they are angry. So it doesn't necessarily affect the sacredness of the place, but it is a reflection of the social activities and the people's relationships* [with the place and with each other]. [Kate]

This response contributes to understandings about the type and extent of unhappiness felt in the face of IAS. Without further research, we may only speculate on the degree to which IAS affects cultural practices, values and the Indigenous knowledge permeating these groups' MNE and, critically their natural, social and spiritual-based connectedness. Whilst preliminary and cursory, the above indications give IAS research good cause to move beyond ecological and economic arguments and further investigate more intangible cultural and spiritual dimensions (Cocks et al. 2012). Doing this may present an unlikely ally to an ecological imperative which, with respect to biodiversity conservation, tends to place low priority on spiritual and cultural values (cf. Rudd 2011). More research is needed concerning the impact of IAS on cultural values, especially in a southern African context.

5.3.4.3.2 Diversity and dominance: "there is virtually nothing there"

Interviewees recalled the ***sensory impressions*** which have stayed with them upon encountering IAS throughout their personal experiences in nature or in their professional capacity. In most cases, the opportunity to experience a stand of IAS provides an insight into the importance of ***diversity*** and, where it is lacking, distinct sensations of emptiness, monotony and silence.

> *Okay, the initial experience is like, "oh, wow", but it doesn't last for long… So, yeah, it would really have a negative impact on any type of natural experience… From the point of view that there is no biodiversity - there is nothing there, there is no plant life, there is no bird life, there are no smells, there is no water… so there is virtually nothing there other than these beautiful plants… There really isn't* [anything], *as far as sensations are concerned...* [Greg]

Such perceptions tend to be restricted to the use of our five survivalist senses and, in particular, vision as the humans' primary sensing mechanism. Visual attention appears *drawn to seek out visual* ***beauty*** *and symmetry whereby dominance and uniformity are considered* ***aesthetically unappealing***.

> *But it taints your visual aspect, because you have got certain* [*A. cyclops*] *plants that grow through to a certain height that spoils that* [view enabled by lower growing fynbos]. [Jeremy]

> [My ecologist neighbour] *doesn't like them* [i.e. blue gums, (*Eucalyptus globulus*)] *as they are not in proportion, because they are so high…It is like fir* [pine] *trees* [in] *Tsitsikamma. That's a change. I can remember going through the Garden Route and how beautiful it was. But last time I went I just saw fir trees.… That's why I don't like Cape Town because … all I see is mimosa and Port Jackson…* [Sue]

The issue of ***dominance*** is also expressed through the resulting monotony arising from diminished diversity and its link to a loss of novelty and fascination which otherwise be expected or appreciated in nature.

> *…it would be an absolute and utter bore to keep moving upon tract upon tract of eucalyptus or black wattle or bugweed or longafolia.* [Greg]

> *And also, it* [rooikrans (*A. cyclops*)] *wipes out* [everything]*…they just take over.* [Jeremy]

> *And what spoiled it for me were the black wattles* [*A. mearnsii*]*. Millions of them. They are really dreadful because they are just one species.* [Sue]

Some interviewees reported that this sensory underwhelming and reduced diversity may impede the ability to foster ***connection*** with the natural landscape, a critical element of MNEs.

> *Sometimes I am hunting for power, and when I say that I mean that I'm hunting for peace: a deeply peaceful, ecstatic experience in nature, which is very easy to achieve here. And it is a very subtle thing, just moving through a landscape and wanting to feel a spot that just feels, um, alive… I am quite deeply connected to landscape and the feeling of land, the feeling of rock, the feeling of sea. And I will never pick a place that has got exotic species. I'm not looking and thinking 'exotic' or 'not* [exotic]*' … if I'm going through and I find a spot and then I start looking around, it is never next to an alien species – no chance. And the places with the maximum biodiversity, for me, definitely are much easier to achieve* [this]*. And you might not even be able to see it, you can just feel it - and you will start noticing it.* [Craig]

> *I used to walk in the dunes and to get there you had to walk through a Port Jackson infested area and then you got to a more natural area. And there was a difference between those two places...I'll never go and sit in a place that is full of Port Jackson, or full of black wattle or whatever, it just doesn't feel right…that's why I go to places like* [Nature Reserve] *because it feels more real.* [Fiona]

> *I think they can affect those experiences* [MNEs] *because areas which… have been taken over by alien species… it is very difficult to develop a sense of sacred connection, which is quite ironic - it is quite interesting that you can't.* [Kate]

5.3.4.3.3 Unease and oppression: "they become places of danger and darkness"

As already indicated in the above, a few interviewees felt more subtle sensations when in the presence of IAS which were linked with a usually undesirable emotion, such as unease. This may be directly related to cognitive knowledge; however, it was apparent that for some respondents it extended to feelings:

> *And it is creepy being in there; it is silent, it is like walking into a crypt - you might have things living, but it is creepy - that is all I can say… it is a really creepy feeling.* [Greg]

> *…I get a sense of unease when I'm in* [alien invaded] *places like that…ja, so that would definitely undermine those experiences.* [Kate]

> *It doesn't have the right feeling to it… it is not nice... it just feels unsightly... horrible.* [Fiona]

Furthermore, two interviewees noted that, from their experience in working with Coloured or Black communities in South Africa, stands of IAS are often associated with crime and other unsavoury events.

> *Well, in the Cape Flats those alien vegetation is where people get raped and get abducted into because you can't see people. When you kidnap people that is where you take them away. So it has got that element….there is definitely a nasty - it is not a nice environment.* [Markus]

> *…what we tend to find is that places where indigenous vegetation has been replaced by alien vegetation - like agroforestry, wattle, sugar plantations - is that very often almost an inversion happens: they become places of danger and darkness, places where terrible things can happen to you - like murders and rapes and things like that. So like the sugar plantations, the agroforestry plantations, they are associated in the mind of many of the people as being places of danger - of potential darkness.* [Kate]

In the case of the latter, the negative experience of agroforestry plantations may extend beyond localized unsavoury activities and come to represent an "*oppressive system of control*" which, through exclusionary practices has:

> *…caused suffering, breakup of families…*[and] *a lot of socioeconomic hardship to local people…So it is not just one thing* [i.e. presence of aliens] *- it is that whole context in which it has happened, which causes a very negative effect.* [Kate]

However, as an 'alien' herself in being born in a foreign country, Joy found that the emotions she felt in the presence of alien species were variable and that the difference between whether it was a positive or negative experience was possibly linked to own one's ***sense of place*** or feeling of ***belonging***.

> *… I did find that up at Tokai* [there was] *very much, almost an oppression - and oppressiveness. But on the other hand, in the arboretum, which also has alien species, but it is diverse, I felt at home. It is interesting. I suppose it is my Eurocentric roots that kind of like woodlands and forests and all that kind of stuff, it felt strangely familiar.* [Joy]

A desire for ***familiarity*** and sense of place (shaped by, e.g. one's formative years) were prime motivations behind the introductions of alien species during colonial times (Carruthers et al. 2011). Nowadays, in a globalized world, familiarity also means that (recent) foreign immigrants or tourists may be blind to the presence of IAS:

> [overseas participants like] *the Germans … would be fine with pine trees and forests.* [Bridget]

5.3.4.3.4 Age and beauty: "these beautiful big old trees"

More positive responses to how IAS may affect MNEs rested largely on emotional attachment inspired by specialness underpinned by *beauty and aesthetics and sentimentality…*[Bridget]. These feelings were mainly ascribed to large species of eucalypt trees.

> *I adore giant old blue gum trees. They are giant old fathers of the forest. The small ones I can manage*[to remove]*… it is interesting that it is the old growth that bothers me - and I don't care what it is… old growth - the thought of hacking down an ancient old tree is very hard to me…So, I have very mixed feelings about it.* [Bridget][131]

> [but] *I like my blue gums, because I think they are attractive trees. They are artistic …And this big one I've got down here next to my house. Gee, imagine getting that out. That would be sad, because it is very grand. I mean, you feel a fondness for them, don't you?* [Sue]

> *I think you could probably have a meaningful experience in that place* [Cape Town's "*100-year-old oaks, and Japanese trees"*] *because there are these beautiful big old trees and they have been there forever.* [Fiona]

This emotive sense of specialness may influence the behavioural response toward IAS. For Bridget and Sue, it was sufficient motivation to avoid their removal; for Greg, the specialness of old large eucalypts evoked a sense of empathy which challenged existing knowledge and made the act of removal a difficult task.

> *Yeah, you know, swinging an axe against a big eucalyptus is tough. I was in a big eucalyptus grove …and having a go at them. And these were like big old trees in a grove… And going in there, I was thinking, "Yeah, these guys are sucking big water and I've got to just do my bit here and…" But as I was ring-barking the first two I was thinking, "Wow, there has got to be a lot going on with this tree right now, as I'm stripping this bark off this tree." And feeling this for the tree, I definitely am, because there is nothing else there apart from this big grove…* [Greg]

Some interviewees acknowledged that whilst beauty and sentimentality play a role in fostering emotional attachment, this remains secondary to the ***impact on ecology***. For Markus, acceptance of beauty as a motivating emotion was powerfully displaced by feelings of hate toward the invasiveness of such trees. This in turn was a driver for behavioural response.

> *And I* [have] *spent many hours with old ladies over the phone because they would fight with us because we would take out their beautiful old blue gums or wattle or their pines or whatever. But they are completely misinformed and I can understand where it comes from. To them it is a beautiful tree and I don't doubt that. My problem is, my dealing with it is, what the threat to the natural environment is - and that is where my hatred for these aliens comes in. Not for… the blue gum. There is a blue gum there outside my door on the pavement…but it is still a beautiful tree. But if it becomes an invader and threatens my garden then I will take it out straight away. In fact, I've killed quite a few of these trees already.* [Markus]

Likewise, Jeremy's understanding of the underlying interconnected impacts on ecology overrides reasons of visual aesthetics or emotional attachment.

> *I mean, for example, you have the nice tall trees, right, but you'll find that there are no small birds. And you wonder, "Why are there no small birds here?" Because there are sparrowhawks and the sparrowhawks will prey on the birds.* [Jeremy] …And more frankly:

> *You get people complaining because they are killing the trees on Table Mountain. Yes, they have been there for 100 years… but so what?!* [Jeremy]

[131] During the course of this interview, Bridget also recalled that one of her most powerful MNEs was an encounter with an ancient Yew tree during a visit to England.

5.3.4.3.5 Balance and invasiveness: "there needs to be a balance"

Between these extremes, Greg and Fiona reflect on their desire to find the ***balance*** between recognizing the beauty of an individual plant, its utility and its potential ***impacts on ecology*** in terms of threatening the entire ecosystem.

> *I try hard not to kind of have that* [negative] *attitude all the time, because some of these exotics are beautiful plants… but the long-term of it is that there are repercussions of that single beautiful plant, you know…. Beautiful, but not in here in South Africa…*[Greg]

A recurring and underlying theme for finding that balance is the condition or perception of ***invasiveness*** – and what determines (one's perception of) when a species becomes invasive.

> *For me, I think there needs to be a balance. Because there are certain things which are very invasive and, for me anyway, it totally destroys your ability to have a meaningful nature experience. And yet, there are others that don't. For example, in Cape Town there is a lot of talk about how they must cut down all those trees - 100-year-old oaks, and Japanese trees, and all that kind of stuff…And it is just different from a tightly packed invasion of Port Jackson. So I think there needs to be a little bit of a balance ...* [Fiona]

Sue also used context-specific arguments of ecological interconnection and invasiveness based on direct observation and experience of place to argue against the removal of certain IAS. Evidently, a certain amount of utilitarian self-interest is involved.

> *Those* [blue gum (eucalypt)] *trees up there - before we cut them - never spread. Never, ever, ever, ever. They didn't. So why not leave them? They are part of something. And the bees - they make beautiful honey. There was a beekeeper talking about if they take all my gum trees, my bees will have nothing to eat at a time when there aren't any other plants in flower... And the birds love perching up there - the birds of prey, you know, the drongos, the bats, the nightjars always hide under there - so certain things like it* [amongst the blue gums]. [Sue]

Here, as in Study 2, we see that opinions and experiences are heavily ***context dependent.***

> *I understand the appropriateness… in the ecological context, there is a necessity for balance, and for the survivability of the system as well. That is true. But at the same time,* [I don't see a need for] *having to make them bad and actually putting a value attachment to it.* [Anna]

5.3.4.3.6 Sanctity and essence of life: "we are connected with everything"

Similar to Part B, themes of ***sanctity of life*** emerged and these sentiments were more often harboured by interviewees who i) exhibited a high degree of CWN; and/or ii) have had MNE(s) which have provided insight into the interconnectedness of life.

> *It* [an alien species] *makes no difference at all* [in deriving an MNE or deeply connecting with nature]. *A natural being is a natural being. And which regions they are endemic to or what their proliferation rate is or anything at all are merely characteristics. But on an essential nature level, they are made up with the same building blocks as anything else, and are just an expression of life.* [Anna]

> *…it will always come to you…you know, if you are meant to know something, sure as God that will be orchestrated up there so we get that message. So whether we suddenly ploughed the whole of Joburg and removed all of the trees and made it into a desert, there is still going to be messages from what is there - we don't have a hand in it! We think we do, but I don't believe that.* [Sonya]

> *Well, they* [MNEs] *do come up in any environment - they have to. Because it is the principle of the process, which is the connectedness of all other things. We are connected with everything.* [Tony]

As found in Part B, when individuals asserted that the presence of IAS was irrelevant in influencing MNE, this claim was often supported by the view that their essence remains 'life' and, in recognizing this, *…a "love for what lives" enters into the picture.* [Bridget]

> *I actually feel sorry for the invasive species, the exotics because they didn't ask to be here – they were brought here. Sometimes we regard them with…malevolence… almost with a kind of evil. So that people say, "Oh, the damn aliens, the damn invasives". And I think about all these - they are all life. And it was us who created the problem - the problem lies with us not with the trees, y'know. That's the way that I see it. We have created the problem - whether they impact, they are just a symptom of the cause of the problem, which is us.* [Patrick]

5.3.4.3.7 Learning through mirroring and metaphor: "so how invasive are we?"

These sentiments dovetail with the idea that nature can always serves as a teacher for the human psyche. In this sense, one may always be able to infuse or extract meaning from their nature encounters if they remain open – or reflectively explore – ***metaphors*** arising from experiences which blur the boundaries between nature and psyche. MNEs may even occur in stands of IAS and generate their own insights which, whilst apparently contradictory to ecological ambitions, may alternatively support psychological well-being in developing, e.g. ***compassion***.

> *I think you learn different things in those spaces…And I had probably had as many useful insights in a stand of aliens as I did in a pristine situation up on top of a mountain. So I don't think that I personally learn any more or any less if the biodiversity is local and massive or if the diversity is fairly foreign and restricted. I still think that there is a lot metaphorically that I can learn. I changed a hell of a lot in terms of my attitude to invasive species. Yes I know all the biological and ecological reasons why they are not a good thing and should be gotten rid of. But I'm not nearly as purist or rampant…or as kind of single-mindedly negative about them… as I used to be. Because I see it also as life and as valuable…I think they are beautiful, I think they are useful, I think they have meaning…I even have a kind of compassion for alien species now …that's a big transition!* [Joy]

In South Africa, 'alien' and 'invasive' also have a very real human dimension linked to immigration. In recent times, immigration tension has resulted in outbreaks of ***xenophobic***-fuelled violence. This uncomfortable interplay was primarily acknowledged by those interviewees born outside of South Africa.

> *…you and I are both alien species in South Africa. I am born and bred in England and you are from Australia. And yet the country is giving us things. And we're giving back to the country. So how invasive are we?* [Sonya]

> *I think they are culturally a part of me. I am alien, over this small period of historical time. Everyone is an alien in this period of historical time - we have all moved. And so perhaps a more compassionate eye can start to see things in ways that the managerial eye does not see.* [Joy]

Tony recalled an experience guiding a multi-cultural group in a wilderness area. He was explaining the problem of IAS and, in doing so, he felt that the expressions on the faces of the Xhosa and Zulu participants registered a sense of, "Hang on, we've heard this story before." The ecological story uncomfortably ***mirrored*** colonial history.

> *… we must remember that we are an invasive species, you know, the settlers. We mustn't forget that. We must never lose sight of the damage that we created, and still create. And that has got to be addressed…We've got to atone*. [Patrick]

> *And it is so metaphorical of our lives and how we deal with our own sense of belonging* [or] *value of diversity or the monoculture of our communities. Do we value a diverse human community? … Because we can either look at that and say, "Wow, fabulous, integration, we are all the same and we are all one* [or we can say], *"Aaagh, we are losing this richness and diversity!"* [Joy]

Metaphorical learning may include lessons which can be found in nature and applied equally to human endeavour. Some interviewees, particularly Sonya, *"…work on the principle that anything and everything on this earth has a purpose - it is how we use the things that makes it negative or positive."* Therefore, the onus rests with the individual to find that *"…there is a lesson there, if you do look at nature as a way of teaching you."*

Sonya found that the idea of introducing alien species illustrates the human tendency to interfere and manipulate for our own benefit. The lesson therein is one of seeking a more harmonious relationship with nature. However, overall, Sonya did not see IAS impacting her chances of deriving messages and MNEs and, alternatively, contended that humans could learn from the ***adaptability*** of flora and fauna:

> *…the biggest thing that we can learn from animals in particular is how adaptive they are. We sit and bitch and moan when something is put into our life and we can't cope and we want to keep to the old and all the rest of it, whereas birds they don't have much of a choice and if you suddenly change their environment, they are either going to die or they are going to adapt. And more often than not, they adapt. And I think that is what we have got to learn, it is the adaptation.* [Sonya]

5.3.4.3.8 Learning through direct experience of ecology: "it is like chalk and cheese"

It is evident that IAS may negatively affect the propensity for MNEs. However, the experience of IAS and may, through insight and metaphor, become a MNE in itself and instigate a profound ***shift in perception***, based on new ecological understandings.

> *My whole thing with alien plants started when I was at school camp…and they took you into the mountains… this is in the 70s…as a 14-year-old… they showed us the hakea and the problems with hakea. It was my first introduction to alien plants and it gripped me there and then…So there was that experience way back on a camp - it was probably at church camp or something - it wasn't even a nature camp. But that was just one thing we did…we walked into the mountains and the guy started showing us all these alien plants and how they were taking them out. And that* [snaps fingers] *sparked something for me… from then on I realized how big the threat is.* [Markus]

This blend of insight with ***sensory impressions*** and ***emotions*** elicited during the experience coupled with subsequent ***reflection*** may motivate ***behaviour*** or an intention to act:

> …[but its] *that sensation like, "Oh man, this has just got to go". You're overwhelmed in a sense that …people that are advocating that, "Well let's just let this take its course"* [and you want] *to bring them out there to get a sense of, like, the sterility that is in these forests. So there is definitely a sensation of "Well, we need to get this cut, we need to get this moved."* [Greg]

> *…we did a contrast of species diversity on the ground, and amongst the pines. And I think there is a very profound, embodied experience of, if you value diversity, as opposed to monoculture, then it is a no-brainer. You've got to get rid of these one species things that are holding back this life.* [Joy]

However, Markus believes that such an experience needs to be facilitated by someone capable of providing the interpretation and highlighting the contrasts.[132]

> *…but somebody has to show you… to interpret what you see, to take you into a black wattle forest or plantation to show you what the life in here is - it is dead. And then take them to an indigenous forest and show them the differences and how alive everything is and how the water is running. It is like chalk and cheese. I mean, but how many kids are able to have an experience like that?* [Markus]

5.3.4.3.9 Knowledge and perception dependent: "you learn to see"

As identified in Part B, many responses were dependent on knowledge and/or embedded with a specific context in mind, despite this not always being made explicit, or possibly even within the interviewees own frame of reflective awareness. Anna provides an example of how some of her facilitation work aims to demonstrate how ingrained ***beliefs*** and ***knowledge*** colour our ***perceptions*** and taint our ***experiences***:

> *In some of the workshops I run… sometimes I would blindfold people and have them feel out their surroundings, literally, grasses, bushes, trees, and so on. And for those that have the strongest prejudice against alien species…I will make sure that somewhere in their wanderings they are taken to the field and they connect with an alien not knowing that it is one, and to just experience it as raw form. And they are usually horrified when they take their blindfolds off and realize how they had an experience that goes against their judgement-based view.* [Anna]

Markus openly acknowledged how the accumulated ecological knowledge attained in his profession is detrimental to his ability experience certain types of nature in its "raw form".

> *It has got a serious impact* [on my experiences]. *Because… I know all my alien species first of all. And the moment I go into a new wild area, or what is supposed to be pristine, just one tree can mess it up. So you can imagine going into wild country and suddenly there is clumps of whole riparian areas that are invaded by wattle. It just completely detracts from it. And in a way knowledge can be detrimental to your health or to your well-being* [laughs]. *It is a fact.* [Markus]

Sheena also saw the pervasive influence of her knowledge and how it has conditioned her to automatically reject other perspectives which may be valid in certain contexts.

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[132] Markus's comment came at the conclusion of the interview and as was prefaced by myself as the interviewer recalling a story about a French volunteer I spoke with who was tasked with clearing black wattle (*A. mearnsii*) on a conservation-minded farm. During his first days on the farm and newly arrived to South Africa, the volunteer had expressed great frustration at the inexplicable concept of being on this 'eco-farm' and spending all day removing and poisoning black wattle. Some weeks later, he encountered an old growth black wattle 'forest' and reflected:

> *It is strange because when I first came* [here], *I started by cutting the black wattle… and I was just there cutting black wattle, cutting black wattle and using a lot of poison and this area was cleared just two or three years earlier so there is huge piles of cut black wattle and it is like an endless work because you see the huge piles of black wattle and you cut it and you see the small ones growing and I didn't understand why we fight against nature…And then yesterday I came to see the black wattle forest and <u>then</u> I understood. I could better understand what are the real aims of cutting black wattle. Because I could see it with my own eyes. It's not something someone put in my imagination and said, "OK, now cut the black wattle - cut it cut it cut it"* [because back then that was like] *"I can't, I can't, it is too much". It was strange. Usually when I am in a forest, I see a lot of plants, a lot of insects, I hear birds. .. Sometimes I can see animals and everything and mushrooms and everything. It was like a dead forest… Because there is only dust, black wattle and there is no sound, no smell and there is only animal shit on the dust and that's all. Only black wattle and dust and dust and dust - and no insects. Usually when we walk through the trees, we can come across spider webs that come on your face and this doesn't happen in a black wattle forest because there is no life. Maybe volunteers should probably start by...seeing the black wattle first and then go along the river and see what has happened there. And, ok, maybe black wattle is indestructible but we have to try…to really educate, people need to experience it.*

> *I've been working on invasive plants now for the last … four or five years and it is kind of being drummed into me about how bad they are. And they steal water, and this and that and the next thing. But my Gran said to me one day, "You know, what happens with climate change and whatnot? They are just trees, after all. And they will sequester carbon dioxide. Who knows, they may be the answer, you know?" Which kind of got me thinking..*! [Sheena][133]

There are various types of knowledge and, in this analysis, we have seen interviewees give reference to ***direct experiential*** knowledge (*I could see it with my own eyes…);* ***self-taught*** knowledge (*And since then, I read up…*); ***informal interpersonal*** knowledge transmission (*If no one told me about that in those days, I would probably still be ignorant about it*); and ***formal institutional-based*** knowledge transmission:

> *Generally an understanding of the significance of invasive species tends to be an academic thing. I mean as a kid, I can remember... I originally did a diploma in nature conservation, ok, and I can remember one day driving with my mum somewhere through KwaZulu Natal and we were driving through a plantation and, being the sort of arrogant little shit that I was, I said, "Oh no, it is just a green desert". You know, because it was full of pine trees. And my mum turned to me and said, "Well, you have just ruined the experience for me!" And to me, that is so often the case that you learn to see. And I'm not saying that we should allow invasives and that but we often - in terms of the experience - you learn to see what is wrong with the system rather than just inherently feeling that, you know, there is something bad here. So for a simple answer, I don't know necessarily know whether that detracts a huge degree…from an experience point of view - not from a conservation point of view.* [Scott]

There is an apparent tension between this "experience point of view" and a "conservation point of view". The former, born out of direct unmediated experience, may embody subjective traits and perceptions which may support CWN. The conservation point of view is seen as being mediated – and built around - objective scientific knowledge. Therefore, when one asks how MNE may be influenced by IAS, a split interpretation can be postured.

> *The spiritual aspect* [of MNE] *is not tainted at all. But the scientific and factual aspect is tainted, that's all. And from a conservation point of view, that is important to us. But the spiritual and the connection to nature is not tainted to that extent. But the knowledge… you now get the wrong idea of what that area is supposed to look like and what it should be doing…you get the dissemination of false information because you are getting a false experience.* [Jeremy]

Which 'knowledge' should be upheld as the actual 'truth' is a source of ongoing debate, particularly concerning the legitimacy of, e.g. Indigenous ecological knowledge and other more experiential ways of knowing which do not conform to conventional scientific thinking.

> *So it just depends on your perspective. And I don't think I really want to own one perspective, because my perspective is quite changeable according to what is most important for me at the time. And that doesn't help anyone does it?! But I'm far less entrenched in a position than I used to be. I can see many more sides of the story now than I did before* [laughs]. [Joy]

Augmenting ***different ways of knowing*** and different perspectives may not yield one definitive answer but may instead assist in weaving diverse knowledge bases into changeable contexts with a view toward compassionate and empathetic action.

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[133] Informal talks with a conservation-minded landowner (in the Kouga catchment of the Baviaanskloof Mega-Reserve) revealed his express desire to retain current stands of *A. mearnsii* on his property given their potential role in mitigating rising global CO_2 emissions. The land-owner is otherwise averse to IAS and maintains he only plants native species (this example also cited in Kull et al. 2011).

Box 28: "We are conservators. We are not bunny-huggers."

Jeremy and Markus expressed irritation toward the perceptions of so-called 'bunny-huggers' and, worse, that they as 'conservators' or 'ecologists' may be tarnished with the same brush in their professional capacity. Their reflections illustrate recurring frustrations encountered in dealing with persons who take issue with the idea of 'killing for conservation'.

> *The problem is that you have people who are bunny-huggers and will say, "But you can't kill any animal." You get* [bird species] *in our ponds and people say, "But they are my animals, you cannot do this!" But they are destroying our bigger environment.* [Jeremy]

> *I'm not a greenie. I am an ecologist and I think of things in a natural way. To me, greenies are people that sort of like hug everything and think everything must be loved and everything must be protected. And that's not the way - you don't protect aliens and things that are a real threat to the natural environment. It is a misguided thing. To change that with a real bunny-hugger case is not easy because it is an emotional thing. It is not a straightforward thing… You need to understand people's psyche, before you start trying to address it. But you can make serious enemies, eh.* [Markus]

The source of antagonism appears to centre on the debate or moral stance on individual rights versus community rights. Ecologists', by definition, side firmly with the rational and reasoned approach that *"If you are going to have to kill something then kill it to preserve the bigger picture in the environment"* [Jeremy] as opposed to the more emotional-based appeal of a *"love for what lives"* [Bridget].

Whilst ecologists may sympathize with those sentiments, they usually find this view to be misguided (*"I think they are misinformed..."* [Markus]), since it is felt the perception or emotion is based on a lack of understanding of natural history and the reality of interconnected ecological webs.

> *So now you chop down trees and people say, "Oh, you are killing the sparrowhawks." Yes, we are killing the sparrowhawks but they are not supposed to be there in the first place. And those little birds are supposed to be here. So let them come back. Let the little birds who are supposed to be here come back… If you want to see a sparrowhawk, go to where it is supposed to be in its habitat. We are conservators. We are not bunny-huggers.* [Jeremy]

Image 13: What's behind the tree? Conservationist, bunny-hugger or both?

5.3.5 Discussion

The combined results and analysis raise multiple points for discussion, many of which could form the basis for elaborate philosophical debate. However, a select number of discussion themes have been identified across Parts A, B, C and framed according to: i) Jacobs' (2006) division of reality into modes of *matterscape*, *powerscape* and *mindscape* (Box 3); and ii) Ballantyne et al.'s (2011) four-layered categorization of tourist responses to wildlife experiences as consisting of: sensory impressions; emotional affinity; reflective response; and behavioural response.

Jacobs (2006) conceptualizes landscape reality as being comprised of three modes: *matterscape* (biophysical reality), *powerscape* (social-cultural reality) and *mindscape* (psychological reality), whereby landscape appears as a different phenomenon in each. This understanding finds particular relevance in the study of IAS since different standpoints are argued from within or across these modes but without explicit acknowledgement or awareness of the fact that these modes - as a default 'lens'- are used to support contentious arguments which may polarize debate (e.g. Davis et al. 2011, Valéry et al. 2013; see related opinion Appendix: 9.16.3).

Ballantyne et al. (2011) identified (visitor's) responses to wildlife experience as consisting of: sensory impressions, emotional affinity, reflective processing and behavioural response (intent / action). In the same way, we note that respondents in this study also provided responses which could be similarly classified into these categories. These categories provide a useful framework for orienting the salient dimension of experience with respect to IAS and MNE.

Responses to the experience are also part of the reality of *mindscape* (Table 31) but yet may be heavily influenced by characteristics of *powerscape* and *matterscape*. Ballantyne et al.'s (2011) categorizations also resonate with Thayer's (1976 in Jacobs 2006) five levels of meaning (i.e. in *mindscape*) found in landscape and place (Table 31):

i) *presentation level:* physical properties of place (e.g. form) provide aesthetic sensation
ii) *associative level:* place evokes familiar images based on prior knowledge, concepts
iii) *affective level:* place elicits an emotional response
iv) *symbolic level:* place is compared with the value system of the perceiver
v) *activation level:* place triggers action, through a corresponding behavioural set

Thayer's levels of meaning are not systematically addressed in this discussion but provide deepen insight when considering Ballantyne et al.'s (2011) categories as part of *mindscape* (Table 31).

The combined categories (Table 31) were implicit within many of the participants' responses, particularly in the way in which experiences were recalled and conceptualized. Critically, it was evident that prior knowledge, context and prevailing ethical / value positions were influential on interviewees' responses.

Table 31: Relationship between conceptual realities and key themes from respondents

Realities *	*Key themes from Part A, Part B and Part C with respect to IAS*
Matterscape	Characteristics in an individual context: age, size, colour, odour etc. Characteristics in a landscape context: proportion, uniformity. Characteristics in a changing ecological systems context: diversity, species composition, (a)biotic properties, trophic interactions, ecological functioning
Powerscape	Belonging, language, metaphorical, relationships, nationalism, nativism
Mindscape	'State of mind' - largely determined by focus of directed attention (i.e. the intentionality component of consciousness)
- *Sensory impressions* (Presentation / Affective)	*Positive:* Aesthetic appreciation, beauty, novelty, enhancement of landscape *Negative:* Monotony, silence, lack of 'power'.
- *Emotional affinity* (Affective / Associative)	*Positive:* Compassion, empathy, specialness, sentimentality, enjoyment, familiarity *Negative:* Disconnection, boredom, darkness, oppressiveness, unease, frustration
- *Reflective processing* (Associative / Symbolic)	*Positive:* Context, irrelevance, discovery, learning, identity, sanctity, metaphorical *Negative:* Naturalness (lack of), authenticity (lack of), dominance, destructiveness
- *Behavioural response* (Activation)	*Positive:* Acceptance, tolerance, utilitarian use, engagement *Negative:* Avoidance, removal (incl. volunteer activities), killing (of alien species)

* 'Realities' based on: Thayer (1976); Jacobs (2006); and Ballantyne et al. (2011);

Part A concluded that OQ and PQ respondents viewed IAS as detrimental to MNE and, with that belief, are therefore likely to impact on an individual's future ability to have and appreciate MNEs. However, it was notable that: i) the number of highly negative responses was closely matched by the number of neutral responses, indicating that one has either a tendency to be emphatic about their detrimental wide-ranging impact or unsure; and ii) r/OQ respondents were more likely to perceive the influence on MNE in a positive way. For the latter, possible explanations might be: i) lack of ecological knowledge of the IAS 'issue'; ii) IAS do not present the same threat in The Netherlands; or iii) *synchronicity as a MNE* brings realizations that the experience is attainable irrespective of species 'labels'. The fact that many OQ respondents (many of which had education or occupations in environmental fields) assumed a position of neutrality might also suggest that insights from MNE challenge a categorical view of nature. To what extent does prior education and direct experience of IAS influence perspectives? Does the high proportion of negative perceptions from PQ respondents who had never had a MNE support the notion that MNE changes perceptions toward IAS?

There remain too many variables for definitive answers. However, the trends are suggestive and may be supported by the finding that CWN (as measured by the CNS) did not return any correlation with respect to how one perceives IAS affecting MNE. This aligns with Luck et al.'s (2011) findings which found little evidence for changes in well-being or CWN when only considering native species as compared to alien species or a hybrid landscape (although native species were a large proportion of the species recorded in their study). Similarly, it was found that variation in environmental variables had little statistical association with residents' CWN (Luck et al. 2011). This illustrates that: i) personal and demographic variables, such as education and knowledge of *mindscape*, may be highly influential, and further magnified when combined with the 'right mix' of situational / environmental variables in *matterscape*; and ii) situational / environmental variables in *matterscape* are less important when set against a backdrop of high CWN (i.e. by persons who consistently exhibit cognitive and emotional traits of high CWN – in the *mindscape*).

Part B further emphasized that the nature of context could effectively dictate an individual's perceptions and find them oscillating between extreme dissatisfaction with and empathetic acceptance of IAS. For many, the perceived beauty is the determining factor; and this supports the view that vision and visual aesthetics (where *matterscape* meets *mindscape*) dominate the perceptual composition of human experience. For others, the context may be the perceived extent of invasiveness, the threats to environmental integrity (naturalness) or native diversity which were the catalysts for the MNE. The idea of 'naturalness' is said to be a subtle variant of the aesthetic argument, such that the presence of an alien is seen as "an offence against nature" (Simberloff 2003). An additional key theme here was the sensitive context of 'sanctity of life'; that, in their value-free state, IAS are 'life' and part of nature. Under what conditions should we now 'kill for conservation'?[134] The importance of knowledge and pre-existing mental models / concepts was confirmed as influential in shaping perception and individuals' interpretation of experiences involving IAS (Jacobs 2006). However, the extent to which knowledge influences the experience is difficult to determine through analysis of participants' responses alone. Categorizing themes according to the conceptualizations of Ballantyne et al. (2011) provides insight into how and where knowledge may be most influential.

Part C explored experiences of selected (see Section 3.3) South Africans who exhibited high CWN and were deeply engaged with landscape through either personal or professional endeavours. Multiple thematic and philosophical dimensions were identified, making for a potentially involved discussion. In accordance with research aims, the focus will be MNE and implications for education (see also Chapter 6.5.4).

5.3.5.1 Sensory and emotional responses: beauty and aesthetics

Sensory impressions and emotional affinity often characterize the essence of MNE (Section 4.3.4). It is therefore critical that these dimensions be factored into understandings of how IAS may affect MNEs (or even more general forms of nature experience) and their ability to facilitate or impede an individual's ability to establish CWN. Equally, sensory impressions and emotional affinity can be key drivers in influencing attitudes and behavioural intentions toward IAS.

Analysis found that reported sensory impressions were, after an initial period of novelty, usually limited, lacking and/or, experienced as unfavourable in areas dominated by IAS. These impressions were closely linked with the perceived lack of diversity (and naturalness) which subsequently gave the area a unique, yet ultimately undesirable appeal. Reference to subtle sensory perception and emotional sensitivity, sometimes linked to knowledge of unpleasant past and present activities, found IAS stands as delivering a disagreeable experience which inhibited the sense of connection and renewal which may derive from nature experience. Concerns expressed about IAS based on aesthetics have "explicitly appealed to a sense of psychological well-being associated with native vegetation" (Simberloff 2003: 188).

[134] Cowan and Warburton (2011) discuss the ethical and welfare concerns which should be asked before embarking on eradication programs which 'kill for conservation'.

The impression of visual beauty (or lack of) featured prominently, yet opinions were context and species dependent: large old-growth trees in certain areas were generally viewed as appealing and conducive to MNEs over the more prolific non-descript (and thus less charismatic) species which 'spoiled the view' by being either disproportionate or uniform. This illustrates how heavily human perception is grounded in the subjective sense of 'aesthetics', before other knowledge or experience may come to complement or displace this initial judgement.

Simberloff's (2012a) examination of Leopold's evolving view of alien species during the course of his life provides a useful reference point against which results from this study can be compared. Leopold's writings were heavily focused on beauty and, early in his career, cited "attractiveness" of native forests as a reason to preserve them, although it was unclear what he meant by this term (Simberloff 2012a). Leopold's growing distaste for alien species has been attributed to various factors: his initial arguments centred on utilitarian and productive reasons (and possibly, but debatably, an affinity for outright "nativism") (Simberloff 2012a). It appears Leopold's views, supported by his relationship with Charles Elton (often regarded as the founding father of invasion biology), subsequently evolved into a land ethic notion of healthy ecological communities and ecosystems, but which was still underpinned by judgements concerning aesthetics.

Simberloff (2012a: 501) cites Callicott (2008) as describing Leopold's "land aesthetic" as "a systematic theory of natural beauty and the criteria for its appreciation." Callicott (synthesized in Simberloff 2012a: 501) observes that:

> …the "picturesque" aesthetic tradition that has until recently dominated Western appreciation of natural beauty values natural entities, such as species, communities, ecosystems, and landscapes, to the extent that they adhere to the formal requirements of painting (including landscape painting): perspective, balance, having a foreground, middle ground, and background, and the like. This might be termed a "surface" aesthetic. Leopold's land aesthetic, by contrast, is partially cognitive, reflecting a deep understanding of the ecological workings and context of a natural entity, as well as of its evolutionary history. As Callicott puts it, "Leopold's land aesthetic, like his land ethic, is self-consciously informed by evolutionary and ecological biology."

Similarly, in this study, many respondents' opinions varied between 'surface aesthetic' and 'land aesthetic' and this is capable of subsequently influencing the triggers or inherent qualities of their MNE.

Early landscape architecture also relied heavily on aesthetic arguments of native species, whereby 'a matter of taste' (*mindscape*) is moulded by the social-cultural psychology of the individuals or groups in question (*powerscape*) (Simberloff 2003; Jacobs 2006). The removal of IAS is often contested on aesthetic grounds or property values; however, in some cases, more ideological terminology pertaining to morality may be induced (Simberloff 2012b). An example is the removal Australian eucalypt trees in many parts of world, but particularly in California where they have been present since the 19th century and have become a cultural icon, spawning a major school of art (Simberloff 2012b). People in opposition to their removal either do not recognize them as alien (Simberloff 2012b); do not possess the knowledge of their social-ecological implications; or, if they do, their experiences of the eucalypts are more (emotionally) influential than knowledge (Figure 17).

5.3.5.2 Reflective response: knowledge and experience

> *We do not think and talk about what we see; we see what we are able to think and talk about.* ~ Edgar Schein

Results show that sensory impressions (aesthetics) and emotional affinity alone are usually insufficient to shape opinions on how IAS and MNEs may influence each another. Rather, it is the cognitive processing and reflection of (personal) meanings which, interwoven with pre-existing and emergent knowledge lead to the development of new mental concepts and perception (Kolb 1984 in Ballantyne et al. 2011). In this regard, it is interesting to reflect on the extent to which knowledge and emotions may entwine for different persons. Simply depicted, we may visualize this cognitive process as being a 'battle' between emotional affinity and intellectual knowledge and reasoning, whereby time (i.e. accumulated experiences) can shift the centre of personal meaning between the two (Figure 17).

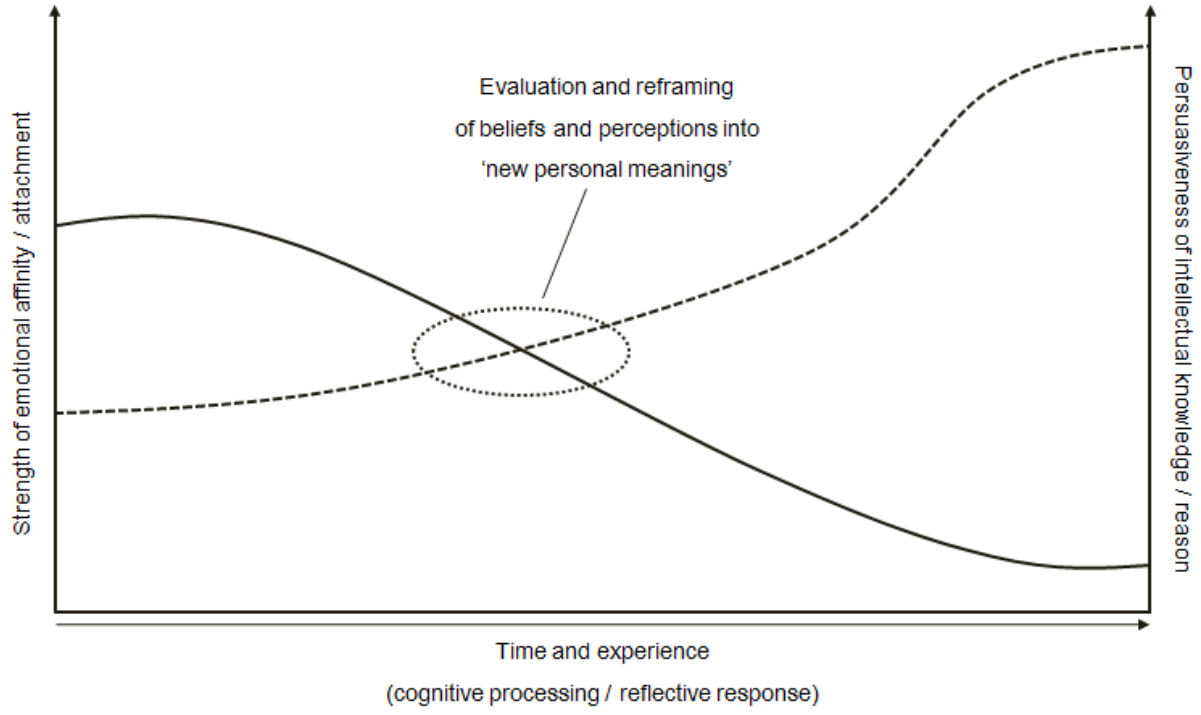

Figure 17: Continuum of cognitive processing toward IAS
Key: *continuous line* —— = strength of emotional affinity; *dashed line* ------- = persuasiveness of intellectual knowledge

In reality, the process is far more complex with multiple influencing variables. However, Figure 17 helps to depict the evolution and potential polarization of perception-forming processes. For example, for in-depth interviewees exhibiting an affinity for certain alien species (e.g. old-growth eucalypts) but yet knowing the ecological impacts, we might expect repeated intersections (i.e. evaluations) to reflect the 'internal wrestling' between emotion and knowledge over time and context. Alternatively, the process may be clear cut: some persons may exhibit either a steadfast emotional attachment to IAS (e.g. through a strong sense of attachment to place) or, in contrast, allegiance to acquired knowledge of IAS which highlights their destructive traits. In these latter cases, the lines (Figure 17) would unlikely intersect as conscious evaluation / reframing since any reassessment of beliefs or perceptions would not be expected.

Direct experience may be the primary source of learning (cf. Kolb 1984) and all experiences have value. The value of experience comes down to "what one does with it" i.e. subsequent behaviour or action which is embedded in critical personal reflection (L Le Grange pers. comm.); however, reflection is not a lucid all-encompassing objective experience of reality. Jacobs (2006:3) argues that the knowledge gained through daily experience is insufficient "since various factors may influence experience unconsciously and are thus inaccessible to us directly". Experiences, being unique in their details, present questions which we cannot fully answer and thus suggests that there may be a deeper intuitive quality to an experience than that solely obtainable through conscious reflection (Jacobs 2006; Morse 2011).

Rather than being at odds with each other (as Figure 17 might indicate), the combination of emotional affinity with reflective response may most powerfully influence the formation of perceptions, since these responses may either lead to a concern and respect for the IAS involved (cf. Ballantyne et al. 2011) or, alternatively, may instigate an emotional aversion and affirm a commitment to proactively address IAS. This integration of affective and cognitive responses can lead to a stronger expression of emotions such as (com)passion, anger, frustration, heartbreak, and indignation (Ballantyne et al. 2011). The subsequent reflection may provide the "missing link" between 'just' experiencing and acting (Ballantyne et al. 2011). Bremner & Park (2007: 312) assert that:

> Until people have more personal experience and understanding of the damage caused by alien species they will not realise the benefits of control and eradication programmes (Fraser 2006).

Whilst this may be apt in many cases, the results of Part C show that we cannot assume this to hold true in all cases. Sometimes, we may find that the experience may deliver unintended consequences in terms of, for example, not aligning with ecologists' or educators' desires. This is because 'experience' ultimately operates at the complex level of mindscape. As Jacobs (2006:13) notes:

> The principle that past experiences can heavily influence the way a person perceives a certain landscape is applicable to mindscape but not to matterscape or powerscape.

Part B and Part C show that knowledge is highly influential in governing how perceptions of IAS and the landscape. However, without complex psychoanalysis, it is near impossible to determine how that knowledge is formed within a given individual, such that shapes attitudes and behaviour. The erroneous assumption that the transmission of information via education and public awareness programs is sufficient to effect learning and behaviour change has already been discussed (Section 2.2). However, the results of Parts A, B and C suggest that increasing eco-literacy (knowledge) in association with - and mediated by - relevant direct experience can be beneficial in changing perception. In addition to changing perception, knowledge can be important in directing attention and shaping the intentionality which is central to forming the content of consciousness. Knowledge endows us with new mental concepts which provide the frames and filters within which we can classify and organize incoming sensory stimuli. Conversely, these mental concepts also work from the 'inside out' and begin to dictate how we perceive and sense external stimuli. As we become more attuned to identifying IAS, we will find that our attention is increasingly directed toward 'seeking them out' and thus contributes to an ecological (IAS-based) consciousness (Box 29).

Box 29: Eco-literacy, knowledge of place and selective attention in forming IAS consciousness

In a pilot study for this research, interviews were conducted with volunteers engaged in a weekend 'hack' (i.e. clearing invasive plants) organized by the Friends of the Baviaanskloof Wilderness Area (FOBWA). One participant's response illustrates how repeated direct experience increases eco-literacy and knowledge of place:

> *In the beginning we were still illiterate as far as the species were concerned* [so it did not affect our nature experience]. *But now they* [IAS] *affect my enjoyment of the wilderness because we know what they do. And that they shouldn't be here. And as you get to know trees…it is like looking at a crowd. Before… it was just a crowd and you didn't know anybody… and all of a sudden you can look at the crowd and say, "Oh, there is Piet, there is Andrew… and there is Mr so-and-so and he shouldn't be here - let's kick him out."*

In this light, it is also worth noting that almost all respondents to this research alluded primarily to invasive vegetation. It would seem that, despite the presence of invasive populations of animals and insects in South Africa, they are not as prevalent in public consciousness as invasive vegetation which tends to be more visible, more threatening to ecosystem services of public interest (although the Argentine ant, Indian crow and freshwater bass are notable exceptions) and management of invasive vegetation has been more widely publicized (see Murray 2005). A lack of focus on alien and invasive animals is not to deny their ecological threat but instead supports the finding that eco-literacy / place-based knowledge and impacts on personal utility (as mediated by, e.g. (aesthetic, visual sensory) experience and (formal) education programs) have primacy in shaping perception of (apparent) problems.

5.3.5.3 Behavioural response: eradication vs. empathy

This research was not designed to investigate long-term behavioural responses of interviewees. However, numerous quotes cited in Part C made reference to actions undertaken (or intentions to act) in response to the experience of IAS and/or subsequent changed perception. Generally, the experience of IAS formed a conviction that they be removed from the landscape and interviewees had sometimes acted in this regard.

Emotional attachment may play a pivotal role in motivating ERB (Section 5.2). Whilst this appears desirable in fostering love, appreciation and commitment to biodiversity protection, it can conversely be the nemesis of IAS eradication programs, where a person's emotional 'irrationality' is perceived to be an impediment to actions aimed at supporting a ecological integrity. Although CWN has been shown to predict ERB, will an increased sense of interdependence with the natural world always promote such acts (Frantz et al. 2005)? This question has specific relevance when we consider IAS eradication to be an 'ecologically-friendly act'.

A key question here is which worldview or values orientation is more likely to be aligned with long-term ERB *across the board*? For example, numerous interviewees were able to adopt other perspectives which showed a degree of empathy. As demonstrated (Sections 2.2; 5.1), the ability to feel empathy for another being is also associated with the higher CWN exhibited by in-depth interviewees. Interestingly, the interviewees most outspoken against IAS also returned the lowest CNS scores (relative to the other in-depth interviewees, but above the CNS average of participants in Part B).[135] The two highest scoring interviewees on the CNS recognized the ecological impacts of IAS yet were averse to their negative labelling and expressed empathy and appreciation of the intrinsic worth of IAS as 'life'.

[135] There is some paradox in the possibility that some of the most ardent protagonists of IAS may be ecologists, practitioners or educators who, in the expressing their impassioned views, also engage with highly emotive and anthropomorphized language - two tendencies which are usually avoided in the natural sciences, particularly when such charged language is used to convey positive or favourable emotions toward nature and wildlife.

It is clear that MNEs may occur in populations of IAS and generate their own insights which, whilst sometimes appearing contradictory to immediate ecological ambitions, may alternatively support psychological development through fostering positive traits like compassion, empathy and the inclusion of nature in a sense of "I", which are important traits for cultivating CWN and, in turn, ERB (Schultz 2002; Frantz et al. 2005). When expanding our perspective and giving consideration to an EfS which grows the 'whole person' (Section 2.5.2), can we dismiss such outcomes as being detrimental to planetary well-being?

Similarly, if EfS is also about instilling a 'moral imperative' for motivating action (Section 2.5.2), what moral position can EfS comfortably take with respect to IAS? Most in-depth interviewees acknowledged that IAS is contested ground given how 'reality' changes across contexts and under different worldviews. It was also evident that prevailing language was sometimes seen as being loaded, judgemental and demonizing the species concerned. Some interviewees recognized that the language invoked uncomfortable metaphors which could be easily transferred to the historical and current context of a post-Apartheid and multi-cultural society like South Africa, with unresolved and ambiguous moral-experiential themes of environmental 'alienation' and 'belonging' ; Appendix 9.16.2 – Ashwell 2010).

5.3.5.4 The persuasive power of language and metaphor

The previous sections have structured the discussion in terms Ballantyne et al.'s (2011) classification. In terms of a discussion on the experience of IAS, this is sufficient. However, in the context of this research, it appears imprudent to ignore the apparent subtle yet persuasive power of language and metaphor in shaping perception toward and experiences of IAS, as it relates to MNE and CWN. The section synthesizes a topic of considerable complexity - for more in-depth explorations, see e.g. Comaroff and Comaroff (2001), Simberloff (2003), Murray (2005), Larson (2005), Carruthers et al. (2011) and Simberloff (2012b).

Language is a construct of *powerscape*: the social or culturally constructed reality which frames *mindscape* and unfolds in *matterscape* (Jacobs 2006). The way people experience nature is heavily influenced by culture - itself largely a product of language (Abram 1996; Maffi 2001). That language is capable of dictating experience is easily overlooked since, being so immersed in the act of oral communication, it is difficult to imagine a reality without verbal exchange. The choice of how we see, hear, experience and interpret our interactions with nature and landscape is reflected and prejudiced by the language style and habits which *inhabit* (or 'colonize') the inter-subjective fabric of community (*powerscape*) (Abram 1996; Pinker 2007):

> Perception always remains vulnerable to the decisive influence of language, as a mother remains especially sensitive to the actions of her child (Abram 1996: 91).

How do we use language within our respective epistemic communities and how does it influence the experience and interpretation IAS?

A number of in-depth interviewees expressed their dissatisfaction with how IAS tends to be negatively labelled. In literature, it has also been established that the language generally used in the conservation and

biological sciences habitually denigrates alien vegetation once the introduced plant takes on an invasive tendency (Comaroff & Comaroff 2001; Larson 2005; Carruthers et al. 2011; Valéry et al. 2013). Larson (2005) highlights the militarization of language in invasion biology and its tendency to employ a range of combative metaphors, e.g. invader, overrun, target, strategy, control, enemy, battle, war, eradication, search-and-destroy, kill. He argues that employing such rhetoric presents three major issues:

> (1) they lead to an inaccurate perception of invasive species; (2) they contribute to social misunderstanding, charges of xenophobia, and loss of scientific credibility; and (3) they reinforce militaristic patterns of thought that are counterproductive for conservation (Larson 2005: 495).

When nuanced, combative terminology may convey the message that action on IAS is a just and chivalrous activity, as opposed to an irreverent inaction would otherwise fail to champion "the cause of the meek" (i.e. native species) (M. Samways, pers. comm.). Nevertheless, ardent devotion to a particular cause, norm or value-set is implied:

> The language of war, even if implicit, reveals a zealous commitment to a particular plan of action…[and] may also affect perceptions of scientific objectivity because of their resonance within the contemporary political setting (Larson 2005: 498-499).

Whilst definitions for 'alien' and 'native' provided by invasion biology (within the disciplinary boundaries accorded to *matterscape*) appear objective, this does not ensure that they are epistemologically valid in the realities of *powerscape* and *mindscape* where terminology remains contested and volatile, and the realities provisional and elusive. Alternatively, 'radiant joyful tree' and 'dark threatening tree' are two expressions which can arise from distinct experiences in *mindscape* yet analysis in *matterscape* may find they relate to 'the same' tree (Naess 2008). However, this sameness can only be defined in terms of abstraction in *matterscape*, whereas the two expressions refer to concrete contents in *mindscape* (Naess 2008).

Concerns regarding contested terminologies are neither without precedent nor limited to theoretical debate. In 2000, the South African Department of Water Affairs and Forestry's national Working for Water program launched its highly publicized *AlienBusters* campaign in an attempt to communicate to a broad South African public the urgent national responsibility to control invasive alien plants (Murray 2005). The campaign employed persuasive advertising and marketing strategies and used fictional cartoon characters invoking popular cultural references in an attempt to change public attitudes and behaviours (Murray 2005). Murray (2005) argues that, alongside mistakes largely relating to an overemphasis on metaphor, the *AlienBusters* campaign failed to allow for varying levels of ecological awareness and experiences of the environment amongst a heterogeneous South African target audience.

The campaign comic books used commercial cultural repertoires of space aliens and contained metaphors which tapped into a national truism of "everyone loves to hate aliens" and thus risked provoking contemporary xenophobic attitudes toward black African foreigners (Murray 2005: 140). Murray (2005: 147) contends that the campaign failed to account for the fact that:

> …illegal immigration into this country notwithstanding, emergent South African nationalism is still grappling with the ideological and experiential paradox that apartheid rendered a black South African majority

> subhuman aliens in their own country, while…the state of being white South African is now felt by many through a contradictory postcolonial nervous condition in which whiteness is characterized at times by social alienation, at others by wished-for belonging, and at yet others by moments of tangible connection with a fragile South African collective.

Debate may ensue as to what extent Murray (2005) has inflated such sensitivities, or if suggested alternatives would have been more effective. Nevertheless, persistent uncertainties over identity and belonging remain very real sources of personal and collective concern in contemporary South Africa (Comaroff & Comaroff 2001; Ashwell 2010 – see Appendix 9.16.2). The results of this study, alongside evidence in literature, appears to suggest that the militaristic language employed in, e.g. invasion biology can have xenophobic overtones for people (Simberloff 2003) and may inadvertently lead to a "boomerang effect" whereby "extremely intense language or images used for purposes of persuasion can have an opposite effect on the receiver" (Mio 1997 in Larson 2005: 497). In other words, the strength of the language forms mental concepts - associative, affective and symbolic meanings - which influence perception and reflection such that the motivation (e.g. CWN) to take action (e.g. on IAS) may be impaired. Evidently, and as ecologists would likely agree, sensitizing the public to issues surrounding IAS requires more than rhetoric and martial-inspired action alone (Larson 2005).

How might value-laden language frame our experiences of nature? [136] Ashwell (2010: 195) reflects that:

> …my environmental lenses unfailingly classified plant and animal species as either native or alien… this powerful cultural construction can have sinister implications for relationships with self, society and the natural world.

Larson (2005) also contends that metaphors which invoke militaristic thinking or ecological mechanisation are inconsistent with a relationship which seeks sustainability between humans and the natural world, i.e. congruent with high CWN. Furthermore, a battle-minded 'us versus them' approach would seem to perpetuate the perceptual disconnect between humans and the rest of nature. As Ashwell (2010: 201) reflects:

> I also realised that my entrenched habit of classifying organisms as native or alien, and rejecting the latter, was symptomatic of the dualistic thinking that I routinely reject…

Such thinking runs the risk of diverting the focus away from society's entanglement and interconnectedness with the IAS challenge. As co-conspirators, we are forced to ask uncomfortable questions about our globalized patterns of consumption, movement and progress (Larson 2005). As an interviewee from my pilot study reflected:

> I'm not a capitalist, because [they] do not know when to stop - [they] just want more and more. And the same thing with these plants: they just take more and more and more all the time.

This therefore invites further introspection on the changing human relationship with and disconnect from nature. In drawing on Davis (2000), Murray (2005: 147) concludes:

> There is always the disturbing possibility that 'the aliens' are potent symbols of our own worst selves, whether in our continuing racisms, sexisms and similar Otherings, or in the gargantuan abuses of nature that reduce the earth to an environment alien to the possibilities of all people living fully human lives.

[136] The term to "invasive species" masks the ecological reality that it is the species *population* and not the species *itself* which is invasive. Referring to "invasive populations" could help create more accurate perceptions.

5.3.5.5 Transformative learning: the experience of IAS and EfS

Ashwell's (2010; Appendix 9.16.2) experiences are indicative of the disjuncture which find itself at the heart of much of contemporary education, i.e. the default environmental lenses and language which classify plant and animal species as either 'native' or 'alien' compromise the reflexivity needed in EE/EfS (Section 2.5). Furthermore, current approaches to education or public awareness on IAS appear to force static moral messages or ideologies rather than a dynamic learning experience with negotiated interpretations through which students can make sense and meaning of the information they are provided (Section 2.5). Ultimately, the ability to have "a pre-reflective relationship with the world" (Ashwell 2010: 195) is impeded and, as such, limits possibilities to find the 'is-ness' and shared essence of 'the other' which are foundational to CWN and MNE. How can we circumvent such trends without compromising the important ecological 'realities' of IAS which need to be transferred through education?

We are invited to return to core underpinnings of EfS such as dialogue, common language, diverse worldviews and, importantly, understanding that notions of transformative education must attend to 'process' over 'product' in realizing effective change outcomes (Section 2.5). We have seen how experiences of IAS are capable of changing perception. These studies found that, in some contexts, pristine nature need not be the catalyst for MNE and that metaphorical learning may be available to persons independent of situational variables (e.g. environmental context). In such cases, it is the personal variables of the *mindscape* which meaningfully reflect in *matterscape* or, as Ashwell (2010: 209) says "that what we perceive is constituted by the other". We seem to be drawn to that which is capable of transforming us and lessons from the world may arise independently of any external setting.

> *The unifying love that I experienced as a result of …dropping of my sense of separateness, did not discriminate between alien or indigenous vegetation. I felt a connection and love for the blade of grass next to me and the Bluegum tree. There was no judgement about what belonged and what didn't. Each had value in that it existed.*

This statement from an OQ respondent illustrates that, in having a MNE, persons may be afforded a glimpse of an interconnected world - a unity consciousness - where everything 'is as it is' and IAS may be felt as being an accepted part of that 'is-ness' in that unique context (whether personal, situational or even at this point in human history). In those moments, an individual may also feel a unifying love for all life. At face value, this may seem detrimental to the aims of invasion biology (which are sometimes infused by feelings of blame, frustration, disdain and even hate); however when the 'love for what lives' moves beyond a more selfish, possessive or attached love for, e.g. 'my tree' or 'my animal' and toward a collective affinity for the interconnected web of life, we may anticipate shifts in support of action on IAS (e.g. removal).

This critical transition equally requires a shift in conservation and, specifically, invasion biology discourses. Carruthers et al. (2011: 816) also suggest that if invasion biology functions less as a normative science, reflecting social values in pursuit of a conservation agenda:

> it might come to serve a transformative function, contributing to a 'modified kind of nature' as well as a 'modified kind of man' (Elton, 1958: 145) that is less dominating, disturbing and altering of nature…[and]… if practised self-critically, i.e. explicating, scrutinizing and continually assessing the value-assumptions and the effects of identifying and fighting invasive species, could 'help us grow in humanity and in wisdom.'

The implication for IAS components of EfS is that the prescribed changes may be able to assist with the:

> formation of a new human identity that can be articulated in terms of connection with nature, instead of standing apart from and dominating it; acknowledging that humans shape their environment and are part of it; accepting that we have to take responsibility for our actions... (Carruthers et al. 2011: 817)

These views find accord with findings and arguments carried in this dissertation which point towards the inescapable need for value-laden conservation-focused disciplines, e.g. invasion biology, to embrace notions of CWN in order to play a lead role in effecting ERB.

For these types of transformative learning to gain a foothold in EfS, the knowledge needs to be mediated by direct experience so people may come to discover their own insights and relation with IAS across various contexts. As a necessary begin, we are invited to return to the 'is-ness' of the phenomenon of biological invasions, i.e. as it appears pre-reflectively to the senses (Valéry et al. 2013; Chapter 3.2). For the purposes of education, this phenomenological exploration should aim to suspend, however momentarily, preconceived perceptions held in *mindscape* and language and social-cultural constructions of *powerscape* in order to encounter the *matterscape* 'as it is'. In the minds of learners, this may help to avoid or mitigate the arbitrary dichotomies (e.g. native vs. alien) which may otherwise impede MNE alongside the foundational CWN (as 'right volition') needed to motivate IAS mitigation (as 'right action').

The dialogue, reflexivity and negotiated meanings necessary for effective EfS processes, should be discussed in relation to *matterscape*, *powerscape* and *mindscape* in order to make explicit the various values, assumptions and frames (or 'lenses') implicit in each reality (Table 31). In exploring *mindscape*, learners should work through various levels of experience - i.e. *sensory impressions*, *emotional affinity*, *reflective processing* and *behavioural response* (Table 31) - toward IAS. Doing so is likely to further stimulate and inspire the reflection, review and change essential to reflexive learning in EfS (Lotz-Sisitka et al. 2006: Section 2.5). In turn, this should improve understandings of the context-specific practices that are needed to manage IAS while continuously nurturing CWN (Section 6.5.4).

This study has shown that the experience of IAS mediates learning about self, society, ecology and the intersections between each, sometimes captured through powerful metaphor. Whilst this is of immense value in itself, the ability to experience the awe, vibrancy and fascination associated with diverse ecologically intact nature (which regularly forms the basis for the richness, intensity and/or frequency of MNEs) appears compromised by biological invasions. Yet a troublesome underlying tension persists: How much of mind is in nature as opposed to how much of nature is in mind? Hard as nature (in *matterscape*) might try, it seems it will always be trumped by the whims and vagrancies of the mind (in *mindscape* and *powerscape*), in terms of the residual imprint left on the lens of human perception.

However, in maintaining an orientation toward the direct phenomenal experience of nature, we may come to sense, with increasing urgency, the deeper meanings behind biodiversity loss and "the consequence of having so many traditional symbols of awe, wonder, and beauty in nature, become ubiquitous signs of rarity, loss, and decline" (Kellert 2002: 142) (Image 14). The extent to which these environmental trends may ultimately affect MNE is unclear, particularly given psychological fallibilities such as the 'shifting baselines syndrome' (Pauly 1995) and 'environmental generation amnesia' (Kahn 2002) (Section 2.2). We might expect that with IAS increasingly displacing native species in remaining habitats, individuals with high CWN (as acquired through eco-literacy and place attachment) would recognize and be moved by the loss of historically familiar nature to which they were/are intellectually and emotionally connected (Kellert 2002). These scenarios urge deeper consideration of what this 'modified kind of nature' might really mean to become a 'modified kind of man' (Elton 1958 in Carruthers et al. 2011). Will the proliferation of IAS irreversibly undermine MNE and its identified benefits (Section 2.3.7 and Chapter 4)? Will IAS as part of 'novel ecosystems' constrain our ability to cultivate authentic and resilient CWN? In what ways can we best respond or adapt at both an individual and collective level (see Appendix 9.16.4)?

In summary, it is evident that the social and experiential dimensions of IAS have received insufficient attention and more empirical case-specific research would demonstrate the important implications that worldviews, perceptions and experiences have on IAS management (Nuñez & Nuñez 2011) and EfS. Part of this endeavour requires improving understandings of:

i) Diverse ways that worldviews are applied in realities of matterscape, powerscape and mindscape – and/or, alternatively, employing an Integral Ecology approach which would address issues pertaining to IAS from subjective; intersubjective; objective; and interobjective perspectives (Appendix 9.16.4).
ii) Language and metaphor and how they may employed in ways which synergize with CWN;
iii) Direct experience and how sensory, emotional and reflective responses toward IAS may be leveraged in EfS to motivate behaviour which supports the context-specific management of IAS;
iv) How IAS as modified ('novel') ecosystems affect critical variables comprising the essence of MNE, CWN and, ultimately, its long-term flow-on effects on eco-literacy and human health and well-being (especially psychological).

These questions open up a fascinating and much needed field of research in the discipline currently called 'invasion biology'. However, given the outcomes of this study, it may be time to seriously consider whether it is more appropriate to speak of 'invasion social ecology' or 'species redistribution ecology' (Davis 2009).

Image 14: Fatality and finality: defining moment on the impact of IAS on MNE

Of the numerous experiences that could be shared concerning my wrangling with the 'phenomenal' challenge of IAS, the following was a particularly defining moment – a culmination of sorts:

One balmy evening in Costa Rica in early 2013, I relished the return of mantis into my life after a period of absence. It statured itself resolutely atop the living room curtain rail and cast a formidible shadow onto the pasty-coloured wall. Suddenly, the mantis sprang to the wall behind it. While marvelling at its lightening speed, a simultaneous movement from under the curtain rail alerted me to a gecko poised in the shadows. Transfixed, the gecko's intent suddently dawned upon me. It scurried a few centimetres, stopped. A few more. And before I could act, a ghastly crunch was accompanied by the horrid sight of a helpless - yet seemingly undeterred - mantis gripped in reptilian jaws. I was jolted into action but the gecko immediately retreated to safety behind the curtain. Incensed, I stormed toward the wall and threw out the curtains. There, taunting me with its dark eyes and complacency was the gecko, oddly juxtaposed with a mantis torso that still stood upright in entranced defiance. I pathetically snatched at the gecko and missed – it was altogether too slow, too late. The contorted figure was ferried down behind the refrigerator. As an insipid onlooker, I became engulfed by accusing thoughts and emotions which, in laying bare my incompetence, made me feel wholly responsible for this fatal act. After the enrichment I had been gifted by mantis over the years, I had now failed to reciprocate with even a simple task of guardianship. Would this signal the end of our private relationship?

After some time, my feelings of personal loss and self-pity slowing transformed into anger directed firmly toward that, no, *those*, geckos. How could they do this? As it was, they monopolized the living room walls after dusk, relishing the smorgasbord served up around our artificial luminescence. Their previous utility to me in feasting on the hundreds of other insects in the room was now irrelevant. Because, on this fateful night, with the height of goad, they snatched *my* mantis in front of *my* eyes, devastating *my* meaningful experience. Not only that, but as I brooded in my bedroom, they tauntingly chirped in celebratory chorus which seemed louder and more provocative than on any other night in memory. On occasions, my irritation impelled me into the living room to chase a gecko down as a futile attempt to frighten them into submission, showing them that they were unwelcome in *my* house. Pitiful but strangely comforting.

"Are they native?" It came like an intuitive flash but it was an interrogation which would immediately evolve into a defining realization: "No. These geckos looked exactly like those we had around the house in Australia" – and they were the *Asian* gecko. Indeed, this species *did not belong* here. And this definitive discovery changed everything.

Instantly, I 'got it'. It all came into focus. I had encountered first-hand the adverse personal impact of IAS on MNE. Regardless of charges of irrationality and delusion, I now understood that the power of emotional attachment could combine with personal utility and a sense of egocentrism to spawn all manner of instinctive reactions, for better or for worse. I saw – felt even – how people come to hate 'aliens' and that certain species could become much maligned in one's life, their 'is-ness' irreversibly tarnished. I saw how emotive metaphorical projection could villanize a species.

The invisible web linking past and present life events also became lucid. I saw how personal plights unfolding parallel to my research were not parallel at all but instead continuously intersected with the indeterminable field of experience underpinning, influencing and infiltrating my life as a researcher. I understood what Abram meant (see quote prefacing Chapter 3, p136). I realized defining experiences could forge new perceptions and personal resolve toward complex problems such as IAS. Finally, I saw how the salient themes revealed in this study concerning IAS - complete with all their contradictions - could be profoundly encapsulated in a single event: a *meaningful nature experience*.

Summary and key messages for Section 5.3

The experience of IAS is based on information about and within the physical landscape (*matterscape*) and as received by our senses, but which is heavily influenced by the information and concepts which are embedded in social-cultural (*powerscape*) and psychological (*mindscape*) 'realities' (Jacobs 2006). It is this constant and mostly unconscious shifting and interweaving between each of *matterscape, powerscape* and *mindscape* which forms our perceptions, worldviews and, ultimately, our landscape experiences.

Key results from this study find that:

- The experience of IAS involves a complex mix of *matterscape, powerscape* and *mindscape* whereby the latter consists of sensory impressions, emotional affinity, reflection and behavioural response;
- An individual's CWN does not appear to affect generalized perceptions of IAS;
- High CWN may inspire empathy, relatedness and appreciation of the intrinsic value of IAS;
- The presence of IAS in a landscape is likely to undermine or adversely affect key situational variables which usually comprise MNEs or affect its frequency or 'richness' (e.g. authenticity);
- Beauty and aesthetics plays a large role in (initially) determining how IAS affect MNE;
- Ecological knowledge (particularly when substantiated by direct experience) is likely to undermine prior, and influence future, sensory impressions and emotional responses to IAS;
- Language and metaphor can have unintended consequences on IAS perception, MNE and CWN;
- Context (personal and situational) is critical and pivotal in determining if/how IAS affects MNE.

In summary:

- IAS are likely to be detrimental to one's future propensity to generate MNEs; yet
- IAS (as part of a MNE) may be a valuable personal learning experience in itself by:
    - reinforcing a uniform dislike and aversion toward IAS;
    - reflecting one's personal identity and sense of belonging in a multi-cultural society;
    - fostering empathy and compassion toward IAS;
    - appreciating the importance of (changing) context(s);
    - compelling responsibility and action toward IAS though an understanding of inter-connected social-ecological systems and the need to preserve the integrity of 'the whole'

Or any combination of the above as determined by timing and context (e.g. personal situation).

Such outcomes may not immediately align with short-term IAS management ideals but may have longer-term benefits in forming the basis of an education which can "help us grow in humanity and in wisdom" and supports the "formation of a new human identity that can be articulated in terms of connection with nature" by accepting that our interrelatedness with the environment compels responsibility for our actions (Carruthers et al. 2011: 817).

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How most effectively to incorporate experiences of nature into the life of the school such that the normative orientation that arises through poetic contact with the elemental is felt and allowed to matter? It is the establishment of a certain quality of ongoing everyday engagement with nature - our attunement to it as a vivifying dimension of experience - that is the greatest challenge for environmental education.

~ Michael Bonnett (2013: 92)

5.4 MNE and education: marriage or mismatch?

5.4.1 Introduction

This dissertation has identified, and subsequently argued, that *connectedness with nature* (CWN) is a necessary motivation for *environmentally responsible behaviour* (ERB) and underpins a conservation ethic (Section 2.2). Meaningful nature experience (MNE) is linked with CWN (Section 5.1) and respondents participating in this research perceived their MNE(s) as pivotal in shaping their attitudes and behaviours and overall life outlook (Section 5.2). More fundamentally, MNE was found to deliver desirable emotions (e.g. awe, excitement) and insights (e.g. metaphors, messages) which may play a key role in transformative personal growth as part of a process of lifelong learning (Section 4.5.1).

In finding that emotional affinity toward nature is a core motivation for ERB (with cognitive interest in nature as the 'moderating variable'), Kals et al. (1999) recommend that education programs, even those targeted at adults, should integrate experiences which tap into this dimension. Yet, educators need to know the specific types of learning experiences which can produce persons exhibiting CWN (Tanner 1998b). Results indicate that MNEs constitute affective learning experiences capable of achieving this aim (Chapter 4.3.4, Section 5.1). However, is there a practical place for MNEs in EfS and, if so, how and where?

It is argued that field-based ecology training needs to be reinstated (in conservation education) as a matter of urgency (Hayes 2009). This is a necessary begin; however, it is no guarantee of MNE and an education cultivating CWN and motivating ERB. How might essential dimensions of MNE be 'taught' and integrated into EfS curricula? This study analyses how respondents who have had MNEs view the current role of education in facilitating learning and how the relevant outcomes of MNEs may be afforded to others.

5.4.2 Methods

Three five-point Likert-scale statements eliciting views on MNE and education were included as part of the overall OQ used for this dissertation research (Section 3.3.3, Appendix 9.8.2). These statements were supplemented by an additional short answer open-ended question which asked what should be taught in schools or included in environmental education (EE) curricula in order to increase the likelihood of MNEs. Respondents to the OQ formed a purposive sample in the sense that the questionnaire was targeting those persons who have had a MNE and were willing to share it and related views.

The revised OQ (r/OQ), which explicitly targeted *synchronicity as a MNE*, formed a distinct subset of the overall OQ. This revised OQ was aimed at a purposively sampled group consisting of members from the Foundation for Natural Leadership (FNL) (Section 3.3.3.3). For this study, their responses are extracted from overall OQ results to determine:

i) if *synchronicity as a MNE* offers different insights for education; and

ii) if their different demographic traits could influence opinions toward MNEs in education.

FNL members lived in The Netherlands and were affiliated with business / corporate sectors.

Demographic data concerning field of expertise / employment sector and highest education level attained was requested from all OQ respondents. For the original OQ, this data was not included in the survey and was requested in a follow-up email to those persons who indicated a willingness to be recontacted if needed and had supplied their email address accordingly. For the r/OQ concerning synchronicity, questions concerning education were included in the survey; however, a follow-up email was also sent to verify this information and to standardize responses with those obtained from the broader OQ sample.

5.4.3 Analysis

Quantitative data (i.e. Likert-scale statements) were analysed using descriptive statistics in Microsoft Excel. Standard content analysis was applied to the open-ended questions with analysed using *atlas.ti v7* qualitative analysis software which enabled assigning of codes, deriving code frequency and developing 'families' of common themes.

5.4.4 Results

Respondents (*n*=62) resided in southern Africa (45.2% (of which South Africa 96.4%)), Europe (33.9% (The Netherlands 81.0%)), North America 11.3% (Canada 57.1%) and Oceania (9.7% (Australia 100.0%)). Gender ratio was 56.5% female to 43.5% male.

5.4.4.1 Quantitative data analysis

The majority (88.7%) of respondents disagreed that current modes of education adequately prepare society to understand and learn from MNE (Statement A,Table 32) while 96.8% believed that society significantly benefits from an education that promotes understanding of MNEs (Statement B, Table 32). There was widespread agreement (83.8%) that MNE provide convincing arguments for the need to conserve the environment (Statement C, Table 32). With this established, the question remained as to whether there is scope to educate in a way which would enhance a learner's ability to have MNEs. Respondents were mostly in agreement (79.6%) that such outcomes could indeed be effected (Statement D, Table 32).

Table 32: Respondents' (OQ) perspectives on the role of education in understanding MNE

Statement	*Strongly Agree %*	*Agree %*	*Neutral %*	*Disagree %*	*Strongly Disagree %*	*Other %*	*n*
Statement A	3.2	3.2	1.6	46.8	41.9	3.2	62
Statement B	25.8	71.0	0.0	1.6	1.6	0.0	62
Statement C	54.8	29.0	9.7	6.5	0.0	0.0	62

Statement A: *"Our modern education system adequately prepares us to understand and learn from meaningful nature experiences (such as profound encounters with wildlife)."*
Statement B: *"There is significant benefit for society in educating / promoting an understanding of meaningful nature experiences and profound encounters with wildlife."*
Statement C: *"Meaningful nature experiences and profound encounters with wildlife provide convincing arguments about the need for society to conserve our global environment."*

Self-reported education levels for respondents show a relative highly educated sample group, although the response rate to this (follow-up) question was relatively low (45.2%) (Table 33). Over half of those who responded (in providing their education level) (60.7%) had attained at least a Master's degree.

Table 33: Respondents' (OQ) highest education level attained

Statement	*High School*	*Diploma*	*Bachelor's*	*Master's*	*PhD*	*No response*	*n*
Education Level	1.6%	3.2%	12.9%	22.6%	4.8%	54.8%	62
Education Level *	3.6%	7.1%	28.6%	50.0%	10.7%	NA	28

* As taken as a % of those who responded (i.e. excluding the previous 'no response' category)

A low response rate (43.5%) was also returned for the (follow-up) question concerning respondents' occupation and field of expertise. However, results indicate that a significantly high proportion of those supplying this information (i.e. 30.6% of total respondents or 70.4% of respondents to this question) were trained or educated in ecological or environmental-related fields (Table 34).

Table 34: Respondents' (OQ) professional field of expertise

Statement	*Environment***	*Business****	*Arts*	*No response*	*n*
Field of Expertise / Employment Sector	30.6%	11.3%	1.6%	56.5%	62
Field of Expertise / Employment Sector *	70.4%	25.9%	3.7%	NA	27

* As taken as a % of those who responded (i.e. excluding the previous 'no response' category)
** *Environment* includes: students, academics, government officers, and consultants in fields of conservation, environmental and natural resource management and ecological sustainability
*** *Business* includes: managers, consultants, entrepreneurs in fields of marketing, communication, finance, strategy and product development, information technology and organizational learning

5.4.4.2 Qualitative data analysis

Respondents (n = 62) elected to share opinions on what they felt should specifically should be taught in schools or included in (environmental) education curricula in order to increase the likelihood of MNE. Responses varied, ranging from highly specific to very broad. Over 60 distinct themes emerged and, in almost matching the number of respondents (n = 62), illustrates the diversity of opinion. Respondents were entitled to share as much or as little as they wished and associated themes were given equal weighting. In

this regard, several themes could be ascribed to one complete response or phrases within a response (from a given respondent). Detailed content analysis of the responses revealed four main - but overlapping thematic categories: *experiential activities*; *intellectual concepts*; *values, ethics and attitudes*; and broader *learning approaches* within which these thematic categories are embedded (Figure 18).

The most common theme to emerge was the need *for* ***field excursions and outdoor experiences*** (coded 27 times) which would, as articulated by some, facilitate direct, practical and personal experience of nature (Figure 18; Table 35). This was followed by the need to educate on the importance of ***interconnectedness*** (16), with its inherent understandings of interdependency and the idea that humans are part of nature or part of a greater whole within which they participate and influence (Table 35). Specific mention was also given to the importance of ***knowledge of ecological webs, interactions and niches*** (5) and, whilst coded separately on the basis of its more ecological perspective, it could easily be expanded to tap into the complex and often more philosophical social-ecological understandings associated with 'interconnectedness' based on, e.g. explorations of how humans fit into and interact with ecological webs.

Experiential activities aiming to improve ***sensory awareness*** (9) through enhanced powers of observation and the active use of the full range of survival senses (sound, smell, touch, taste and, for some, intuition and inner 'knowing'), were most identified (Table 35). Teaching a ***respect for nature*** (6) was also considered important for some respondents (Table 35). Other themes on equal par were: ***exploration*** (5) in nature to expose learners to new perspectives of themselves and their interactions with the world; the importance of cultivating ***local (place-based) knowledge*** (5); and, further, how this and other themes can and should be given ***personal relevance*** (5) (Table 35). Remaining themes were recorded fewer than five times.

Image 15: A sensory awareness activity used on the Wildlands Studies Australia program (2013)
(Photo: Elena Vargas)

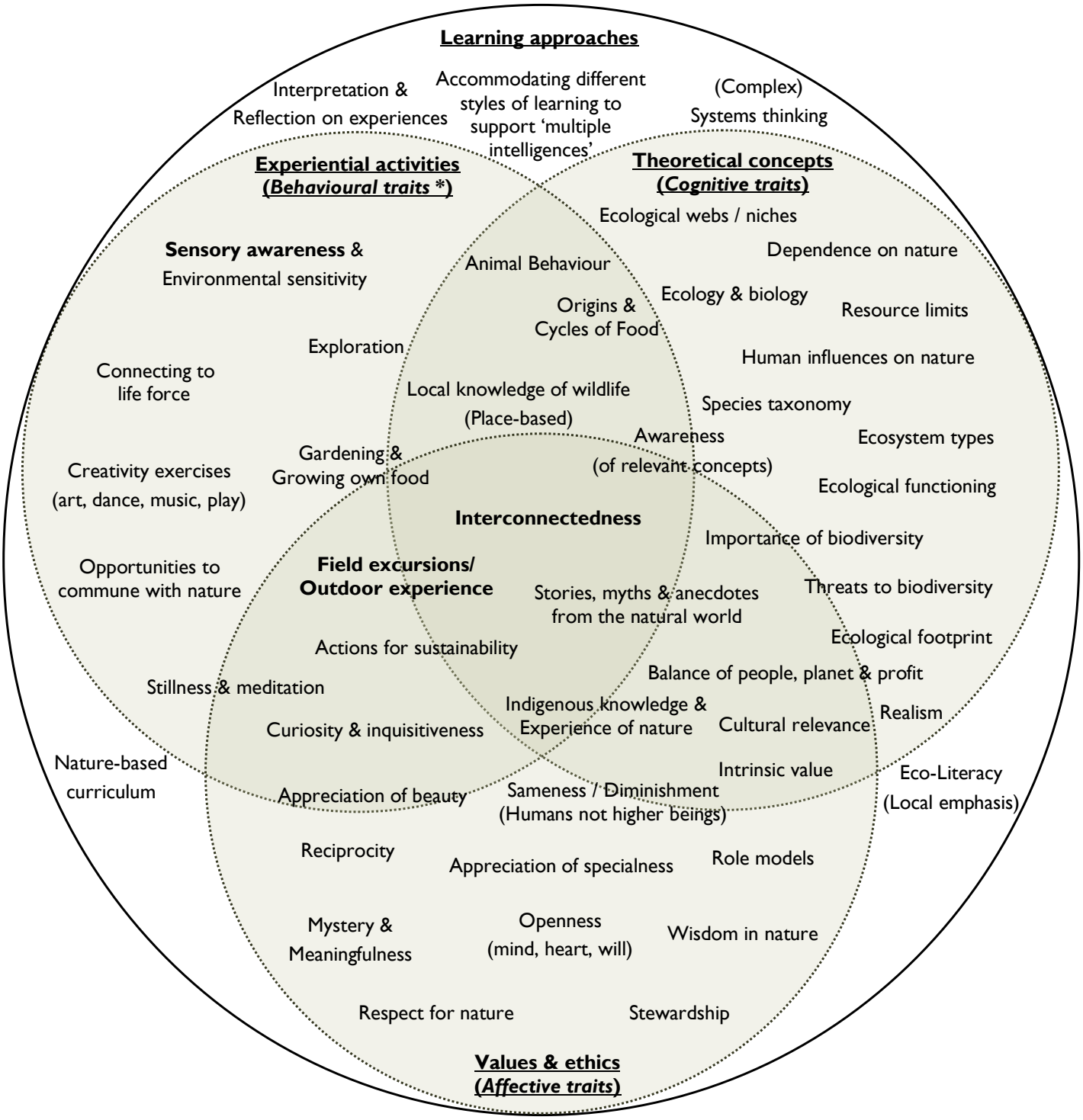

Figure 18: Recommended themes for including in curriculum in order improve chances of MNE

(as identified by OQ respondents)

Key: **Bold underline:** four main thematic categories

Bold: three most commonly cited themes

* It is understood that 'experiential' is not strictly the same as 'behavioural'; however, the intent here is to show, at a basic level, that: i) the responses are a diverse set of actions as either observed behaviours or experiential endeavours; and ii) all responses largely conform to the three fundamental psychology pillars of: cognition, affect and behaviour.

Table 35: Recommended education themes supporting MNE (exemplified by respondents' statements)

Themes	*Statements (from OQ respondents)*
Field excursions, outdoor experiences and direct, practical personal experience	*Lots and lots of outings • Field trips are very important. • More direct interaction with the natural world… • …more education about nature while in nature, more nature play. Less screen time! • Learners need to be taken out of the classroom to experience and share these experiences. • excursion[s] to wild areas • Field courses are the best way, as they enable students to learn in a practical, hands-on fashion which is much more memorable than lectures and reading. • …experiencing nature and not just thinking about it and analysing it…• Teaching by experiencing and then reflecting should be integrated in our education programs. •*
Interconnectedness	*The inter-connectedness of all living things on earth • Oneness • … The importance of interactions and balance… • Education on the complexities and interrelatedness of species/entities… • As a species we are part of biodiversity. • …part of the earth…•… we are part of a bigger system…•… how are we connected, how we are interdependent… part of the picture • Understanding that humans are dependent on other species and ecosystem[s], and that we are NOT living in separate worlds. •… and how we influence the environment by everything we consume. •… and how what they do…affects other things/people elsewhere or in their surrounding • …the fact that everything in the system, including human beings, is connected, and that all sorts of connections are possible within this system which aren't necessarily very well explained by science. • And the interconnectedness of all living species, the earth, the kosmos and supreme being •To understand the importance of connecting with nature and therefore with your innerself. •*
Knowledge of ecological webs, interactions, niches	*The important role of all living things on earth. • …the important role of animals in the food web… • The place of humans in the web of life…• Also teach them about cycles: water, nutrient, energy •*
Sensory awareness	*I think the best way to teach is to show then. You can't just tell the students about it, they need to have the experience, all the senses should be involved, touch, smell, sounds even tastes that's when they will truly experience nature. •*
Respect for nature	*Respect for all living species on earth •… how to respect animals, and learn how they behave so as to understand them • …and a certain respect should be shown for animals (teachers should lead by example), so that animals are not seen as things dominated by us, but intelligent beings with feelings. We should also realize that we as humans do not know everything and there is a wonder and a sense of respect that we have lost for animals. •*
Exploration	*Take them out there, to experience their own size and vulnerability in wilderness areas. Ask them to be with their friends, but be quiet and listen, find things, experience seeing an animal in the wild, on their own. Also just being in a tent overnight and hearing the natural world around them as they sleep. It's simple but very powerful. • No teaching … get out there and experience it yourself! •*
Local (place-based) knowledge, personal relevance	*Teaching about local wildlife/plants, local rare/threatened species and conservation issues so that people can feel an immediate connection and get the feeling that these issues can also affect them. • Education courses should focus on teaching kids how to ID LOCAL animals and plants. Education about the larger world is important but if people don't have an understanding of their local species then understanding why environmental degradation, biodiversity loss, etc is important is lost at the level of personal interaction. • To understand what's in our backyards, what lives there. •*

5.4.4.3 Revised online questionnaire

The purposive sample of persons (*n* =16) responding to the revised OQ (r/OQ) targeting *synchronicity as a MNE* formed a distinctive subset in terms of thematic and demographic characteristics (Section 3.3.3.3). These persons held higher level education degrees and were mostly trained or had extensive experience in business and commercial sectors. In many cases, they held senior-level positions in their businesses or companies. Age distribution was: 36-45 (*n* = 5); 46-60 (*n*= 10); and 61-75 (*n*=1). Gender split was: female

(*n*=5); and male (*n*=11). Whilst only a small sample, their views aligned with the broader trends returned from the original OQ; all respondents agreed that modern education does not adequate prepare us to understand and learn from synchronicity (as a MNE). Similarly, all but one respondent agreed that there is significant benefit for society in educating or promoting an understanding of synchronistic experiences in and with nature. Finally, synchronistic nature experiences and other meaningful encounters with wildlife were largely believed (80%) to provide convincing arguments about the need to conserve the environment.

Qualitative analysis also revealed similar trends as found within the entire OQ group. Field excursions and other forms of direct personal experience were highly cited as being a priority for education. This is notable given that a core tenet of FNL membership is completing extended wilderness trails in Europe or southern Africa. Emphasis was also given to the need to understand the interconnectedness of life, which was sometimes supported by the importance of respect for nature and the need to appreciate that humans are no higher forms of life than the rest of nature ('sameness'). In terms of identifying content for education curricula in order to support the chance of experiencing and understanding synchronicity in/with nature, this subset distinguished itself from the entire OQ group on two themes:

i) Lack of reference to more intellectual concepts grounded in ecology;

ii) Reference to the need to connect with nature at deeper levels variously described as soul, life force, energy, inner knowing and one's inner self. Interconnectedness tended to be depicted as being inclusive of these dimensions as well as: *"all living species, the earth, the kosmos and supreme being"*, as stated by one respondent. Greater emphasis was given to experiential understandings of interconnectedness - which one might be inclined to assume is a direct outcome of their *experience(s)* of synchronicity.

Box 30: Scepticism on whether MNE belongs in tertiary education

In my (mostly unusable) OQ of an international class of MSc students at Wageningen University (Section 3.3.3), two comments submitted as part of the adapted education section presented interesting contrasting viewpoints:

> *Shouldn't these encounters be 'coincidental'? Why would you help students to experience them and how would you do this? You cannot take every student to the top of a mountain to let them experience something meaningful: first of all it is financially impossible, second of all since everyone is different a lot of people wouldn't even care standing on top of the mountain. I think you cannot 'teach' this relevance of meaningful interactions it is something people have to grow into themselves. • I believe this is a subject not to be taught at universities. •*

Both respondents - Dutch males - reported 'never' and 'occasionally' having a MNE. Both also recorded well below average CNS scores (27 and 35) relative to OQ and PQ averages. The remaining comments from this small sample were more supportive regarding synchronicity as a MNE in education and suggested including:

> *Give them opportunities for students to experience nature and reflect on their experience. • How nature connects to our lives. • Tragedy of the commons – interconnectedness of living beings • Link to personal relevance and sustainability. • Sustainable programmes.*

All except one response were recorded by female students from the Netherlands (2), France, Ghana and Greece. These results are neither robust nor conclusive but raise questions about potential linkages which could be considered in future research, particular regarding gender, cultural background and links to CWN.

5.4.5 Discussion

Discussion of formal education always engages: fundamental to human development it remains the target of widespread dissatisfaction, a fallible system prone to critique (Jickling 1997; Nath 2003; Robinson 2006). Often cast as a homogeneous and uniform entity, education is, in reality, highly diverse and dynamic differentiated by (disciplinary) learning aims, student age, geography, culture and variation in institution (school / college / university) and educator quality. Results of this study should therefore be placed within this context, along with the realization that respondents' frame of reference on educational quality is likely to be through the lens of their own, peer's or children's education experiences, or that which is projected through media. A complex and unknowable blend of factors has uniquely shaped all respondents' perceptions. Yet the level of dissatisfaction concerning how the education system (ill) prepares persons for understanding MNEs is striking. This view is complemented by the finding that education on MNE would significantly benefit society as well as provide convincing arguments for the need to conserve biodiversity.

Given the higher education levels reported and associations with environmental occupations, it may be argued that the respondents are biased toward such opinions. However, to what extent are these views driven by occupation / education or, alternatively, by the power of respondents' own early life MNE which inspired a passion for nature or, in some cases, their future career choice (Section 5.2)? In fact, such responses from relatively highly educated persons raise the question as to whether they consider their type of formal education as a contributor or detractor to their own MNE(s) and CWN (e.g. Box 34). Given that the scope of this study did not allow for specifically seeking out persons not formally-educated or from 'premodern' cultures this presents a significant gap which needs further research to sharpen insight and reign in current speculation on the influence of contemporary (Western) education systems on MNE.

Respondents agreed that persons could be trained or educated in way that might increase the chances of having MNE (note that this does not imply that respondents feel that one *must* be educated in a prescribed way in order to be able to encounter MNE). However, a notable proportion of the sample believed that attaining or understanding MNE could be achieved through teaching principles of ecology which, whilst possibly aligned with their own educational background, appears contradictory to the content of many of their own reported MNEs. In addition, in providing recommendations for education, there were numerous cases where it was unclear whether responses were specifically aimed at addressing the question posed (i.e. what would increase the chances of MNE) or were instead more habitual / learned reactions to familiar questions relating to *how to increase knowledge* of environmental and sustainability *issues*.

Numerous themes (Table 35) are open to multiple interpretations and may be seen as both prescriptive and outcomes-based. For example, how can subjective notions of "appreciation of beauty" be transmitted in a way that does impose fixed meanings of beauty, run counter to the overall objectives or contradict issues raised with IAS (Section 5.3.5)? Mental concepts are needed and, as respondents also identified, sensory awareness might be an avenue through which such concepts can be formed or changed.

5.4.5.1 Intellectual and theoretical tendencies

The themes uncovered were largely linked to theoretical concepts and the transmission of knowledge.[137] Respondents' themselves, through their own conditioning, may feel an intellectual compulsion to list the various instrumental actions or ecological concepts which, whilst supporting foundational learning in, e.g. ecology or sustainability, may ultimately do little to impact or increase on one's propensity to have a MNE.[138] Alternatively, they may genuinely believe that enhanced intellectual understandings of the natural world support MNEs, since our existing mental concepts shape our perceive the world (Section 2.2, 2.3)

Box 31: Can any education on MNE be effective without openness?

Two OQ respondents observed that a level of ***openness*** is critical to advance this endeavour:

> *I believe that there is definitely a benefit of awareness, but I also believe that 'profound encounters' are things that people can't be educated towards – people are either ready to recognize these or they aren't... I have been envisioning a profound encounter as a moment of 'shared awareness' with a wild animal / insect etc. As such I don't believe one can go searching and expecting to find such an encounter. I believe it's essentially one of those occurrences that needs to find you. Further… I do believe that some people are simply content being ignorant and don't want to learn or contribute. In spite of the above, I guess where there's a will there's a way, especially if the student is ready to learn! I'm not sure our current schooling system in Australia would be the optimum forum though.* •

> *Education and training is 50% of the picture. The other half is a psychological / spiritual openness that each individual needs to cultivate (in different ways) for themselves. Pointers towards such openness can be described, but the experience itself cannot - it must be experienced in an ever deepening way (I don't think you ever reach the end of it).* •

'Openness' was also recognized as key when respondents provided conditions for invoking synchronicity (Section 9.13.1.5). But maybe the question should be recast as: ***How do we prevent 'closedness'?***

Any interpretations must consider the role of language and the proliferation of terminology specific to environmental studies, e.g. many of the listed themes under intellectual concepts could be merged under broader thematic classifications such as 'ecology'. However, for the purposes of this study, it was deemed necessary to remain as specific as possible. With numerous respondents having specialized environmental backgrounds (and without matching education in, e.g. outdoor education, (eco)psychology) it is evident that one faces limits of language in terms of offering specific descriptions: e.g. in how many alternative ways is the non-initiated able to convey the practice of sensory awareness, self-exploration and creativity? Notwithstanding that the prevalence of theoretical concepts (Figure 18) may be partly due to this observation; it also reveals that education may be held captive by its own conceptual clutter. How can we effectively educate toward interconnectedness when conceptualizations are leading toward fragmentation?

[137] It is noted / regretted that the OQ used the phrase: *"What specifically should be taught in schools or in environmental education courses…"* Did use of the word "taught" (instead of, e.g. *"*include in curricula*"*) unintentionally draw responses more inclined toward 'acts of teaching' in conventional classroom settings? It is impossible to be sure, and it appears many respondents did not interpret it this way, but it is duly noted that this may have influenced responses.

[138] Ashwell (2010) notes that, in a South African context, there has been an increasing shift towards environmental issues-focused approaches in EE. Whilst there are complex and valid reasons precipitating this shift, "it is possible that the diminishing focus on nature and experiential approaches might simply be due to the "dilution" of this environmental focus by other issues and approaches" (Ashwell 2010: 47).

5.4.5.2 Interconnectedness

Consistent with research presented in this dissertation, 'interconnectedness' again surfaced as being of critical importance to MNEs. Results suggest the relationship as reciprocal or symbiotic: MNE instils feelings of interconnectedness and understandings of interconnectedness facilitate MNE. But is there consensus on 'interconnectedness'? The results indicate that understandings of interconnectedness may exist along a continuum of narrower biophysical understandings, including human interdependency on natural resources, to interrelatedness with other biota, to being an embedded part of the ecological web of life, to human actions as capable of precipitating chain reactions (through, e.g. consumption patterns), to more broader intangible and nebulous interpretations which see, as one respondent said, "*that all sorts of connections are possible within this system which aren't necessarily very well explained by science*". These include interconnectedness with earth as well as with body, mind, 'life force', cosmos and 'spirit'. These latter understandings were mostly conveyed by those reporting *synchronicity as a MNE*. As revealed (Chapter 0), the experience of synchronicity offers felt insight into an expansive interconnectedness – sometimes of the type described in across various Indigenous worldviews.

> *…an infusion of understandings grounded in ecological relations should be prominent within a child's education, beginning with an embrace of the idea of "holism", a recognition of the interconnection of all life, which is by my definition a spiritual awareness.* (Riley-Taylor 2002: 5)

5.4.5.3 Traditional ecological knowledge

Just one respondent recommended talking to students about "*cultures where people experience nature in different ways.*" It forces the question of whether we implicitly privilege the position of our own (scientific) worldview as being the most effective and reliable way of 'educating', even when it is widely known that many non-Western, and particularly Indigenous, cultures have traditionally maintained an unbroken stream of (low intensity) meaningful experience within nature and whereby higher intensity MNE was / is seen as normal or to be sought after as part of specific cultural / religious practices (e.g. trance states, pilgrimages to sacred sites (Tucker 2001; Maiteny 2004; Foster et al. 2005; Swan 2010; Cocks et al. 2012).

Kimmerer (2002) and Armstrong et al. (2007) call for action in weaving traditional ecological knowledge (TEK) into mainstream biological and ecology education (rather than in separate specialized courses) TEK has long been recognized as being complementary to scientific knowledge aimed at understanding ecological systems (Armstrong et al. 2007), yet the majority of scientific professionals and educators have little understanding of its value or cultural context or how to form equitable partnerships with Indigenous communities and cultivate balanced cross-cultural perspectives (Armstrong et al. 2007). This is understandable given that scientific ecological knowledge and TEK arise from different epistemological foundations (Armstrong et al. 2007) (Box 32).

Box 32: Traditional ecological knowledge, Indigenous knowledge or local knowledge?

> Knowledge systems concern the way people understand the world, and interpret and apply meaning to their experiences. Such knowledge is built through the complex process of selecting, rejecting, creating, and transforming information, and is inextricably linked to the social, environmental and institutional contexts in which it occurs (Arce & Long 1992 in Wiersum 2000: 20).

There is considerable ambiguity and thus debate surrounding the correct usage and conceptualizations of the terms '*Indigenous knowledge*' (IK), '*traditional ecological knowledge*' (TEK) (as a possible subset of IK) and *local knowledge* (LK). Without delving into an extensive exploration here, it must be noted that all terms are useful and/or problematic, depending on the context and way in which they are applied (e.g. geographically, culturally and/or in management). In South Africa and throughout most of Africa, *Indigenous* is not commonly accepted (as opposed to .e.g. Latin America and Australia) because there has been extensive migration of peoples throughout the continent in recent history. In this regard, the Nguni peoples of South Africa are relative newcomers and *Indigenous* may only accurately refer to Khoisan peoples. If one instead wishes to use *traditional*, it soon becomes problematic in that it denotes a system of knowledge that is fixed rather than being dynamic, accumulative and evolving or, on the other hand, may be applied to the uses, names and narratives of resources but, due to the erosion of knowledge, does not suitably refer to (or inform) present-day adaptive resource management and conservation (Cocks pers. comm.)

The increasingly accepted recourse is to use the term *local*, which emphasizes that any group of people (including, e.g. White Afrikaans farmers) may acquire and develop location-specific ecological knowledge based on sustained engagement (e.g. daily practices and routines) with a particular place. For conservation management purposes, this term may be most inclusive and appropriate; however, in the context of this study it presents a challenge given that reference to such knowledge is usually made here in an educational context that seeks to explicitly explore / include relevant tenets of non-Western worldviews. In this regard, *local* appears too vague or broad in that it could include types of knowledge which is based on - or has become - predominantly influenced by Western thinking. Additionally, given historical legacies such as forcible land removals, the 'new local' may be well-removed from the place in which the knowledge was derived and practiced such that the resulting hybrid knowledge system - whilst legitimate and of contextual value - is, again, not always what is being explicitly referred to in this dissertation.

TEK is therefore used throughout this dissertation as inclusive of IK (where context permits) as well as forms of LK (where relevant). Following Berkes (1999 in Wiersum 2000: 22), TEK consists of three interrelated components:

i) local people's *beliefs* about their relationship with the natural environment;
ii) biological *knowledge* of soil conditions, species and their growing conditions and possible uses;
iii) actual exploitation and management *practices*; and…
…are adaptive, culturally transmitted acoss generations and evolve in relationship with the environment.

According to Wiersum (pers. comm.), it has been argued that TEK cannot be isolated from the respective *social* knowledge and that for a proper understanding of the relevance of TEK, it must be conceived as a component of an integrated knowledge system which includes:

i) local knowledge of lands, plants, and animals and their usefulness for humans;
ii) technical and social practices for using and managing lands and natural resources; and
iii) worldviews and value systems (Berkes et al 2000).

Given its experimental and experiential nature, it is essential to note that TEK is dynamic and changes over time (Wiersum 2000). Furthermore, when applying TEK to a specific context (e.g. parts of South Africa or Australia) it is likely more enlightening to reflect on how empirical characteristics and the expression of worldviews can be used in communication and social learning processes to bridge epistemological and ontological divides as well as normative boundaries between conventional scientific / professional and traditional knowledge systems (Wiersum pers. comm.). These factors should be considered when in the context of TEK discussion pursued in this dissertation.

(Sources: F. Wiersum & M. Cocks pers. comm. This box text is both inspired by - and draws substantially on - email correspondence received from Cocks and Wiersum on 31 October 2012 and 1 November 2012 respectively).

TEK is stressed as being valuable in both drawing upon on a wealth of empirical biological knowledge and, critically, is embedded within a cultural framework which places high regard on sought after values of respect, reciprocity and responsibility (Kimmerer 2002). There are multiple arguments and opportunities for including TEK in biological education curricula: e.g. new biological (and sustainability) approaches, insight and validation may assist in addressing social-ecological problems; multi-cultural perspectives can forge an 'openness' and appreciation in the learner; productive partnerships with Indigenous communities may also encourage them to engage with or enter into the field of ecology; and the holistic integration of scientific and cultural concerns which, in imbuing a sense of compassion and spirit, is likely to make the science of complex systems more attractive to students (Kimmerer 2002; Armstrong et al. 2007; Appendix 9.20). Hayes (2009: 1078) agrees and sees an additional benefit of multicultural science education in fostering naturalistic intelligence – and its inherent links - in biology students:

> By tapping into "native" knowledge of natural history and worldviews, an instructor could make connections between past and present, school and home, and classroom and society that are bound to make the topic at hand more interesting and pertinent.

TEK therefore incorporates the entire continuum of interconnectedness as outlined above. Indigenous epistemologies often recognize that phenomena are only understood with all dimensions of human experience: mind; body; emotion; and spirit (Cajete 1994). It may be this appeal to the full-spectrum of human experience which holds the greatest relevance to MNE, education and the student's own evolving personal connection with nature. Kimmerer (2002: 437) explains (see also Box 34; Appendix 9.17):

> After almost every presentation linking traditional knowledge to science education, students come forward to express appreciation and to voice their frustration that their scientific curriculum allows no room for cultural concerns, even denies the validity of such concerns. A number of very capable students tell the story of abandoning their science education and a potential place in the scientific community because of the perception that science prohibits the expression of personal connection to nature. At a time when our ecosystems are threatened by imbalance between humans and nature, we cannot afford to discourage such students from membership in the scientific community.

5.4.5.4 Reversing current trends

> *What educational forms promote care for places? What does it take to conserve, restore, and create ways of being that serve people and places?* [and] *What does it take to transform those ways of being that harm people and places?* (Gruenewald & Smith 2008: xix)

Various authors (cf. Dayton & Sala 2001; Gruenewald 2003; 2005; Chawla & Cushing 2007; Schultz 2011) throw the efficacy of contemporary formal education in fostering CWN and ERB into question.[139] For example, it is contended that an overly environmentally correct and scientifically abstract curriculum may distance learners rather than connecting them with the natural world and a consciousness of place, leaving

[139] Results presented later in this dissertation also suggest that this balance is delicate and that formal conservation education may paradoxically undermine CWN (cultivated through childhood nature exposure) (Section 5.5).

minimal opportunity for experiential learning (Gruenewald 2005; Louv 2005). David Orr has also suggested that contemporary education fragments instead of unifies, separating feeling from intellect and practical from theoretical (in Louv 2005). This prevailing attitude has denied students the wonder and sense of place fundamental to the discipline of ecology (Dayton & Sala 2001; Gruenewald 2003, 2005). Learners are becoming increasingly narrow-minded through eco-illiteracy and ignorance of natural history and connections with TEK (Kimmerer 2002; Pyle 2003; Louv 2005). Finally, by placing increasing focus on strengthening detached intellectual interest at the expense of involved emotional affinity, formal education (particularly at tertiary level) may paradoxically undermine CWN as a motivation for ERB. Overcoming these trends requires fundamental changes in mindsets and ways of doing. However, as Rudd (2011) speculates, the perceived severity of loss of biological diversity among scientists may open a willingness to discuss potentially contentious conservation options. Whilst MNE as an experience is not contentious, its integration into EfS and as a strategy for ERB interventions might be considered contentious to some.

The qualitative themes identified in this study (Figure 18) are not definitive – they reflect respondents' opinions based on their experiences. However, the resulting thematic classification is insightful: the prescribed education process must balance *theoretical (cognitive)* concepts and *experiential* activity, be underpinned by (discussions on and experiences around) moral dilemmas, ethical choices, value systems (*affective* dimensions) and be facilitated through diverse context-specific learning approaches. These findings align with other results found in this dissertation, particularly regarding the ways in which MNE and appreciations of '(inter)connectedness' can be cultivated (Section 2.2, 4.3.4, 5.1). It emphasizes the value of direct, personal unmediated experience in tandem with facilitated sensory (field) awareness and creative exercises (e.g. arts, play) and is explored through reflection and meaning-making. It is critical that such activities are integrated with more intellectually grounded concepts such as natural history, core principles of ecology, food webs and understandings of social-ecological complexity. In summary, it is about balancing and *reconnecting* the cognitive (logic, reason, intellect) with the affective (feeling, intuition, creativity) which can be applied as part of an experientially-driven naturalistic intelligence in the field (Hayes 2009).

Education of this nature would be incomplete without addressing the "neglected interiors" of learning for sustainability, i.e. in the relentless pursuit of external gains through scientific or technological progress, we forget the "irreducible interiority to our ecological problems" (Esbjörn-Hargens & Zimmerman 2009; Mattson 2009: 221). EfS therefore needs to focus on exploring the values, ethics, morals and worldviews which comprise 'sustainability' – and their contextual relevance to personal growth and life-orientation as a responsible member of a local and global community.

A growing body of interdisciplinary research shows that certain approaches help facilitate MNE, along with ERB (Kellert & Derr 1998; Chawla 1999; Kals et al. 1999; DeMares 2000; Pryor et al. 2005; Chawla & Cushing 2007; Smith 2007; Fengler 2010b; Smith et al. 2011; Morse 2011; Ballantyne et al. 2011). Sobel (1996) observes that many environmentalists attribute their commitment to either many hours spent

outdoors as a child or adolescent in a vividly remembered wild or semi-wild place, or to an adult who taught them respect for nature. The implication for education is that

> …ecologically literate and politically motivated adults are shaped by significant life experiences that foster connection - in this case connection with the natural world (Gruenewald 2003: 7).

As highlighted (Section 2.2), this involves educators moving beyond an impetus to inform learners (whether students or citizens) of the latest ecological and social crises and to instead "reclaim the heart" through a place-based education which "creates experiences of care for places close to home" (Sobel 1996; Gruenewald 2003: 7). There are multiple ways through which such ambitions may be realized (Box 33).

Box 33: Ballantyne et al.'s (2011) recommendations for guiding the design of powerful interpretative experiences which deliver transformative outcomes (adapted here for EfS relevance)

Ballantyne et al.'s (2011) findings stemming from research on wildlife encounters are instructive for placed-based experiences and education for motivating changes in attitudes and behaviour. They recommend that facilitators:

i) Engage multiples senses;
ii) Allow close proximity to wildlife [flora and fauna];
iii) Reinforce sense of wonder, awe, excitement and privilege;
iv) Encourage use of imagination to enter the animals' [or plants] world and feel empathy;
v) Provide information about conservation threats and anthropocentric pressures;
vi) Give examples of how human behaviours impact upon species and ecosystems;
vii) Provide examples of practical actions which learners can do to enhance wildlife welfare and their own environment;
viii) Set aside time and space to reflect on the meaning of the experience;
ix) Create a space for facilitating group discussion around the experience; and
x) Follow-up with extra resources to support extended learning and continued motivation.

By incorporating practices (e.g. Box 33, Table 4) in curricula which spawn and feed MNE, we should find that this automatically supports personal development and character building. It should open learners up to other previously unexplored dimensions of their being, including different ways of knowing or previously unrecognized talents. Openness to such approaches may answer Dayton and Sala's (2001:206) call:

> We should imprint on our students the importance of intuition, imagination, creativity, and iconoclasm, and prevent restricting them with the brain-cuffs of rigid assumption frames and techniques, if we are to revitalise an ecological science that is more than ever, becoming a stronghold of fundamentalism.

It is therefore critical to scrutinize approaches fostering such fundamentalism and open dialogue on how they may instead facilitate open-mindedness or, at the very least, prevent (further) 'closedness' toward exploring MNE and CWN through formal education. We can ill-afford to perpetuate current intellectual-experiential divides and dismiss the relevance and importance of such approaches within formal (natural science and EfS) curricula. Somewhat ironically, the roots of early Western science saw it informed by a more holistic mix of logic, reason, philosophy, spirituality, intuition and creativity explored through the arts (Gurner et al. 2012). Experiential learning processes provide an avenue – *the avenue* - through which these synergistic processes may be reunited to arrive at 'good knowledge' and understanding (Gurner et al. 2012; Yamauchi 2001, Section 2.2.12). In this regard, we might find resonance with Bonnett's (2003) (in Ashwell 2010: 52) call for sustainability as a 'frame of mind' which:

> …values harmony with nature, recognizes human responsibility for nature, and encourages intimate, intuitive and sensuous engagement with nature. He proposes that, rather than simply fulfilling pre-determined learning outcomes, learners should be encouraged to respond to nature spontaneously in moral, aesthetic, affective and imaginative ways.

The results of this study reiterate that something needs to change in education. Indeed, it appears something *always* needs to change in education. However, we are fast approaching the end of *UN Decade of Education for Sustainable Development* (2005-2014) - an initiative which was formulated to acknowledge education as the primary agent of personal transformation and to encourage the development of curricula which enhances value-based learning, critical thinking and fosters changes in thinking patterns and behaviours (Ateljevic 2009). Therefore, when confronting a phenomenon shown to be as important to a sustainability 'frame of mind' as MNE, we are compelled to take action. Chiefly, focused and repeated exploration and reflection on tenets of MNE is expected to direct attention in such a way that this 'frame of mind' is really the outcome of a fundamental shift in the *intentionality* of consciousness.

> *The faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgement, character, and will... An education which should improve this faculty would be the education par excellence.* (James 1890)

Box 34: Trade-offs between tertiary science-based education and CWN

The day before presenting interim research results at the 2011 International Congress for Conservation Biology (ICCB) in New Zealand (NZ), I received updated statistical analyses which found that the OQ did not return the anticipated correlations between CWN and MNE (Section 5.1). Perturbed, I wrestled with how to integrate these findings into a still unfinished presentation. Feeling overwhelmed and deflated, I glanced down to find a tiny praying mantis on the sofa and crawling toward, and then onto, the laptop (Image 16). This uncanny event brought welcome reassurance and renewed confidence for the presentation ahead. It also sparked a mini-epiphany converning the idea that maybe tertiary (sciences) education itself was, perversely, a driver for disconnectedness (even in conservation ecologists). This increasingly played at the forefront of my attention during the following days of the ICCB.

Image 16: Impeccable timing - tiny mantis on the researcher's laptop

Two days later, after a successful oral presentation, I stood at my poster presentation watching attendees file past, giving fleeting glances. After about 10 minutes, a female student ('AS') and her friend stopped to read the poster. 'AS' appeared quite absorbed with the content whilst her friend's face conveyed a familiar puzzled expression of "What's this all about?" Upon asking the friend, whether she had ever had a MNE, she shook her head and quickly deflected the question. 'AS' slowly moved her attention away from the poster and turned toward me with eyes a little alight as if they had found something lost. Nodding, she enquired as to whether I knew of the work of Jon Young. The question took me aback. Indeed, I was very familiar with Young's work and had attended his workshop a few months earlier. But the ICCB was not the place I expected to encounter someone who had trained with him. This energized our conversation. Yet what infused our meeting with heightened meaning was that 'AS' inadvertently answered the question that had been tormenting me: *Is there a tension between natural sciences education and heightened CWN?* (See Appendix 9.17 for her ('AS") personal experiences on how conservation education may conflict with CWN).

Summary and key messages for Section 5.4

Core rationale for the study was to determine:

- If and where there is a place in education for sustainability (EfS) for meaningful nature experience (MNEs) according to
- How persons who reported MNEs see their implications and foundations included in EfS

Summary of methods:

- Online questionnaire which employed
  - Three five-point Likert-scale statements eliciting level of agreement
  - One short open-ended question
  - Questions eliciting current occupation, professional interest and education level
- Analysis consisted of:
  - Descriptive statistics (quantitative)
  - Content analysis (including simple network analysis) (qualitative)

Key results from the study:

- 89% of respondents believed that current modes of education inadequately prepare society to understand and learn from MNE;
- 97% of respondents agreed that society significantly benefits from an education that promotes an understanding of MNE;
- 84% of respondents felt that MNE provides convincing arguments for the need to conserve the environment;
- Respondents put forward diverse recommendations on what should be included in curricula to improve chances of MNEs. These can be categorized in four overlapping thematic groupings:
  i) Intellectual concepts; ii) Experiential activities; iii) Values and ethics; and iv) Learning approaches
- The most common recommendations / themes to emerge stressed the importance of: field excursions, outdoor activities and direct personal experience; interconnectedness; sensory awareness; respect for nature; and knowledge of ecological webs and interactions;
- The potential importance and value of cross-cultural understandings such as of Indigenous worldviews and TEK was conspicuous by its absence but seems highly relevant in being able to transmit themes identified;
- Concerted efforts need to be taken in all levels and forms of education – but particularly EfS – to encourage direct field-based experience which, in balancing the cognitive with the affective: engages the senses; evokes emotion (such as awe, wonder and empathy); encourages creativity, imagination and intuition; involves personal reflection and group discussion around meanings, values and ethics; empowers practical actions as an embodiment of personal responsibility in stewarding nature; inspires and motivates continued learning and exploration in this 'field';
- Science-based education must provide a more accommodating environment for students who, alongside scientific aptitude, value the opportunity to be able to express their connectedness with nature (CWN).

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Even when life-forms are studied at this [postgraduate] *education level, the style in which they are taught is from the viewpoint of an observer, not a participant. Field trips are rarely made in silence such that students can hear clearly what trees or tiny animals and plants are telling them. The focus on interaction with fellow students is permitted to go on as if they were alone and not living with a myriad of beings. Nor are students taught to express what they* really *experience and what gestalts they participate in, leaving subject-object relations out. They may obtain their doctorates without ever* sensing *what they are talking about, and if they have gained cognition (not only knowledge)... they are not stimulated to consider how to* inspire *others, how to* lead *them with few words to acquire... the understanding love and loving understanding (*intellectualis *amor* = amor *intellectualis).*

~ Arne Naess (2008: 137-138)

5.5 Concerns and opportunities for MNE and education

> *If learning is the making of meaning, and knowledge is meaning that has been socially negotiated, it is important to recognize that there is not one single right way that can be adopted uncritically.* (Sguazzin & Du Toit 2000: 16)

5.5.1 Introduction

Persons who have had *meaningful nature experiences* (MNEs) appear to see the relevance and significance of these experiences to education and society (Section 5.4). Whilst these respondents' views provided initial and valuable insight into MNEs and education, it is recognized that the online questionnaire (OQ):

i) only allowed for brief non-contextualized responses (with its limited survey instruments);

ii) did not elicit current constraints and bottlenecks inhibiting MNEs place in education; and

iii) may have elicited responses from persons with relatively little (recent) experience with formal educational and/or may have been reluctant to share opinions on the matter.

It is therefore valuable to explore MNE and *education for sustainability* (EfS) with persons who have had one or all of the following:

i) Extensive experience in facilitating (outdoor) education programmes, wilderness trails or workshops (related to, e.g. personal development, dimensions of *connectedness with nature* (CWN));

ii) Numerous MNEs during their life; and

iii) A high level of CWN (note that b) and c) have been found to correlate (Section 5.1))

This section outlines these persons concerns and opportunities for integrating insights related to MNE in EfS, based on in-depth interviewees' knowledge, opinions and experiences.

5.5.2 Method

In-depth interviews were carried out with 20 key informants known to have had MNEs and/or personal and practical experience with nature-based activities (Section 3.3.5; Table 10). All interviewees had spent extensive time in natural areas in their personal or professional capacities. Most importantly, almost all were engaged with education or facilitation ranging from formal class/ lecture settings to wilderness guiding, and from stakeholder liaison to public awareness through diverse media formats. For the purposes of gaining further specialized insight into this theme, 'Brian', a senior academic / researcher in environmental education / sustainability and 'Nico' a senior environmental economist were additionally interviewed.

In-depth interviews were carried out at the participant's private residence or, on some occasions, their workplace for 90-120 minutes in duration. In a relaxed and mostly informal atmosphere, three themes were discussed: MNE, IAS and their relevance to education (esp. EfS). Interviewees were also given freedom to draw upon more generalized personal experiences and perspectives concerning these themes.

5.5.3 Analysis

Analysis was performed in three parts: i) notes were taken during interviews and key themes reflected upon immediately thereafter in the form of reflective journal writing; ii) interviews were transcribed by using *Dragon Naturally Speaking 10* voice recognition software with additional notes and key points highlighted during this process; iii) content analysis was applied to interview transcripts using *atlas.ti v6/v7* qualitative analysis software; and iv) emergent themes from initial note-taking and qualitative analysis were cross-referenced with each other as well triangulated with themes arising from studies comprising this research (i.e. Section 5.4) and alongside existing literature. To preserve anonymity, pseudonyms were assigned to interviewees unless explicitly requested otherwise.

5.5.4 Results

Unless otherwise stated, 'education' refers to formal or structured programs linked to conservation education, environmental education (EE) and EfS. From the outset, it is important to acknowledge three main challenges encountered in eliciting useful, relevant and practical responses to this exploration:

i) Interviewees' diverse interpretations of 'education', even when narrowed by the researcher;
ii) Interviewees' diverse level of familiarity with contemporary formal education systems, in terms of what is currently included or excluded from curricula and the level of flexibility that education curricula or institutions may allow in including dimensions related to MNE;
iii) For some interviewees, MNE is considered as a phenomenon that can only really occur outside the bounds of formalized learning structures and presents opportunities and insights which are more tied to 'big picture' questions concerning guiding beliefs, personal growth, life orientation and ways of being and doing in the world and which may have a spiritual dimension. Therefore, direct relevance to MNEs might initially appear tenuous; however, as will be shown, in addition to surface interpretations, these dimensions may be considered vital for holistic learning;
iv) Despite my primary focus on tertiary education (as well as, but to a lesser extent, informal education within the 18 -30 age group), some interviewees defaulted towards child or early adolescent education given their points of reference as determined by personal experience. However, in most cases, their insights still hold relevance for the 18-30 age group.

The need to address the often overlooked demographic of 18-30, particularly those pursuing university education, was re-emphasized through a number of interviews. Whilst it is agreed that exposure to nature - through direct experience - is essential in childhood, it is perceived that it is the late-teenage years where meaning-making and reflection on experiences can take on greater personal significance on the path into adulthood. However, there is a perceived difficulty[140] in being able to draw attention to the value of (and thus funding for) these kind of experiences for the 18-30 age bracket, despite this group potentially offering the most suitable platform for MNEs to "land effectively" [Interviewee: Galeo].

[140] It is suggested that attracting funding is more challenging for this age group than for childhood nature programs.

> *I think postgraduate and graduate level engagement is where there is a distinct gap because of the mindset that those folk have. "I've got my degree, the world is my oyster, I am it." That age group is - somewhat surprisingly - still young: young in the sense of being still very open from a sensory perception perspective. I find people in their 30s or from 30 to 50 are actually quite a lot more closed. They have formed harder opinions of the world or maybe some bitterness about life and it is not so easy for them to engage with nature's phenomena...Graduate level is where there is a gap for education that can have a very profound impact on how those graduates implement their work in the world.* [Galeo]

Twelve key themes emerged from the in-depth interviews and are broadly classified as one of six current *concerns* or future *opportunities* relating to the implications of MNE for education (Table 36).

Table 36: Summary of interviewee's concerns and opportunities for MNE and education

Current concerns	*Future opportunities*
i) Distancing from nature	i) Participating with nature
ii) Lack of meaning in conservation (science)	ii) Bringing spirituality into (conservation) science
iii) Limitations of language	iii) Facilitating 'openness' and shared experience
iv) Outmoded value systems	iv) Values reflecting interconnectedness
v) Loss of mentorship and passages into adulthood	v) Mentoring and reinstating rites of passage
vi) Outmoded learning and exclusionary curriculum	vi) Learning to live better

Concerns and opportunities are expanded upon below with supporting text based on in-depth interviews. For each concern listed, a corresponding opportunity is identified - sometimes with related sub-themes.

Concern i): Distancing from nature ('separation perpetuation')

> *In place of actual experience with the phenomenal world, educators are handed and largely accept, the mandates of a standardized, "placeless" curriculum…* (Gruenewald 2003: 8).

A preoccupation with environmental crises and issues and the accompanying observation and rational analysis is perceived to be distancing, rather than enamouring, students to nature.

Environmental crises: Much focus in education has become devoted to in-depth analysis of the evolving environmental crises. This is perceived to have had the perverse effect of leading students - and teachers - further away from the fascination of nature and ecology which initially attracted them to the field. A focus on 'problems' can become overwhelming, disempowering and lead to feelings of disconnectedness:

> *I was getting caught up in my own reflections of this really massive problem that we seem to be facing. And I wasn't actually reconnecting with the beauty, with the joy, with the awe, with the wonder, with the sense of being in place and being connected to place… that I had felt so strongly earlier on in my career.* [Joy]

Issue-based: Closely linked to this 'crisis mentality' is the perception that education is increasingly issue-based and oriented toward strategic problem-solving. It is perceived that this alone is insufficient as it assumes all the answers are within our own intellectual abilities to analyse, cognitively process and logically act upon. It also presents educators with a challenge: in recognizing the complexity and interdisciplinary nature of environmental issues, teaching an effective issue-based approach would need an educator to be versed in disciplines as diverse as philosophy, history, politics, sociology, biology and geography. What tends to result is an incomplete presentation of issues, which may not fully develop students understanding. Educational institutions therefore remain poorly equipped to impart holistic approaches to learning,

> *So we teach a very partial and simplistic - perhaps not very helpful - understanding of the issues that make us really unable to strategically do anything about them. And perhaps we are barking up one tree only, when another tree might be: "How do we relate to ourselves and others?"* [Joy]

A lack of understanding of this relational aspect of our being has meant that for much of society, and often particularly during adolescence, there is a pervading feeling of 'aloneness' in life.

> *I think that's the cause of so much illness, is the feeling of you are now this one human being and you have to survive, and you are separate, and you are alone, which is a bizarre sort of, I think, manifestation of our culture. We created…this race of people who think they are all alone, which couldn't be further from the truth.* [Craig]

Theoretical learning: An overemphasis on classroom-based theoretical concepts (of, e.g. issues) can lead learners to becoming increasingly detached from actual reality as they get caught up in models and frameworks which, in effect, begin to emerge as their new 'reality'. In addition, an overt focus on the technical dimensions (particularly in the natural sciences at tertiary level) is not always perceived as being motivating or engaging, even for an academic such as Kate:

> *…just the technical, this is that and this is what happens, the scientific… to me, it does nothing for me* [except that]*…it is really interesting to know, like, the impact.* [Kate]

Many approaches taken within relevant educational and broader societal contexts are dominated by the eye as primary sense organ to facilitate 'observation'. Whilst humans are chiefly a visual species, an overreliance on vision - particularly as applied through the conventional notion of a scientific 'observer' - means that the student increasingly becomes accustomed to encountering issues and natural phenomena at distance. Joy believes that this means there is no impetus to become involved, other than to form an external opinion. When engaging other senses, e.g. touch, smell and, to some extent, hearing, one becomes far more involved and embodied in the immediate situation and can better foster traits like compassion and empathy.

Extinction of experience: Direct experience with nature may awaken those senses; however, the opportunity or the desire to engage with these types of experiences appears to be vanishing:

> *… to my mind, it is quite simple: we are losing that extinction of experience, without even realising it. That's the point…we have evolved in an immensely complex world - visually, acoustically, textually - and our world is becoming homogenized… We are losing touch metaphorically and physically with nature. We are not feeling, smelling and feeling fulfilled by nature.* [Graham]

The immediate implication of a lack of direct MNE in education is that a true appreciation for nature, in terms of actually cultivating an ethic of committed stewardship, is likely to be unattainable.

> *People won't miss anything which they have no experience with… And the moment you start appreciating something, you start caring for it… There is a whole generation of people - maybe two - who've grown up without experiencing nature, without appreciating nature. So [they] don't have a basic understanding, that basic education - it is very very difficult to change. The first question they will ask you is "Why?" "Why do I need to change?" And the second is – "What is the difference that one individual can make? What possible difference can I make?"… And you need those kind of* [meaningful nature] *experiences to kick-start the whole process.* [Nico]

Outdoors = off-limits: Given the above, frustrations are therefore expressed that any type of outdoor fieldwork is still seen by classroom teachers as a distraction to the youth, despite its critical importance to the human condition. There is also the perception that the growing burden of paperwork and legislation also hinders outdoor excursions which may otherwise provide opportunities for MNE.

> *Unfortunately, a lot of kids in cities in South Africa don't have a love of nature because they are not introduced to it…* [through] *nature experience…the biggest percentage of South Africa don't have that. If you think about it and did the number crunching, how many kids … have ever been out in mountainous areas or wild areas..?...I would say that is our biggest problem. There is not a meaningful experience for most township kids in this country - and the more you could introduce them to that… but it is costly, but somehow we have to do it.* [Markus]

Even before extending the imperative of nature experience to wilder areas, there are more affordable opportunities for MNE closer to the classroom:

> *We can learn a lot by just looking at a flower, you know, in terms of experience and all the rest of it.* [Patrick]

Information orientation: Scott acknowledged that the emphasis *"has been on the more rigorous sort of information orientated approach"* and the perverse outcomes that *"in fact, the more knowledge we have, the more effective we are at stuffing up rather than fixing up."* This approach is perceived to foster emotional detachment and, as Patrick noted, may have been exacerbated in a South African context which, with the backdrop of Apartheid, saw many Whites engage in a form of emotional detachment. It is therefore acknowledged that the need to open up emotionally and look at the world through new eyes is a necessary part of education:

> *I think it is important that we do not neglect - what's the word – emotive, sort of, fuzzy experience that people need to genuinely understand where we are in the world... That's why I think this is a really interesting project. I mean, seriously, we really need to start addressing these issues…* [Scott]

5.5.4.1 Opportunity ii): participating with nature (primacy of practice & personal experience)

> *It is the sin of soul to force young people into opinions…but it is culpable neglect not to impel young people into experiences.* (Hahn 1965: 3)

Direct nature experience: The antidote to the 'extinction of experience' is to open up opportunities for students to have direct contact with nature. This may not guarantee MNE, but the act of just 'getting out there' is nevertheless considered a necessary and effective begin.

> *Well, it is probably not very practical but what I can tell you from all the school groups that we took out into the wilderness - not all of them were that successful* [141] *- but a lot of those randomly picked kids from townships that we took out into some of the wild areas… went on to study conservation after that trip. So that's how meaningful things can change people's mindset.* [Markus]

[141] Markus elaborates on the example when the experience did not quite work as planned:

> *I can remember one group, it didn't work at all. They came there with the wrong attitude - they thought "Wilderness" was the place* [seaside town] *down the road here towards* [the city of] *George. They thought they were going down to have a jool* [party] *on the weekend to go to the sea and swim and do things like that and go for a hike up into the mountains. They had their music there… so that trip didn't work well! But all the others when people are prepped correctly, "We are going into mountainous areas; you're going to have quite an interesting experience…and don't worry there is good guides that will look after you and …will tell you all these interesting things…" That worked well.*

> *We change lives through nature… The initial experience is the hook - this "wow" experience is the hook [and] then we start to clip little things onto it… onto that little hook. What kind of bird is that? What is that? Why does that happen?* [Creating] *Inquisitive minds…* [Jeremy]

> *When you have these experiences, you realize that everything is one. We are all the same thing, even the animals, all is one thing. And when you've had that experience, you are fundamentally different. You can't view other people in the same way, it is hard to … not care, in some ways, it is hard to not be compassionate. And it is so much easier to exist. Because you just feel this tremendous support from everything here, from the other realms, from everything.* [Craig]

The need for nature experience should not be limited to students. Offering support and training for educators is essential. One of the best examples in South Africa is the Earthchild Project[142], which, in recognizing the demands and stresses of education, offers retreats for teachers, blending relaxation with nature experience and a chance to open their eyes to more subtle, intuitive nature-oriented processes.

> *Instead of pumping teachers with more information about the environmental crisis, we should be actually taking them out and giving them seriously wonderful relaxing rejuvenating regenerating experiences of their own. And shifting their own energies and filling their own deep need.* [Joy]

Reasoned practice: A key observation is that people learn by doing and that through 'reasoned practice' they become aware and therefore more likely to change values, attitudes and behaviour. The concept is based on the notion that people operate through practical reason, which provides the foundation for reasoned practice:

> *It is through the practice of being in a world and doing things in the world that we come to hold a particular way of seeing the world and approaching the world.* [Brian]

The approach emphasizes the importance of situated learning: a focus on practices in context, rather than simply (theoretical) awareness of broad stand-alone behaviours.

> *Much of educational research tends to pulverize life to minute abstracted fragments and particles that are of little use to practitioners.* (van Manen 1990: 7)

Balancing practice and theory: One recommendation is therefore to spend more time in the field away from theory. It was noted that the true sense and meaning of 'ecology' is *"learning the language of nature"* [Sheena]. Another interviewee [Galeo] believed that *"poetry is the real language of ecology".* Whilst attentiveness to this language can only be achieved by listening to it in the field, it may be enhanced with the pragmatic and situated integration of knowledge and concepts. For example, based on personal experience, Brian suggested that when teaching ecology, it is important to work "from both sides" in terms of having students read the books about relevant concepts and then using these as a basis for building connective webs out of their own personal experiences. Brian would take students to a nature reserve and first invite a guest lecture on ecology to provide them with 'a lens' for entering the field. However, Brian would also invoke more creative interpretations such as exposing students to the idea of 'being in the world' (based on Gregory Bateson's work) and inviting students to come up with creative depictions (e.g. song, art, poetry)

[142] Earthchild Project: http://www.earthchildproject.org, *retrieved 21 October 2012.*

about the act of searching and trying to make sense of patterns and phenomena arising in nature. The results could be viewed through the lens of experience and the lens of knowledge.

Attentive embodied participation: Finding wisdom in place, outside of ourselves and the intellectual theories we are prone to constructing, is closely linked to the idea of *participation* with the world around us, i.e. one may find an embodied presence and meaning in nature and thus be able to perceive and feel more than just the meaning we construct ourselves. So, whilst acknowledging the social construction of reality through culture and language, there is also an appreciation that *"we also encounter a certain amount of our reality"* [Joy] and as expressed by, e.g. Merleau-Ponty (1962); Abram (1996) Bortroft (1996).

Participation is embedded in an understanding of the interconnected human-nature relationship. In complementing issue-based approaches, there may be scope to encourage students to consider their physical, emotional and spiritual relatedness to nature, themselves and one another. Once avenue through which to achieve this is engaging a greater suite of senses to diminish 'distancing' coupled with visual observation. With respect to children's experiences, Jeremy viewed the sense of touch as being crucial in establishing interconnectedness (and participation) by feeling the shared 'life force':

> *I believe the child must be allowed to touch… an animal…in a controlled environment…Because animals have an innate healing quality to them. And it is not the animal - it is how I react to the animal, it is my experience of that animal. "Look, bunny is entirely in my hands: I can squash it and kill it or I can hold it … and feel its heart beating and that energy flowing through". I don't know if you believe it, but I believe that we are part of a bigger picture: I am part of the universe in which I am linked to you. I am linked to every little animal on that ground and that energy. The child must come into contact with that energy…a child put into a box will die. He needs nature. He needs interactions with others. But he must have interactions with animals…It is a spiritual experience.* [Jeremy]

Inactivism: Joy and Brian cited Roy Bhaskar (the British philosopher behind 'Critical Realism' (see, e.g. Bhaskar & Hartwig 2010)) and his concept of 'not doing' or *inactivism* as a way of making a meaningful difference in the world. This implies that the educator encourages students to work at 'being' in place and opening up to the circumstances and wisdom of the situation, without the assumption that as an observer, one can find - through intellect - all the answers for themselves. This was felt as invoking a greater sense of humility as well as a way for fostering a greater sense of meaning and connectedness in the world.

5.5.4.2 Concern ii): lack of meaning in conservation (at spiritual, soulful and experiential levels)

Interviewees recognized that conservation, as it is currently educated for and practiced, is deficient in dimensions related to spirituality and experiential CWN. Many of the comments were levelled at the practice and profession of the broader conservation field. Whilst it is unlikely that the way conservation is currently perceived to be practiced is a direct by-product of education, the two appear related:

> *I think what has got to happen is that so much with the conventional conservation studies and all the rest of it…* [e.g.] *sustainable utilisation is just drummed into them...You know, we need to pull away from that and… allow that it* [MNE] *exists and that it is a very real, natural, spiritual phenomenon - that we should allow the next generations to be open to it and not be closed to it… because it is a very very real experience.* [Patrick]

Paradoxically, withholding exposure and acknowledgement of these experiences may be denying the source which motivated students to choose a conservation profession.

> *I think it would be very important to look at conservation professionals, who today sit behind computer screens and spend half a minute a year in nature. And most of them - I would put my money on it - ended up in conservation in the first place because they had some kind of peak experience at some prior point in their life*. [Galeo]

The continual subjugation of MNE in conservation may also have the effect of turning away individuals who are otherwise passionate about the cause (and as also found in Section 5.4, Box 34):

> *And if that* [MNE] *is not allowed to even come into it - and hard-core conservation becomes the main thrust, then we've got a problem, because somewhere along the line, those individuals have got to break away.* [After my recent public presentation] *A guy…came up to me - and we started talking about it - and I said, "Are you frustrated working for* [prominent South African conservation organization]*?" And he said, "Of course I am frustrated. But I am an employee and there is policy and I've got to stick to it."* [Patrick]

This trend is compounded by increasing job pressures and the broader unintended effect may be the gradual disconnection of conservation professionals from the essence of their practice.

> *…The tragedy is that they have now ended up in a space where they are no longer connecting. And I think it compromises their work in the world on numerous levels - if one wants to talk of a soulfulness dimension. All my colleagues working in conservation - all of them - would love to come on one of these walks that I do but not one of them can afford to time-wise or financially. This is a crisis.* [Galeo]

Like Patrick, Galeo also viewed the broader conservation field as being overtly focused on 'resource management' and 'tourism' and lacking a distinct empathy and internalisation of what it means to connect with the very place the conservation professional is mandated to 'manage':

> *It relates to Robert Pyle's 'extinction of experience' being linked to extinction of species. And* [that] *these people* [conservation professionals] *are mandated to protect wild nature, yet not having experience and not having real relationship … I think that is a real crisis - in the conservation sector, certainly.* [Galeo]

Interviewees, including those situated in science and academia, readily acknowledged that spirituality is inseparable from the experience of being human – and of nature itself.

> *There are other soulful spiritual levels to our being and if we don't consider them, then we are leaving out a whole lot of stuff about what makes many of us tick.* [Joy]

> *So then spirituality is part of human existence; spirituality then is part of nature. So I think that is a very important dimension. And that sort of* [Richard] *Dawkins approach that everything can be solved by science in the cold hard "let's just do science" is not realistic for conservation. People in general are not just scientific objects - they are actually spiritual beings and that is part of being human.* [Graham]

Nature as restricted to the biophysical sciences: Part of the problem for conservation's perceived lack of 'soul' may rest with the observation that nature itself tends to be positioned (or pigeon-holed) as being exclusive to the domain of the biophysical sciences. Through these eyes, students are educated in a way which puts them out of touch - or unable to resonate - with other forms of motivation for conservation. An academic cited the results of an informal survey which showed that a third of sampled South African students are drawn to conservation (e.g. tertiary studies in ecology) because they felt it was their

responsibility to "fix the mess which Man has made of God's creation". Therefore, a strictly science-based approach to conservation and EfS may be unable to accommodate such motivations, even though these drivers may be incredibly important to students finding a passion for conservation and ERB.

5.5.4.3 Opportunity ii): bringing spirituality into (conservation) science

> *It is important…* [to] *bring it* [MNE] *into the scientific domain…we really need to start including this in the conservation program. We can't just keep doing what we know we can do. We have to start also tackling those things as conservationists - tackling those things that we don't know how to deal with. We've got to take a first step and to start doing it. At the moment it is just too convenient to sort of put it in a field of - for want of a better word – 'extreme people', New Age or whatever. And the danger of that is you tend to label and say, "Aww, check, it's them - it is all those weird folk smoking weird stuff and looking at crystals and shit like that". But in actual fact science and conservation needs to start tackling these sorts of issues.* [Scott]

There are diverse ways in which MNEs or the more spiritual dimensions of human existence might be incorporated into conservation and sustainability science. Some of these are more specifically addressed through the other opportunities listed in this section, e.g. shared stories, experiential learning, sensory awareness, and simply 'being' in nature. Reflection and dialogue may further facilitate such processes. The discussion of other worldviews such as opening up to Indigenous knowledge, experiences and approaches is considered important, particularly in the multicultural southern African perspective.

> *You know, if you just think about it in a practical sense -* [we need] *to talk about these kind of things, to have classes where these kind of things are spoken about would obviously be a start. And to have discussions, and start with little children, in terms of what kind of experiences they are having - and get them to talk about it. And let them talk about mythology and what animals mean to Indigenous people in the area, and all that kind of thing.* [Fiona]

> *That's why I wanted to get a renaissance of African environmentalism… to encourage the African environmental concept that was originally part of this land.* [Patrick]

The artificial yet persistent separation between spirituality and science may be central to the problem. If, according to several interviewees, humans are inherently spiritual beings then this must also infuse the practice of science - it cannot simply be 'left at the door'.

> *But the reality of what is really hard-core scientific…you know, the problem is one goes all the way down the road, and then you say, "Well, 99% of all species have gone extinct anyway, let's just let it continue." So inevitably a moral element comes in… and a sense of the future and a sense of consciousness. So one cannot be doing conservation without that moral, ethical, futuristic element.* [Graham]

Integrate alternative disciplinary perspectives (including different 'ways of knowing): Joy suggested having professionals involved with art, music, language, life-orientation or anthropology to feature in EfS. Such persons could accompany students on field excursions to afford them the opportunity to view and experience nature through an alternative lens. Similarly, efforts could be made to incorporate cross-cultural perspectives with inviting, e.g. elders or traditional healers from regional cultural groups. It is postured that these types of integrated and diverse approaches are more likely to open students up to the more spiritual and soulful connections associated with MNE and help prepare students for the various kinds of nature experiences which they may one day encounter and seek to interpret. This may also alleviate

tendencies in science and education to hold steadfast to 'one right answer'. Openness to a plurality of worldviews would imply that no one solution ever proves adequate across all contexts. This may ultimately facilitate *"a shift from an "either/or" mentality to a "both/and" mentality…"* [Joy].

5.5.4.4 Concern iii): limitations of language

> *I lean a lot away from language. Some of the language doesn't work for me - even the word 'sustainability'. What is sustainable? …And I know that the language we have is the right language for us at the moment - that we just need to get people to understand what it means to create sustainably. I do get that, but there is something that can become quite quickly limiting for me.* [Bridget]

Language is considered to define how we construct and perceive our reality (Section 5.3.5.4). Galeo referred to way in which we *"colonize our world through language"* and that the field of conservation is also guilty of colonizing the landscape through flying its own army of concepts and terminologies. This is transferred to education in what becomes the *"colonization of the mind"* [Galeo] as students are taught to view nature through maps, constructed boundaries, zones, biotic communities and vegetation types - the language which has now become commonplace through which to perceive and describe a landscape. This inevitably shapes and permeates students' experiences outside of the formal learning environment.

The unintended consequence of 'colonizing' the mind and landscape is that it 'closes' the student to the possibility of experiences which do not fall within these recognized concepts. On the flip side, when students do encounter the profound, they are likely to find it difficult to express themselves in the language of the sacred, in a way which encapsulates the experience. One of the ways in which meaningfulness and expression has been historically achieved is through creative storytelling; however, beyond the childhood years and outside of mass media, there appears to be little room in present-day education for this skill:

> *We are losing the culture of storytelling - I think that is what we are losing.* [Patrick]

5.5.4.5 Opportunity iii): facilitating 'openness' and shared experience

Start with openness: In line with earlier findings (Sections, 4.3.2, 4.3.6, 5.2.4), two interviewees felt that whilst MNE cannot be prescribed, awareness of it may facilitate the necessary 'openness':

> *…"you can lead a horse to water, but you can't make it drink."* [But] *I think you can expose people to the idea that you can have meaningful nature experiences and that they can't have them for themselves unless they sort of, I don't know, if it is a matter of being open to it…* [Sheena]

> *People have to go and seek for it themselves: it is not something you can give them. But you can make them more aware and raise awareness and sensitivity to it. So their openness to that - I think that's the key.* [Kate]

Create the conditions: Other interviewees contend that some forms of MNE can be cultivated. One example is the deep probing of students' observations in nature. Students are urged to go out in nature, and then bring back a story, which the educator (or mentor) will then use to explore the experience - through searching open questioning - in order to deepen the student's present sensory awareness. Other

interviewees pointed to a suite of exercises which aim to facilitate CWN. Anna described the sorts of experiences which have assisted her and her facilitation work:

> *I think developing that inner witness and being clear on issues like projection, my cultural individual bias and things like that is very important. And then a practice that is useful to me is any sort of mind-stilling practice.* [Anna]

Returning to the challenge of 'manufacturing' experience, Galeo questioned whether having an explicit intention to 'reconnect' might undermine the objective; rather, it may be better to have another stated premise, e.g. an engaged walk in nature, where the 'connection' happens through unstructured doing in contrast to more forced structuring or 'talking' in a(n) (contrived) effort to 'reconnect'.

> *The problem is - and what we do - is we say "I'm going on a walk, a hike, a trip to reconnect" - that's already the wrong place we are coming from...Because the world - …if you are looking at synchronistic experience - that doesn't wait for you to make a plan for wherever you're going to go. That's the wrong kind of thinking from the start!* [Galeo]

A further twist is the idea that MNE can be enabled through ritual and ceremony whereby the timely encountering of natural phenomena in such settings amplifies the meaning:

> *The other interesting thing I found though is that animals that - if you are* [engaged] *in a ritual setting* [as practiced by the Xhosa and Zulu] *- and you encounter an animal …that's what makes it meaningful. So … if you normally encounter that animal in an everyday event it wouldn't be seen as anything significant. But if you encounter it during a ritual, it is very significant. And that's what makes it meaningful.* [Kate]

Shared stories: When field-based practice is unavailable (or even when it is), the *sharing* of MNEs may provide potent learning experiences – which may still foster a newfound 'openness'.

> *What I teach in my* [university] *course to second years,* [you should see the] *transformation it has on students. I've had so many students come to me afterwards and have said, "*[Kate], *it just completely changed my view of the world. It just did something." And a lot of them have gone on to do environmentally related stuff. And it is a difficult one because I can't just sit and talk - I have to build it up. And so I build it up by giving them papers on how other people look and understand the world. And then we look at how Westerners do and we see this huge disjunction and…*[the role of] *science and religion ... And then they see other ideas. And then I introduce them to my own experiences and that really starts to blow their own minds…Then they begin to come much more sort of open…* [Kate]

Galeo believes that the real art of education is the art of storytelling, a perspective which can be verified through Indigenous traditions, Western and non-Western mythology and, in this sense, is argued as being integral to humanity's psychological evolution and intrinsic to our ability to recall, remember and retell. Galeo maintained that we learn best through the medium of storytelling and that, far from being antiquated or solely for children, it remains the fabric of much of the communication we experience through media – the most effective being evocative story which has a particular structure and which (deeply) resonates.

> *All great people were able to convey what they wanted to convey through a story that was simple and worked with the right effect.* [Galeo]

It is acknowledged that any of the above opportunities – e.g. creating the conditions or sharing stories - equally calls up on the educator to (sometimes) courageously step out of their own comfort zones.

5.5.4.6 Concern iv): Outmoded value systems

Scott expressed concern about society's "archaic" values and morals. He perceived these to have evolved during a time when the human relationship with the environment was different to what it is today. Our position was "*still sort of quite vulnerable*" in the sense that humans were at greater mercy to predators, disease and natural disasters.

> *So there was this whole understanding that in order to survive, I need to conquer… that philosophy basically has stuck with us. We haven't actually come up with a new set of values that appreciate the fact that we have slightly over-conquered.* [Scott]

5.5.4.7 Opportunity iv): values reflecting relatedness: empathy and harmony

As Graham noted: "*one cannot be doing conservation without that moral, ethical, futuristic element.*" As has been found (Section 2.5.2, 5.4), it is evident that EfS must play a pivotal role here. When asked how MNE might be included in education, some interviewees saw the direct link with values underpinning our 'doing':

> *There are two words that come to mind immediately:* [The first one is] *a simple respect for something that is non-human, whether it is the environment or a creature; and the second one is bioempathy. So if you have enough respect and enough feeling for other creatures then it would guide your behaviour. But if you don't have that bioempathy, then it is just all about us, our consumption and our behaviour, you know... If that is ingrained in our sort of conscience and our spirit then we retract a little and give everybody a place in the sun.* [Scott]

Anna agreed that what needs to be integrated into education is:

> *Empathy, with a capital E… But preferably through direct knowing of an individual animal or plant, we as a human can truly step into the perspective of that one. And I think that is empathy - to truly know and understand another's perspective… to really engender empathy for the subjects that are being studied - not the studiers, the learners - but the subjects… I think it might really deepen the learner's true appreciation for that life form…And that plus the knowing-ness that comes from empathy can certainly enhance any future decision-making regarding that plant or animal or whatever. Empathy points to very responsible and honour*[able] *decision-making, if there are decisions which need to be made on behalf of other life-forms. But empathy as a life skill anyway is fantastic because it just means that even with inter-human relationships, that person must be truly able to listen in to the others experience instead of hearing only with their own limited filters.* [Anna]

Harmony also emerged as a value for guiding education and, further, its link with an ethic of stewardship:

> *… I think that conservation is all about harmony. We've got to learn to live harmoniously.* [Sonya]

> *On the one hand, it is harmony with nature. And secondly, for our own survival, we have got to be looking after the world we have got around us.* [Graham]

5.5.4.8 Concern v): loss of mentorship and formalized journeys into adulthood

Whilst at first appearing removed from education and MNE, numerous interviewees noted the absence of formal passages for adolescent and young adults in Western society. Traditionally such journeys were intimately tied to extended and usually solo periods in wilder nature - it was during those times where

MNE was encountered, such that the resulting 'education' was one of profound personal insight or even transformation in understanding the inner gift that one must bring back to their community.

> *I think it is a pity that we have lost… our cultural approach to life - our rites of passage in our culture. How you become a man and how you prove yourself to become a man… I think that we have lost that cultural spirituality which leads to a social conscience... there is something that ties you to conforming to a certain way of life…which ties you into a bigger picture in a broader community, which makes you outstanding in that community. Like, for example, in Africa, you would go to the bush and you would spend time alone, and you would grow spiritually…Our children these days grow up without that rites of passage in nature. All other cultures had it - all ancient cultures had it. We don't have that.* [Jeremy]

While Western society has largely lost that practice of rites of passage, it does not imply that the need has been negated. Tony believes that many of the challenges facing adolescents these days are precisely because such guidance has dissipated:

> *These kids are like an aeroplane at the end of the runway, raring their engines - waiting for the control tower to give them clearance to take off. And they are just impatient. So sometimes, if they get no clearance, they just go anyway - and there's no knowing where the hell they are going to end up. So what do they do? They look at the adult world and think, "What things do adults do?" They drink alcohol and they get drunk, they take drugs and they smoke. They have sex. So let's try all those things and experiment. Because there is no guidance - there is no mentorship in those kinds of things. There is no wise mentorship.* [Tony]

Anna reiterated these views in that the cultural fabric which used to be in place to support both the journey to adulthood as well as the interpretation of MNE has unravelled.

> *We don't have elders to go and sit at the feet of and discuss these things* [i.e. MNE]. *Or we probably wouldn't even have to ask these questions: we would be in a culture where it was already brought up, whether in storytelling around the fire or on a little hunting-gathering trip, you know.* [Anna]

Tony looked toward the African cultures which do still maintain a form of rites of passage but expressed concern as to how these have been forced to adapt to historical legacies and modern societal pressures, and further questioned if that undermines their purpose and integrity in terms of guidance:

> *And then where is mentoring in that process? Are there any elders anymore who've been through this* [initiation]*? Like Robert Bligh says about our own culture, the American*[ized] *culture: We've ended up with a whole lot of adolescents bringing up adolescents. Because nobody knows yet what it is to be an elder. It is the elders who should be mentoring young people.* [Tony]

5.5.4.9 Opportunity v): mentoring and reinstating contemporary rites of passage

A number of interviewees cited revivals in mentorship as being a way in which students can become more deeply engaged in their experiences and the reflective learning which must accompany it.

> *I think a key concept to bring into education is mentoring - truly, truly mentoring… which is subtly and artfully pulling the learner into an increasing sort of radius of enquiry and really dancing at that edge of what they already know and what they don't yet know. But joining them in the enquiry, rather than trying to shove information into them. Mentoring is always incredibly empowering for the one being mentored…* [Anna]

> *The most exciting education… that I have ever come across is what Jon Young is doing.* [Craig] [143]

> *I am very fascinated by the mentorship program that Jon Young does. That stuff is kind of heading in the right direction. The main thing that attracts me to what he is doing is the concept of mentorship. There one has the capacity to engage with amazing results, as opposed to our class situation (with objectives, exercises etc). When you can create a mentor-type relationship within an educational structure, that is where one has potential for real education to happen.* [Galeo]

Interviewees subsequently acknowledged the importance of rites of passage (in Westernized societies). These experiences were deemed to be crucial to both fostering deeper CWN, but also in addressing an individual's innate personal development in the context of their relations with the surrounding social and ecological communities. Such an opportunity is also known to generate MNE which, in being afforded first-hand insight into interconnectedness, can lead to profound personal growth and transformation.

> *We look at the outward manifestation, the physical and we think that's all that there is. We don't even see the connection that makes the physical visible or viable.… If we had to go through those Indigenous processes again or initiation, where those connections are made very obvious to you personally through your own meaningful experience - in the mind, in the body and in the spirit - there is no doubt that you are connected.* [Tony]

Experienced facilitators, mentors or elders are needed to provide necessary guidance and interpretation. Entertaining the possibility of rites of passage in present-day context may appear fanciful; however, the role of such cultural practices in creating cohesive, mature functioning communities must be recognized.

> *…the community knows that the strength of a community depends so much on this initiation process because, when they come out of it and they are adults, they understand completely what their task is then, in terms of their responsibility toward the community and the strength of the community relies on that…What those people learn is really how the world works, what our place as humans is in that world...that mothers in that community were doing a temporary job of nurturing you until the Great Mother takes over.* [Tony, referring to traditional African rites]

Tony, like other a number of interviewees (e.g. Anna, Bridget, Jeremy, Joy) all raised the point about trying to recreate and reinstate a rites of passage process[144] which deals with the most profound yet basic principles of initiation, but is delivered in a way which does not necessarily make it culturally identifiable. Such a process is, in many respects, found with the contemporary 'Vision Quest' which facilitates a type of rites of passage and therefore provides a special prepared setting for an individual to "*bring a piece of their story back*" [Bridget]:

> *"Bringing your vision back to your people, so that your people may live", is a beautiful old saying, that I think holds true for us - there is something about bringing it back, having it heard and being helped to make meaning of it, giving the story to others, that enlarges it. It actually enlarges it.* [Bridget]

5.5.4.10 Concern vi): outmoded learning approaches and exclusionary curriculum

Jeremy felt that the only thing that has really changed since the age of the Victorian classroom is the way students learn. Many of the other structures - both physical and content - have inadequately evolved to

[143] See Young et al. (2010), http://8shields.com, http://jonyoung.com and references to his work in Chapter 2.2
[144] Joy even put forward creative ideas for using intensive IAS clearing as form of (adolescent) rites of passage.

meet the needs of a rapidly changing society which, amongst other things, finds students increasingly bombarded by an array of external (technological) stimuli.[145]

Interviewees expressed general frustrations with conventional education – and this sentiment is implicit in many of the concerns already described. A further specific disquiet in this direction is that there is perceived to be no place for even field-based environmental education in the current curriculum.

> *I get very frustrated with the foolishness of so much of what we've had to do. As a community of environmental educators…we have worked so hard to get ourselves into the curriculum. And even that is not enough to please the educational authorities at the moment. So I am straitjacketed by the curriculum outcomes - I can't really go beyond that and still be acceptable, because it is not "in the curriculum" and that box is not going to be ticked and it is not going to help the teacher assess the learner.* [Joy]

Interviewees experienced with such endeavours expressed frustration about how difficult it is to penetrate into 'the system' and to be recognized for the vision of what they are trying to achieve. In many cases, any such efforts are expected to be carried out voluntarily. In this regard, the 'ivory tower' mentality in tertiary institutions is also perceived to be prohibitive in terms of being able to remain open and willing to question knowledge systems and integrate worldviews or approaches which support nature-based experience.

> *Look at the curriculum…it is only focusing on that Western perception of knowledge - it is the acquisition of knowledge, that's all. Not the awareness of where that knowledge comes from. Those other things, which should be the foundation of everything else - they just chuck it out, "It is not important, we don't need that."* [Tony]

Western society trumpets 'progress' as the core ambition and assumed criterion for a thriving civilization. Joy noted that whilst heralding the value of progress is usually most synonymous with development and the economy, it was also seen to exist within education. The concept of action research and many of the recursive approaches linked to EE/EfS also tend to assume that where we are going is better than where we have been. Joy felt that much of this may be a by-product of our linear perception of time, and whilst 'progress' may often be welcome, it cannot assume to be the most desirable outcomes across every temporal and spatial context, particularly when it concerns sustainability and CWN.

5.5.4.11 Opportunity vi): learning to live better

An overarching theme emerging from all interviewees was that education is failing to deliver the necessary 'shifts': i.e. internalizing implications of MNE, e.g. interconnectedness; ensuring sustainability outcomes; and in simply living as better people. Beginning with conservation, interviewees - even those engaged with scientific research themselves - identified a need for a radical realignment of priorities:

> *For conservation to be successful - or for humanity to be successful - the next major change doesn't need to be an information shift; it needs to be a shift in our consciousness… And conservationists generally are very, um, nervous of that sort of stuff. That is very green, esoteric and you don't talk about that. But really, I think that in a purely pragmatic*

[145] This is a point picked up lucidly by a number of Ken Robinson's engaging presentations, e.g. *Do schools kill creativity?* http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html and *Changing education paradigms (RSA animate)* http://www.youtube.com/watch?v=zDZFcDGpL4U *retrieved 28 October 2012*

> *sense that is the most important thing facing us… is a change in our attitude towards the world in which we live...* [Scott]

A more nuanced approach to 'progress' would be to assess the situation at hand and, with an understanding and appreciation of context, reflect on what we know from past and present to this particular moment. In some cases, as opposed to the usual analytical assessments which preface progress in conservation and sustainability, it may be more appropriate:

> *…to sit and just give thanks to the most beautiful sunset you've ever seen in your entire life* [and] *let us be in that ability of humanity to be in awe, you know. So what is right for here and now which enables all of what we are to live better lives? And perhaps this is something of embodied reflexivity.* [Joy].

EfS in this context is considered to be an evaluative way of living – a constant reflection on one's own practices in order to improve. In this sense, it encompasses the notion of *embodied reflexivity*: an anchoring of the self in full-bodied awareness and using that as a kind of reflection in action.

Ultimately, it appears that there is no separation between EfS, MNE and the aspirations which we hold in realizing our potential as individuals connected with the future of humanity.

> *But I think it is a holistic thing, you know. An old-fashioned word to use perhaps these days, but it is. And how do we integrate all of these parts of us, all of these abilities and sense abilities into something that really does bring the best out of us, of everything that we are and all of our relations, our relationships into a way of living differently? Not necessarily trying to solve a problem, but to live better.* [Joy]

There are also deeper and more philosophical questions which persist when it comes to concepts of EfS.

> *But is it about conservation or is it about creation? …Our focus is so much on trying to keep things the way they are and not let them run out, you know, that kind of mentality…That in itself can become so constricting and so limiting. Whereas if I say, "What is creation? What is the creation that is wanting to happen?" Which includes me coming alive, and if I believe that I am a co-creator in this life, co-creator in the sense of being united with forces that are much bigger than me - or whatever name you want to give them … but I am about co-creating a life, my own - and becoming me. So do I want to stick with creation or do I want to conserve? I am sure I am doing both.* [Bridget]

As identified earlier, language has a tendency to colonize our minds and colour perception within the spectrum of possibilities available to us. In some respects, the contested word 'sustainability' provides such an example. Does the fixed focus on 'sustainability' limit a range of possible alternative futures which, at this point in time, are beyond comprehension?

> *What is sustainable? Keeping things the way it is? What about the emergent future? How can I find ways to connect with the emergent future? What is emerging before I can even smell or get a whiff of it? How do I connect with something that I cannot even sense yet?* [Bridget]

Bridget refers here to the work of Otto Scharmer and the Presencing Institute who, as part of the applying *Theory U* facilitates processes which attempt to explore the question of how one connects with the emergent future - that which is still on its way and waiting to be born (Scharmer 2009a; Section 6.3.1).

In deepening dialogue with interviewees around MNE and education, conversations often edged toward transcendent / spiritual dimensions. Having observed this trend across multiple interviews, I asked Jeremy – one of my final interviewees - what the 'endgame' was with respect to MNE, CWN and education:

> *The endgame…is when people realize that they are God because God lives in you. You can't abdicate your responsibility to some deity. You are God…You are responsible for this world. You are responsible for all the pain and suffering in this world. Take responsibility for what you are doing. When you decide that this world will be better, so it shall be. It is taking responsibility for who you are… and making this world a better place. The power is ours. We have to choose to use it. The endgame is realizing that and not abdicating and saying, "Ooh, the government must do this"…It is our job - we must do this. We are the Gods of our universe - we must make it happen. The power is ours.*
>
> [lengthy pause]
>
> *That is what I believe, truly. That is truly what I believe. And I am a laymanist in the church - I am not an atheist. But we forget that nature, that God lives in us, - I am connected to that. I am not separate from it - I am part of a greater universe. And if I love you and love that tree… how am I going to hurt it? How am I going to steal from it? Won't I give what I have to make that survive? ....And now people are paying through their backsides to keep food on the table, to put their children through school. Who has time for nature? Who has time to reconnect with nature now? Once this mindset changes, and we can say, "That's my world", "This is my world", "This is the world I will leave my children" … that is the endgame, to use your words. That is the endgame.* [Jeremy]

5.5.5 Discussion

> *Since we have been domesticated by our education which taught us much more to separate than to connect, our aptitude for connecting is underdeveloped and our aptitude to separating is overdeveloped; I repeat that knowing, is at the same time separating and connecting, it is to make analysis and synthesis… we need to deeply reform all our way of knowing and thinking.* (Morin 2007: 25)

The results of this study provide additional frames through which to view previous findings (e.g. Section 5.4) as well as finding resonance with key themes identified within EfS (Section 2.5.2). Results emphasize some of the dichotomies and paradoxes prevailing within education structures and, yet, at the same time, respondents' synthesized views provide a rich tapestry for visioning effective or even transformative education. With demarcations on what on constitutes education or specifically EE/EfS often blurred, we might do well to reflect on Orr's (2004: 12-14) six principles of education:

> …First, all education is environmental education. By what is included or excluded, students are taught that they are part of or apart from the natural world…second…The goal of education is not mastery of subject matter but mastery of one's person…Third…knowledge carries with it responsibility to see that it is well used in the world…Fourth, we cannot say that we know something until we understand the effects of this knowledge on real people and their communities…fifth…(a) faculty and administrators who provide role models of integrity, care, and thoughtfulness and (b) institutions capable of embodying ideals wholly and completely in all of their operations… Finally… the way in which learning occurs is as important as the content of particular courses. Process is important for learning.

Cultivating CWN can and should be an essential part of this process of learning. Interviewees' responses reinforced concerns over the human-nature disconnect increasingly pervading education through, e.g. an intellectual and information intensive focus on crises, issues and theories and Faculties / institutions which neither embody nor support the (sustainability) aspirations desired. It reinforces the dire need to redress

the balance and create principles and practices within educational contexts which afford students the opportunity to participate with nature through direct embodied experience. In this way, knowledge ripens into wisdom, ready for application into everyday life. The persistent dichotomy between intellectual knowledge about nature and its embodiment as an affective care, concern and responsibility for nature resonates with Chawla's (2006: 359) observation of the two 'sides' to EE:

> The field of environmental education has always contained two sides: one that emphasizes scientific knowledge and technical and managerial solutions to environmental problems; and another that seeks to instil a sense of care and responsibility for the earth are among the general population. These correspond to two sides of our human nature: our rational drive to know the world, for the pure satisfaction of discovery and in order to adapt it to our ends, and our emotional need for identification and affiliation with the earth… In the words of Cobb (1977), one of the first persons to study the meanings of childhood experiences of nature across the life course, the goal of our highest maturity is to live and work in the world with a 'compassionate intelligence' that combines a deep identification with nature with an understanding of its processes.

Whilst in academic circles it may be acknowledged that EE has always emphasized these two sides of our human nature, it is clear that interviewees did see that fully reflected in the day-to-day practice of EE/EfS. Instead, they struggled with what they saw as narrow and sometimes outmoded forms of learning and exclusionary curriculum which increasingly restricted outdoors opportunities (e.g. the experience of place as part of a place-based learning) or exposure to concepts which broadened their ways of knowing (e.g. creative or experiential pursuits and non-Western worldviews).

Such views are reiterated in literature. In Section 2.2, the case was made that knowledge about issues alone is insufficient to effect action. This results in EE/EfS remaining overly theoretical, conceptual, quantitative and, in many cases, failing to achieve desired outcomes (Hungerford & Volk 1990; Chawla 2006). The primary focus has been on what students know or 'need to know', with little attention devoted to the feelings and self-understanding which might transform the knowledge and attitudes into committed action (Chawla 2006). Morse (2011: 246-247) similarly recognizes that:

> Today, much of our effort to 'educate' students or adults about environmental values and their place in the world relies upon scientific knowledge and logical arguments within the conceptual realm of understanding. Yet this is not the only way to effect change, and in any case, in many ways it has proven to be ineffective for educators and conservationists seeking to preserve wild places and species.

Responses from in-depth interviewees, OQ respondents (Section 5.4) as well as fundamental aims of EfS (Section 2.5.2) all point to the 'moral imperative', i.e. acceptance that the necessary values need to be imparted which *motivate* learners to shape a socially and ecologically sustainable future. This is reiterated in international guidance such as that provided by UNESCO, IUCN and the Australian Government (Section 2.5.2). 'Teaching' or conceptualizing a value system which also adheres to EfS' reflexive approach is not straightforward – and possibly a contradiction in itself. Instead, it is preferable to aim for a practice-centred experience as the necessary substrate around which perceptions are formed and values cultivated. In recognizing the importance of the perceptual realm of experience in instilling the necessary values for education (EE/EfS), Morse (2011: 246-247) writes:

> As Livingston suggests, "there can be no 'rational' argument for wildlife preservation[146], just as there can be no logical explanation of quality experience...There is no 'logic' in feeling, in experiencing, in states of being. Yet these same phenomena appear to be the prerequisite for wildlife preservation" (1981, pp. 116-117;…). Thus, we must consider more than logical conceptual arguments if we are to influence peoples' values. We need to include, and be able to justify, an experiential side to education and nature-based tourism that acknowledges and seeks to facilitate the pre-reflective, perceptual realm of experience if we are to influence values. We often fail to acknowledge the potential importance of 'perceptual experience' in relation to value. As Kohak suggests, "we do not commonly associate the language of perception with the experience of value" (1992, p. 173). Yet, if we are to acknowledge the value of participants gaining a renewed sense of perspective, of questioning themselves or their place in the world, then we must also acknowledge the crucial primary role that 'perceiving' the world might play in terms of developing values; of 'perceiving' what is 'right' and what is 'wrong'…

This is congruent with teachings of the Buddha who, through his own extended observation of the interactions of mind and matter, saw that there can be no "*a priori* reasoning, no realm of pure logic aloof from or unconditioned by the sensory world…" - it is the experience of contact between the senses and the sense object which underpin the interdependence of one (e.g. human mind) and 'the other' (e.g. natural phenomena) and bring with it unparalleled insight for 'right living' (Macy 1991 in Riley-Taylor 2002: 98). Recast as an educational tool, this meditative process allows the learner to reclaim the story - their 'truth'- of what they have come to know through their own lived experiences.

With results again suggesting that values need to reinforce human relatedness with the world and that ever deepening process of *realizing* connectedness, the learner is likely to foster newfound affective traits such as respect and, critically, empathy for all life – a bioempathy which by its very nature demands an awareness beyond 'self' and a responsibility for taking principled action.

> *Vance Martin, executive director of World Wilderness Congress, said, "We too seldom take time to appreciate the essence of nature itself—its beauty, wonder, and inspiration. Listening to Nature takes us back to this essence, showing us a pathway to becoming a better person and ultimately a more effective conservationist."* [SharingNature.com]

Interviewees' mention of 'harmony' with nature as being a desirable value for EE/EfS is begs exploration. Often used as a cliché, it is necessary to consider what a state of harmony might mean as an education or conservation pursuit. Hall (1926: 249) delves into its philosophical roots to find that:

> Harmony is a state recognized by great philosophers as the immediate prerequisite of beauty. A compound is termed *beautiful* only when its parts are in *harmonious* combination. The world is called beautiful and its Creator is designated the *Good* because good perforce must act in conformity with its own nature; and good acting according to its own nature is harmony, because the good which it accomplishes is harmonious with the good which it is. Beauty, therefore, is harmony manifesting its own intrinsic nature in the world of form.

[146] It is unlikely that there is *no* rational argument – the expanding field of ecosystem services and its ties to human wellbeing appear as examples of rational arguments. However, as far as current scientific understanding is concerned, the need to conserve much of earth's biota and wildlife cannot easily be argued – at least rationally – as being totally essential to sustaining human survival. This then implies that other arguments be invoked.

This deep understanding of harmony provides an instructive twist to the oft-maligned focus on the subjective beauty aesthetic (Section 5.3.5.1). For example, in terms of educational approaches to *invasive alien species* (IAS), it suggests that we can only consider something as beautiful when it is found to be acting in harmony with the landscape and conforming to its own intrinsic nature. This understanding of harmony also provides a tantalizing link between the formation of values and the perceptual role of experience as the "immediate prerequisite" (Hall 1926). This sensory and perceptual process of recognizing 'harmony' seems akin to Goethe's *Anschauung*, i.e. contemplative observation whereby one comes to see the essence of their self in nature and experience the essence of nature in their self (Box 14). In acknowledging the role of direct experience in shaping values, educators need to be able to both justify pre-reflective perceptual experience and know how to effectively facilitate "experiences that provide opportunities for such vital preconceptual interactions with the world" (Morse 2011: 247) (Chapter 6).[147] The vital importance of such experience is reinforced by Kohák (1992: 173):

> …the painful flaws in our conception of values which are letting us drift to an ecological apocolypse, I believe, reflect far more a perceptual than a conceptual failure, and so call less for a new conception of the good than for a new way of seeing the good (Kohák 1992: 173 in Morse 2011: 248).

A new way of seeing 'good' may involve a spiritual dimension (Kellert & Farnham 2002). However, as noted in this dissertation, 'spiritual' rarely sits comfortably with the rationalism inherent in economic and scientific worldviews, despite recognition that spiritual expression and/or inspiration is a both key benefit from nature and a motivation for CWN and ERB (MEA 2005; de Pater 2008, Section 2.2). This paradox is reinforced by Rudd's (2011: 1165) survey of scientists' opinions which found that:

> Protection of biological diversity for its cultural and spiritual values…were [ranked as] low priorities…[148]

In formulating accurate, reliable and convincing explanations for evolution and the laws governing nature, advances in scientific knowledge have progressively undermined or displaced religious worldviews and cultural mythologies (Crutcher 2000):

> As these and other scientific explanations have gained credibility, the old expositions of morality, which were hung on the framework of the traditional creation myths, have shown increasing signs of stress. If the old myths no longer provide an adequate rationale for ethical behavior, then what does?

Has science, as an alternative worldview, come forward with a consistent value system which could be held up as being worthy of replacing those found in theologies and cosmologies which ultimately call for one to live a moral life? Or, in proclaiming science as the sole arbiter of truth, have the values intrinsic to ancient

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[147] It has been found that participants on outdoor solo activities do not need a facilitators to tell them what they should be learning; rather students will identify for themselves outcomes that are personally meaningful and important (Williams 2012). This may be true but it is important to make the distinction between this reflective approach and what is being described here as a way for best cocooning *pre-reflective* perceptual experience such that students may be given the best opportunity for raising self and spiritual awareness, connectedness and personal meaning.

[148] One of the numerous ironies and paradoxes found within Rudd (2011) is that 'cultural services' as conceived by the MEA (2005) also includes education, scientific, inspirational and recreational values. Have we as conservation scientists forgotten that biological diversity is valuable in its usefulness to sustaining our own professions and research? Do we see ourselves as so estranged from the 'problematic public' that we forget that we also benefit from the recreational value of nature as a place to spend time with family, to seek inspiration for our writing, or to fulfil our personal and professional purpose in conducting field research? Whose values should drive the conservation agenda? Further reflection on Rudd's (2011) findings at: http://eyes4earth.org/paradoxical-priorities/ (See also Rolston (1994)).

traditions also been deposed, like the proverbial baby and the bathwater? Are the powerful instruments of science and technology too often wielded by persons or institutions who, with a fragile or malfunctioning moral compass, define human 'progress' as being about the dispassionate conquest of people and nature (Nath 2003)? It seems that we live in an age where "there is no traditional moral, ethical, philosophical, or spiritual framework for our own existence" (Cohen & Wilber 2012; Appendix 9.17).

The lack of moral frameworks, low prioritization of spiritual values and the resistance toward embedding more visceral learning into formal education inflates the challenges facing MNE as a tool for transformative learning. As demonstrated in this dissertation (Chapter 4), MNE - as an awakening experience or state of 'higher' consciousness – has the potential to have a profound impact on the deeper and more soulful levels of one's psyche and existence (Cohen & Wilber 2012). However, the impact is intimately tied to the interpretation – and in a society where character-defining (i.e. moral, ethical, value, spiritual, transpersonal) frameworks are disintegrating, so too are the interpretive contexts through which theses experiences necessarily need to be framed, understood and embodied (Cohen & Wilber 2012; Appendix 9.17).

Outdoor adventure education has often claimed to develop moral values and character through the various programs which are run under this banner (Kellert & Derr 1998; Stonehouse 2012a, 2012b). Indeed, as multi-day (wilderness) journeys requiring one to adapt while pushing personal boundaries, they may deliver MNEs or be an entire MNE in itself (see Jaworski 1996; Morse 2011). However, as Hahn (1965: 9) observes, "experiences can ignite – that is all – it is for others to keep the flame alive." Hahn specifically refers to Outward Bound and elsewhere suggested that such an "experience does not go deep enough. It is the beginning of a great promise – but this promise will not be fulfilled unless the follow-up problem is solved. It is not solved today" (Hahn 1960: 10; Stonehouse 2012a). Given the aims of Outward Bound[149], these assertions may only be relevant to these styles of programs; for example, numerous respondents who shared stories for this research (Chapters 4; 5) were participating on Wilderness Leadership School (WLS) trails which, with a more eco-centric mission of human development[150], may in fact afford participants the deeper experiences which Hahn desired. In offering a compelling analogy of wilderness journeys as "travelling monasteries", Stonehouse (2012a, 2012b) both highlights and defends the moral

[149] Outward Bound Australia, for example, defines its mission as "to provide challenging experiences that help people to discover, develop and achieve their potential" (http://www.outwardbound.org.au/about-us/mission-a-values.html , *retrieved 20 July 2013).* In general, the Outward Bound formula (known as the Outward Bound Process Model or Walsh and Golins Model (Walsh & Golins 1976) comprises seven processes to explain its power and effect on participants: 1. A motivated and ready learner who is placed into 2. prescribed physical and social environments, then given a 3. characteristic set of problem-solving tasks which creates a state of 4. adaptive dissonance leading to 5. mastery or competence which in turn leads to 6. reorganization of the meaning and direction of the experience. In this way, the learner continues to be 7. oriented toward living and learning. The intended cumulative effect of these experiences is to reorganize learners' self-concepts such that they positively orient future learning and experiences (http://wilderdom.com/theory/OutwardBoundProcessModel.html, *retrieved 20 July 2013*).

[150] The WLS mission is:

> To bring about a realisation of the interdependence of all things, especially between the human and non-human elements of the earth. We believe we can bring about such a shift in consciousness by exposing people to a direct experience of wilderness. In so doing, we deepen their understanding of their spiritual being, their relationship to other humans and their place within the Earth's greater community of life. http://www.wildernesstrails.org.za/WLSProspectus.pdf, *retrieved 20 July 2013)*

worth of wilderness education and its ability to provide morally sustaining communities (during the trail / expedition) and encourage virtuous character. With heightened meaning and purpose, such education can make important advances toward reestablishing the ethical and moral context for MNE (Kellert & Derr 1998) and the integral worldcentric framework desired by Cohen and Wilber (2012). However, Hahn's (1960; 1965) concerns about "the follow-up problem" will persist if society fails to collectively create local forms of community within which the moral life can be sustained (MacIntyre 1984; Stonehouse 2012a).

This presents significant challenges for EE/EfS since its broad mandate for, amongst other aims (Box 9), allowing learners to acquire knowledge, skills (know-how), attitudes, sensitivity and values necessary to shape and commit to a sustainable future, equally compels one to form a moral vision of a good life for both humankind and the biotic community (Stonehouse 2012a). The conventional scientific curriculum usually falls short of this task. To ensure that EE/EfS does not become devoid of meaning, but yet remains compatible with scientific approaches[151], interviewees' solutions seemingly align with Riley-Taylor's (2002) evocative call for 'eco-spiritual praxis' in curricula. This philosophical and moral grounding draws on ecological and spiritual tents of relationality and connection-making in the world and also looks toward (Riley-Taylor 2002: 149):

> The living of life with deliberateness, as if every moment were meaningful and could make a difference… commitment comes to mind. Commitment suggests agency – action toward a goal or desired-for dream.

Capra (1976: 329) sees the perception of reality as going "beyond the scientific framework to an awareness of the oneness of all life, the interdependence of its multiple manifestations, and its cycles of change and transformation." This perception and awareness might well be seen as constituting Kohák's (1992) "new way of seeing the good" – a dynamic form of systems thinking which understands the world as consisting of an interconnected web of relations. As highlighted by interviewees, an awareness of cycles of changes and transformation may be best internalized through formal rites of passage processes. [152]

> *As soon as a virtue is honoured and practiced by some few men, it spreads through instruction and example to the young and eventually becomes incorporated into public opinion.* ~ Charles Darwin

In a Western culture alienated from its mythological roots, the renewal of meaning, interconnectedness and paths toward personal transformation "requires a return to the basic source where all personal and cultural myths are ultimately forged - the human psyche" (Arrien 1995). Using nature, ritual and symbolism, formalized rites of passage processes have been effective – across cultures and religions – in opening up the psyche to "hear the voice of the sacred" (Black Elk in Pinkson 2011). Critically, these processes - coupled

[151] It is important to emphasize that there is much scientific value in MNE (i.e. the two are not mutually exclusive):
> …the natural world provides an especially accessible, stimulating, and challenging context for pursuing intellectual competence, particularly among young and inquiring minds. Exploring nature's mysteries can expand the realization of how much people can learn from the incredible ingenuity of the biological enterprise, and the value of its healthy maintenance and perpetuation (Kellert & Derr 1998: 69-70)

[152] The literature on rites of passage is vast and its coverage outside the scope of this discussion. Examples of further reading include: Junkin (1987); Foster (1989); Arrien (1993); Davis (2005); De Wet (2007); Plotkin (2008).

with appropriate mentorship - appear to instil the values which produce wholesome lives. For example in South Africa, Xhosa male initiation practices have played an important historical role in building moral lives for boys graduating into manhood (Ntombana 2009). Mentoring by *amakhankatha* (traditional guardians) has been found to have a major influence on these rites of passage processes (Ntombana 2009).[153] More importantly, the initiations require a commitment to upholding the African values of *ubuntu* and *ukama* - principles which recognize the interrelatedness of all life as part of a process of becoming more fully human (Ntombana 2011; Le Grange 2012; Section 2.4.6.2).

Le Grange (2011; 2012) argues why moral education should be guided by African traditional values such as *ubuntu* and *ukama*. In conceiving *ubuntu* (i.e. humanness or individuality as expressed in relationship with others) as a concrete expression of *ukama* (i.e. relatedness with the entire universe), *ubuntu*'s focus is broadened so that the development of 'true self' encompasses the human interrelationship with society as a microcosm of the relatedness with nature and the cosmos (Murove 2009; Le Grange 2011a)[154]. The deepest moral obligation of these value systems is to become more fully human by entering more deeply into community as a necessary prerequisite for a positive relationship with others (Metz & Gaie 2010; Le Grange 2012). However, rather than being tied to speciesism or an anthropocentric view of the world, Le Grange (2012) supports a view of *ubuntu* that, with ecocentric leanings grounded in (re)connectedness with 'place', fosters harmonious relationships and a sense of kinship with the rest of the biophysical community.

A moral education guided by *ubuntu* encourages active investigation over passive learning (Le Grange 2012). In this vein, moral educators should neither authoritatively transmit 'knowledge' nor simply provide 'experiences' – approaches which may otherwise suggest that a moral responsibility does not entail doing anything (Le Grange 2012). Rather, educators should enable - and share in - opportunities for critical, reflective and participatory learning, e.g. organizing collaborative projects with students and community which, when embedded in a real-world social-ecological context, highlight moral dilemmas, trade-offs and responsibilities for action aimed at supporting human and non-human communities (Le Grange 2012).

Finally, and as an extension of traditional, Indigenous or non-Western education systems, contemporary Western education needs to investigate (without overly reducing and decontexualizing) relevant principles of rites of passage processes for inclusion in formal curriculum or extracurricular activities. Whilst such dimensions have been explored (e.g. Arrien 1993[155]), the knowing-doing chasm remains. Contemporary forms of rites of passage have long existed outside of formal education, e.g. Outward Bound, Wilderness

[153] Recent shifts in the teaching and practice of Xhosa initiation have resulted in the misbehaviour of *amakrwala* (new men) and the death of initiates (Ntombana 2009). Given the importance of the practice to Xhosa culture, it is argued that instead of abolishing the process, a better solution is to redefine initiation practices so that they play a positive role in regenerating the moral fibre of Xhosa society, as was found in the past (Ntombana 2009; 2011).

[154] Or to cite the Hermetic dictum: "As above, so below".

[155] Arrien's (1993) extensive anthropological study of commonalities across diverse cultural traditions finds four archetypal ways: *The Way of the Warrior*, *The Way of the Healer*, *The Way of the Visionary* and *The Way of the Teacher*. These four ways reflect, at their simplest, a pervasive belief that life will be harmonious if we practice four basic principles: 1. Show up or choose to be present; 2. Pay attention to what has heart and meaning; 3. Tell the truth without blame or judgment; and 4. Be open, rather than attached to, the outcome (Arrien 1995).

Leadership School and the Vision Quest. However, do these programs deserve greater attention in formal education settings or made more attractive to citizens through incentives (e.g. academic credit, government subsidies, internship / employment opportunities), particularly given that these processes are often not well-publicized, costly and/or difficult to access? If the presentation of science in Western education was to be explicitly acknowledged as just one of multiple ways of knowing and being in the world, then we could argue with justification that such processes do not have a place in formal (EfS) curriculum. However, while science (still grappling with residues of a positivist culture) defines learners' ontology at the expense of affective, experiential and spiritual understandings, we are compelled to reflect on the potential for rites of passage type of activities - as a prolonged and far-reaching MNE - to inform and enrich formal EE/EfS.

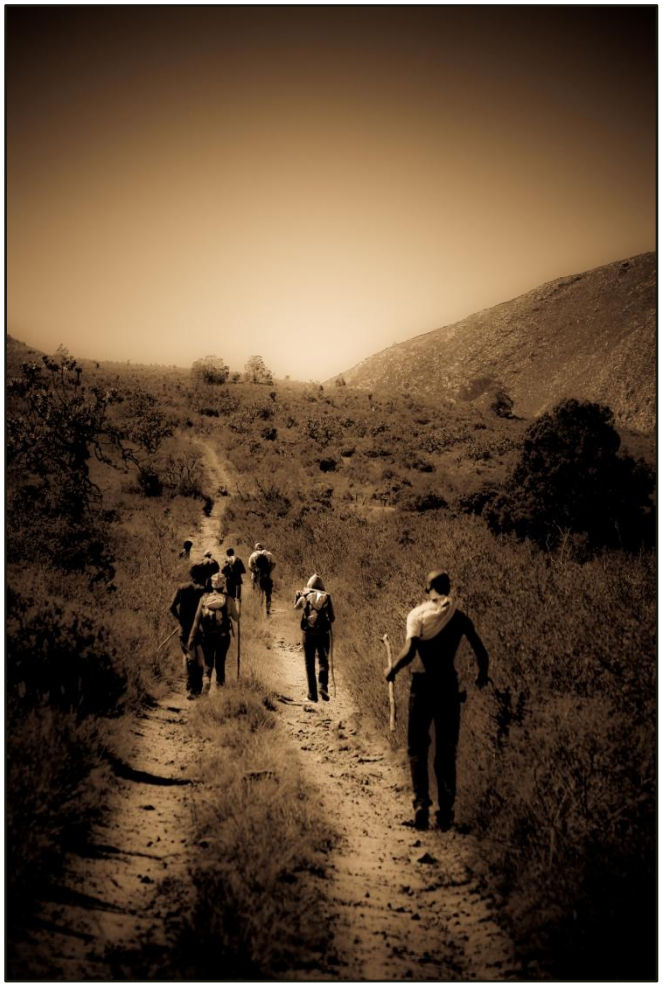

Image 17: Journeys of passage

Members of the Baviaanskloof Nature Awareness Group saunter out on a seven-day community-based wilderness trail aimed at deepening connections with nature, each other and visions for themselves and their communities.

Photo: Andrew Zylstra

Summary and key messages for Section 5.5

Core rationale for the study was to:

- Delve deeper into themes elicited in Section 5.4 by gaining more context-specific understandings;
- Gain further insight into the current challenges and opportunities for MNEs in EE/EfS.

Summary of methods:

- In-depth interviews, with interviewees selected according to:
  - Known CWN, MNEs and experience with related education / facilitation processes;
- Analysis consisted of:
  - Qualitative content analysis (incl. thematic classification);

Key results from the study – in terms of education, interviewees gave considerations centred around:

- Current concerns and challenges:
  - Distancing from nature;
  - Lack of meaning in conservation (science);
  - Limitations of language;
  - Outmoded value systems;
  - Loss of mentorship and passages into adulthood;
  - Outmoded learning and exclusionary curriculum;
- Future opportunities and solutions:
  - Participating with nature (more direct nature experience);
  - Bringing spirituality into (conservation) science;
  - Facilitating 'openness' and shared experience;
  - Values reflecting interconnectedness;
  - Mentoring and reinstating rites of passage;
  - Learning to live better.

This section discussed how contemporary education (EE/EfS) needs to:

- Strike a balance between scientific and technical knowledge and the necessary experiences needed to instil values, ethics and morals aligned with sustainability and/or the future 'which wants to emerge';
- Recognize that it is the sensorial, pre-reflective perceptual power coupled with the symbolic, mythopoetic and spiritual interpretation and contemplation of harmony in nature (and MNE) which is likely to be far more effective (and affective) in creating change, than rational and logical arguments alone.
- Understand that, in the search for moral frameworks, time-tested cultural values (e.g. as found in *ubuntu* and *ukama*), approaches and practices (e.g. rites of passage) may, with adaptation and redefinition, be both powerful and instructive in realizing aims for expressing our shared humanness and interconnectedness.

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Would you mind telling me what are you proudest of in these beautiful schools?" And Prince Max [of Baden] *said, "If you go the length and breadth of them, there's nothing original in them. That is what I am proud of. We have stolen from everywhere, from the Boy Scouts, from Plato, from Goethe and from the public schools." And the American said: "Ought you not to aim at being original?" and Prince Max answered, "No, it is in education as in medicine. You must harvest the wisdom of a thousand years. If ever you come to a surgeon and he wants to take out your appendix in the most original manner possible, I would strongly advise you to go to another surgeon.*

~ Kurt Hahn (1960: 3)

6 Implications for EfS: an education in connectedness

> *In a world of change, which is the reality of existence, what we need is knowledge about the process of learning.* (Allen 2001: 41)

6.1 Reflective preamble

Commencing this chapter was daunting. The reasons were threefold: firstly, like other chapters in this dissertation, there is an overwhelming amount of pertinent and well-articulated literature which, if followed through to implementation, would sufficiently address many of the aims and implications of this research. There is a persistent temptation to slip back into 'review mode' and identify key tenets across a wide range of scientific, scholarly and general literature. Secondly, the implications of *meaningful nature experience* (MNE) are more far-reaching and entwined than originally envisaged. Many of these dimensions have surfaced throughout the various results chapters. There are important angles which could be discussed here with relevance to education in its broadest sense. And, again, there is a relentless desire to try and address all of them. Finally, of what use are insights from research on MNE if they sit only in isolation without a type of guidance which might aid their uptake, application or transmission?

An emergent property arises from these concerns. Given the plethora of existing learning frameworks, models and of approaches, it is tempting to become preoccupied with furthering theoretical understanding and overlook the fact that *education for sustainability* (EfS) must give primacy to experience and, in so doing, bridge the divide between *knowing* and *doing*. But what kind of novel practical guidance could be imparted? Could that be achieved in the context of this dissertation? How could the role of the educator be situated? In wrestling with these questions and concerns I was overcome by an increasing sense of 'analysis paralysis' and inertia. However, as has been a feature of my research process and indeed one of the salient implications of MNE for EfS, is that the answers - and breakthroughs - are not always where we think we will find them. As the experience of synchronicity often illustrates, it is one's searching perceptions – the *intentionality* of consciousness - which has a tendency to reach out and participate in the world. It is this 'meeting' of mind (psyche) and matter (nature) which opens up potential for insight, guidance and meaning.

The key questions at the forefront of my attention for this chapter were: What is the golden thread that really ties all of this research together? What is the essential emergent message which the reader needs to take with them? What are the critical dimensions which can be applied to EfS? One may expect that, having being immersed in the topic for several years, the answer should have been obvious. But it is possibly that overly rational immersion which can inhibit a sense of perspective toward the bigger picture whereby one is unable to see the forest for the trees or the ocean for the water. Fortunately, answers did emerge, aided by a number of profound and defining events (e.g. Box 35).

Box 35: Reconnecting with connectedness

> *...we shall not desist from exploration and the end of our exploration will be to arrive where we started, and will be to know the place for the first time.* ~ T.S Eliot in *Little Gidding* [156]

It was largely stumbling across a copy of a local magazine (*Holistic Bliss*) and its issue themed around 'connection' which precipitated a breakthrough in thinking. In the context of this research, unearthing 'connectedness' as the 'golden thread' hardly appears a revelation. However, whilst this dissertation is presented as a linear endeavour, it does not represent the reality of my process of learning. Understandings embedded within, e.g. literature reviews (Chapter 2) were encountered and elucidated throughout the research endeavour and constantly reworked and integrated within this evolving text. In some cases, literature encountered and interviews analyzed needed to be revisited and digested again two years later for a piece of text to suddenly assume newfound significance in the context of all I had learned in the interim. This circular practice of going deeper resembles the practice of hermeneutical phenomenology, but also represents an approach which is increasingly lost in an age where the compulsion to constantly produce 'new' information and knowledge dilutes and supplants depth of meaning.

> *The advice I got on how to write a good article was to just take one word - decide on one word, and write around that. And just go into that one word. The same when you interview somebody: keep coming back to that one word and observe how you can go deeper and deeper. And eventually it kicks you out in various different contexts, until you are so sick of it, then it transforms and again you push through that. That's when you get insight, when you get beneath the surface of things. Is it is so easy to think that you have covered it and it is so easy to give up.* [Galeo]

This sage advice from Galeo (an in-depth interviewee) came late in my research and until that point I still did not really know what 'that' word was. Whilst I had inadvertently taken steps in that direction with my explorations, in retrospect I realize 'that' word had always been 'connectedness'. When it first made its presence truly felt, it did so with the softy-spoken synchronicity which has characterized key learning moments on this journey.

During the course of my research journey, I followed many paths and tributaries which wound their way around connectedness. I encountered the inspiring *Coyote's guide to connecting with nature* (Young et al. 2010) which expanded my perspectives. I ran an online competition to invite the public to come forward and define their understandings of 'reconnecting with nature'. The day I began drafting a popular article on the need to improve understandings of the phrase (22/03/2011), a praying mantis jumped onto the laptop screen. Praying mantises had appeared at other pivotal 'connectedness' moments. In particular, one year later when, in a tropical rainforest in north Queensland, I convened a talking circle with WS students and asked them to share their understandings of CWN. After an absorbing discussion, I invited them to partake in a 'sit spot'; i.e. to observe nature solo for an hour. Just as I seated myself by the river to do the same, I noticed something racing down on the water's surface. I waded along the causeway and rescued the object as it was about to go 'over the falls'. It was a large praying mantis - still alive. In early 2013, Costa Rica: after overcoming reservations about recording an interview on CWN and spirituality, I encountered a stunning leaf-like mantis immediately after completing the filming (Image 18).

Image 18: Mantis sighting in Costa Rica

As I revisit 'connectedness', I do so almost with the feeling that it is a new word in my lexicon. Rationally, I know I have been playing with the word for over three years, and digging up diverse literature which might shed new light on it. It seems absurd that after such an in-depth dissertation, I should find that the golden thread is as it always was. Yet this discovery has taken me to a new depth of understanding. And, as I now write this chapter, I do so with fresh eyes as if I have indeed returned to know the place again for the very first time.

[156] It is noted that this oft-cited line from T.S. Eliot's *Little Gidding* is taken out of context - or at least contains additional and alternative meanings when read as a part of the entire poem. Scientific research is often susceptible to this same tendency of cutting up and extracting, i.e. taking information and results out of their original setting and transposing them to a different and sometimes inappropriate context. [Galeo]

6.2 Introduction: from MNE to connectedness

> *For me…there is one conclusion that I must do with all this and that is that…the purpose, at least in this life for me, is to come to this realization of this connection, of this profound connection that we have with every single thing.* [Tony]

This chapter begins by emphasizing three pivotal realizations, i.e. that:

i) The value of MNE is in providing a gateway to connectedness;
ii) The value of connectedness is its utility as a cornerstone in *education for sustainability* (EfS); and
iii) The value of connectedness is also its utility in integrating and transcending 'sustainability' to open pathways for the actualization of 'Self'.

These realizations are introduced as a precursor to arguing that, above all, what is needed in education (whether it be for ERB, EfS, MNE or 'Self-actualization') is an *education in connectedness*. [157]

> *A finger is needed to point to the moon, but woe to those who take the finger for the moon.* ~ Zen Buddhist saying

MNE may be of immense importance to individuals (Sections 2.3.7, 4.5, 5.2), and this warrants them being given serious attention in education. However, there is a temptation to conceive such moments as being an end, rather than a *means* for attaining CWN or EfS objectives. Alternatively, there is risk of overestimating the suspected casual power of MNE in achieving transformative aims independent of personal and situational variables. It is evident that MNE may be considered instrumental in effecting changes in attitudes, behaviour and life outlook (Section 5.2). However, should the emphasis be on determining how to replicate MNE or is it more pertinent to ask: What are the essential and inherent qualities of MNE which *motivate* people to initiate and commit to the positive changes reported in their lives?

The recurring theme arising from this research is that MNE may invoke perceptions and feelings of (inter) connectedness. It appears that this felt realization may also be the primary motivation for pursuing ERB. To adapt the Zen metaphor above, MNE is the finger which points to connectedness, the moon. The real quest for EfS then is to identify that which fosters connectedness, rather than finding ways to reliably produce MNE. This is particularly important because the finger does not always point to the moon: for some persons, MNE does not invoke irreversible feelings of connectedness, particularly when confronted by and immersed within a social-cultural system (replete with language) that inculcates disconnection.[158] Furthermore, MNE is rarely guaranteed (although extended wilderness trails are a likely exception). In the absence of MNE, how do we cultivate connectedness and other desirable traits (e.g. awe, empathy, respect)

[157] In reflecting upon my own evolution in understanding, this chapter moves beyond the more narrow use of *connectedness with nature (CWN)* and instead uses 'connectedness' as more broadly inclusive of connecting with 'Self', 'people', 'Source' as well as 'nature'. 'Self' uses a capital 'S' in line with Jung's idea that it is a phenomenon historically older than the ego 'self'; it is out of the (soul) 'Self' which the (ego) 'self' evolved or developed (McCallum 2005).
[158] A person's CWN (and the consciousness reflecting that) is generally in a state of flux, vulnerable to external 'shocks' which may positively or negatively influence their CWN over time and space.

associated with MNE? Results from this research have also demonstrated that feelings of connectedness may be a precursor or catalyst for MNE: the relationship is both reciprocal and symbiotic. Certain contexts, conditions and states of consciousness form fertile ground for cultivating profound experiences. How can we reliably access and *co-create* MNE in order to provide an empirical gateway to connectedness?

6.2.1 Connectedness for sustainability

The original IUCN (1971) definition for environmental education depicts EE as a process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the *interrelatedness* among people, their culture, and their biophysical surroundings. Evolving subsequent definitions of sustainability have continued to emphasize interdependence, interrelatedness and interconnections between humans and their environment: ultimately, EfS is fundamentally a manifestation of a cognitive, affective and embodied (behavioural / experiential / practiced) appreciation of connectedness. However, this fundament is obscured by an emphasis to educate on environmental 'facts' (Section 2.5, 5.5). Connectedness is fundamental to any education *about*, *for* or *as* sustainability (cf. Holdsworth et al. 2013).

6.2.2 Connectedness for Self-actualization[159]

> *Don't ask yourself what the world needs. Ask yourself what makes you come alive and then go do that. Because what the world needs is people who have come alive.* ~ Howard Thurman

The challenge for EfS is that the mainstream conservation sentiment impresses heavily on the notion that the ultimate goal for related education and awareness is behaviour change. As Schultz (2011: 1080) succinctly states: "conservation means behavior" and this thread is also central to social marketing whereby sustainable behaviour is the ultimate indicator for evaluating the true effectiveness of strategies (McKenzie-Mohr & Smith 1999; McKenzie-Mohr 2000b). Similarly, EE aims to educate in a way which motivates people to care about ecology and translate their concern into appropriate action (Swan 2010). This exterior

[159] 'Self-actualization' is a term popularized by Maslow to refer to the realization and fulfilment of one's talents and potentialities as part of an ultimate motivation or need present in all persons (ODO 2013a). Here, it is considered synonymous with 'self-realization' which also refers to the fulfilment of one's own potential but has its etymological roots in the action of forming a clear concept (of Self) (ODO 2013b). Naess (2008: 86) draws heavily on the idea of self-realization in his deep ecology and clarifies it as "realizing inherent potentialities". In this regard, 'Self' also needs clarification since it can be described in multiple ways: i.e. as a part of the psyche; as the totality of the psyche; as the centre of the psyche; as an archetype; as the transcendent unchanging part of ourselves; or as possessing the symbolic qualities of the 'God-image' within us (http://www.trans4mind.com/jamesharveystout/self.htm *Retrieved 9 December 2013*). In this chapter, 'Self' is used in Jungian terms to represent the complete integration of the individual psyche toward the ultimate goal of *individuation*. For some, 'Self' may invoke more religious notions of 'soul'. Whilst soul is not interchangeable with 'Self', it does allude to that which is indivisible and expressing itself through each person. In Jungian terms, the soul image is the *anima* and *animus* and whilst it could be construed as being identical to the whole Self (as a kind of psychological shortcut), it is more helpful to see the soul / *anima* as playing a mediating role between the ego and the realization of Self (Wikipedia 2014). For this reason, *Theory edU* (Figure 21) uses both 'soul' and 'Self' to depict the pathway toward self-actualization / *individuation* (*becoming*). Finally, it is worth noting that, for Naess', the ideal of internalizing a 'comprehensive Self' is key to supporting the moral imperatives of deep ecology by:
i) being drawn to a universal altruism that transcends egoism and its fixation on independent individual self; and
ii) seeking sympathetic identification with (and for) the good of the whole (i.e. humans and nature) (Cooper 2001).

dimension is critical but an overemphasis on prescribed environmental behaviour change tends to regard interior developmental outcomes as inconsequential. Further, educators may find themselves working at cross-purposes. Whilst EfS "invites the maturation of both our environmental sensibilities, and our capacity to meet environmental challenges" (Mattson 2009: 227), efforts at promoting sustainability which focus only on *instrumentalism* (i.e. using education as a tool to change people's behaviours in an expert pre-determined direction) do so at the expense of engagement and *emancipation* (i.e. creating a space for supporting learners in assuming responsibility in the quest and search for a more contextualized sustainable way of living) (Wals et al. 2008). This urges a rethink of EfS: we cannot assume that *prescribed* 'behaviour change' (i.e. how experts or persons in authority see it) is always and only the most desirable outcome.[160]

Behaviourism, as an early EE paradigm, is the act of helping students become environmentally knowledgeable so they are willing to work individually and collectively toward achieving equilibrium between quality of life and quality of the environment (Schulze 2005). Whilst it has been followed by subsequent *interpretivist* and *social critical* paradigms (Schulze 2005), the culture of *behaviourism* still pervades EE/EfS practice. Given the 'environmental crisis', this approach is not 'wrong' *per se*, but it is laden with assumptions, e.g. we appear sure about that which we want to change, certain that it is the 'right' change (based on Wals et al. 2008) and believe this change will be effective (see also Shellenberger & Nordhaus 2004).

Connectedness challenges these assumptions. Rather than a way of *doing*, connectedness suggests that EfS is better oriented toward a way of *being*. There are two critical dimensions to this way of thinking:
Firstly, we may conceive EfS as akin to what Bonnett (2003) means by sustainability as a *frame of mind*:

> …which values harmony with nature, recognizes human responsibility for nature, and encourages intimate, intuitive and sensuous engagement with nature… [and that] rather than simply fulfilling pre-determined learning outcomes, learners should be encouraged to respond to nature spontaneously in moral, aesthetic, affective and imaginative ways (Ashwell 2010: 52).

This dimension stresses the participatory, experiential and ethical aspects of engaging with nature. Just as the concept of wilderness is "not merely a condition of the land, but also a condition of the mind evoked by the land" (Robinson 1975: 168 in Morse 2011: 8), so too is sustainability a 'frame of mind' evoked by the sensuous participation with place. In this respect, it puts 'nature' back into EE/EfS (see Section 2.5.1.2).

Secondly, we return to the *interpretivist* paradigm which holds that the broad aim of EE/EfS is that:

> …the potential of the "whole" person should be actualized… the individual should be helped to become all that he or she can become. Hence the teacher is a facilitator for individual children to develop according to their own specific needs to reach their innate potential (Schulze 2005: 65).

Whilst this approach equally emphasizes active experiential learning with the environment, it also aligns with alternative EE/EfS objectives which encourage transformational thinking and acting with regard to the self and self-realization / actualization (Hattingh 2002:12). EE/EfS then becomes a reflective ontology: helping the learner to discover a way being in the world, as well as finding the ultimate place in nature which we

[160] This also served to clarify comments made by an interviewee – a professor in EE/EfS - who emphasized that behaviour change was rooted in structural functionalism and that one's motivation for adopting a particular behaviour is rooted in cultural historical activity; in other words, the awareness is in the context.

are meant to take and embody the world in order to make our greatest contribution. These views also align with the notions of identity: "who we are, how we relate to others, what our purpose is as individuals and as a society" (Podger et al. 2010: 341). Instead of emphasizing exterior measurable outputs, this type of education connects learners with their natural talents by creating the circumstances within which these abilities might be revealed (Robinson & Aronica 2009).

These two components equally highlight the two central and critical dimensions of connectedness: *connectedness with Nature*[161] and *connectedness with Self* (and extended to Community). These are two sides of the same coin – it is through one (i.e. Nature) which we may come to bond with the other (i.e. Self), but also vice versa (Bragg 1996). By working from *inside out* as opposed to *outside in* we may be more effective at realizing behaviour change *within* learners, *within* society and *within and for* nature.

Discussions around behaviour change seem to return to motivation: "Efforts to educate the public and raise awareness must include a motivational element – that is, a reason for action" (Schultz 2011: 1081). An emphasis on connecting with Nature and Self does not trivialize behaviour change as an outcome. On the contrary, it understands that some of the strongest motivations draw on self-interest, social responsibility or self-transcendent values (Schultz 2011). There is arguably no greater motivation in life, no greater contribution to consciousness and no greater objective for education than to embark on a *process of becoming*. In summary, connectedness with nature is both pathway and partner to connectedness with Self.

6.2.3 Connectedness for consciousness

> *In the history of the collective as in the history of the individual, everything depends on the development of consciousness.*
> ~ Carl Jung (in Walsh & Vaughan 1993:13)

If the next major shift in conservation and sustainability needs to be a consciousness shift rather than an information shift (see 'Scott' in Section 5.5.4), then the results of this research suggest the most effective way of instigating that shift is through cultivating connectedness. To reiterate (from Section 2.2):

CWN is a state of consciousness comprising symbiotic cognitive, affective and experiential traits that reflect, through attitudes and behaviours, a sustained awareness of the interrelatedness between one's Self and the rest of Nature.

The extension of this definition in the context of evolving consciousness is to move through a process of connecting with Nature to a process of connecting with Self. The bridge between the two is an experience of connectedness – possibly enabled by synchronicity - where the consciousness of Self (mind) attunes with Nature (matter) or accesses 'Source' (spirit)[162] to finds resonance or harmony with the world at large.

[161] For this chapter, 'Nature' will be used a proper noun (with capital 'N') when used alongside 'Self' or 'Source' so as not to give the false impression that is has a 'lesser' status than the latter. The same will be done with 'Community'.
[162] 'Source' – as used throughout this chapter – refers to that which provides an individual's ultimate source of inspiration. 'Spirit' is supplanted in brackets since this is the term often used to denote a higher 'source'. However, as outlined (Chapter 2.3.3.9), interpretations of 'spirituality' are loaded; in this chapter, the etymology of 'spirit' is invoked to refer to the root 'breathe' (res*pir*ation, ins*pir*ation) – and 'the source' which breathes meaning into life.

Research comprising this dissertation reaffirms three interrelated themes which are emphasized as being critical to education and in forming a consciousness characterized by connectedness:

i) ***Connectedness:*** a process of connecting with Nature, Community and (initially) Self and Source;
ii) ***Harmonization:*** a precursor for (and intrinsic to) synchronicity, an indicator of connectedness (flow) and a process of unlocking the gateway for deeply attuning with Self and Source;
iii) ***Self-actualization:*** a process of becoming our potentiality, embracing what has emerged from the previous two processes, and a result of a sustaining / embodying connectedness in all areas of life.

6.3 Education in connectedness

True EfS is an *education in connectedness* (EiC) yet imagining such a shift requires recognizing Orr's (2004) and Robinson's (2010) call for an overhaul of the education system. This is a daunting and disempowering place to begin. Is there another way? It is evident that CWN should be a core aim for EfS and that MNE may open gateways to experiences of CWN as well as providing guidance ('helping hands') for realizing Self purpose and potential. *Synchronicity as a MNE* sometimes manifested as an emergent property (or indicator) of a harmonized state of connectedness and was also seen as synonymous with an energized flow state associated with the *processes of becoming* (Section 4.5.1). Results reveal that a commitment to realizing Self purpose may arise from or through enhanced connectedness; in fact, it may be difficult to discover Self and potentiality without appreciating connectedness or attending to synchronicity. Synchronicity seemingly reaffirms the *process of connecting* and *process of becoming*. But could this be operationalized? During the research process, I became familiar with *Theory U* (Scharmer 2009a) and saw its application to the wilderness trails and field-based educational processes with which I was involved. With adaptation, *Theory U* presented itself as a powerful methodology (or social-ecological technology) for realizing aims of EfS and inspired me to create ***Theory edU*** as a practical framework for realizing an *education in connectedness.* An *education in connectedness* emphasizes the fact that the educating itself does not remain separate or stand apart from the process: it is intimately embedded within and informed by an approach which shares aims of connectedness – for the student, the educator and the institutional and societal cultures.

6.3.1 Theory U

Theory U is variously described as a phenomenon, a process-oriented framework, methodology or social technology designed to address highly complex problems through realizing profound opportunities for transformation within business, government and civil society (Reos 2005). The process aims to develop collective leadership capacities for addressing societal crises in a more intentional and strategic way and thereby creating futures which might otherwise be unachievable (Scharmer 2009a). Scharmer (2009a) uses the term *presencing* to refer to the experience of 'leading from the future as it emerges' and bringing forth a future which 'wants to be born'. Presencing is the centrepiece of a learning journey of five movements (Figure 19). In summary, *Theory U and* Presencing is:

i) ***A phenomenon*** which captures a growing sentiment within present-day society (and paraphrasing Vaclav Havel) that something is exhausting itself and crumbling while something else still indistinct is rising from the rubble. This waking up to a deeper level of awareness is used as the point of departure - a source - for venturing more deeply into a creative process aimed at bringing something new yet indefinable into reality;
ii) ***A framework*** and language that allows persons to communicate about a deeper level of experience that many people have but usually do not talk about because it is not part of the mainstream discourse;
iii) ***A methodology*** that helps participants to be more effective in operating from that deeper space.
(synthesized from Part 5 of a filmed lecture by Otto Scharmer on *Theory U,* undated)

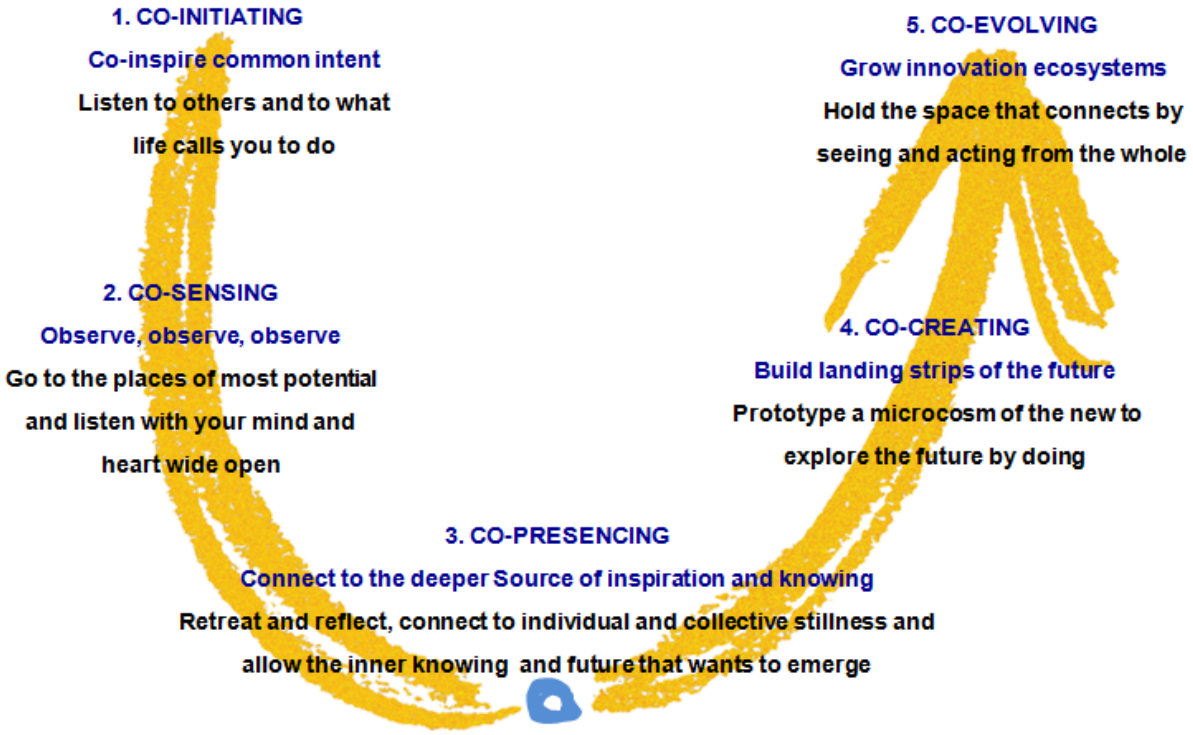


Figure 19: Five movements of the *U-process* (adapted from Scharmer 2009a: 18-19)

Scharmer (2009a: 30) acknowledges that *Theory U* "didn't spring from nothing" but instead emerged from years of research and practitioning in fields of social development and change across various philosophical and cultural contexts. Scharmer's (2009a) thinking draws on a diverse range of scholars such as Aristotle, Beuys, Buber, Habermas, Nietzsche, Plato and Thoreau. Notably, and of acute relevance to this study, is Scharmer's (2009a) acknowledgement that phenomenologists Husserl and Heidegger and, in particular, educator Rudolf Steiner were of major influence. Steiner's synthesis of science, philosophy, consciousness and social innovation along with his methodological grounding in Goethe's phenomenological view of science has left significant imprints on *Theory U*. Scharmer (2009a) emphasizes that the key insight he gleaned from Steiner's work as well as through his first research project on change theories with the Massachusetts Institute of Technology (MIT) was the importance of taking one's own experience seriously. Specifically, this is the rigorous and transparent investigation of our own experiences by trusting our senses, observations and perceptions as the fundamental starting point of any investigation and then following that train of observation right back to its source, as is intrinsic to phenomenological method (Scharmer 2009a).

Central to the *U-process* is *connecting* to 'worlds': i) outside of our institutional bubbles; ii) which emerge within us; and iii) which want to be brought forth into being. Connecting with a deeper source of knowing is part of a process of *letting go* of our old ego self and *letting come* a new Self of highest potential (Scharmer 2009a). Integral to *presencing* is therefore the connecting of these current and future 'selves'. In a group setting, crossing this threshold may enable profound change since it also invokes heightened energy and a sense of future possibility (Scharmer 2009a). The co-presencing phase of the *U-process* (Figure 19) is particularly powerful since it accesses a source of stillness, knowing and inspiration for future emergence.

The *U-process* finds resonance with various reflective or adventurous processes which edge people out of their comfort zone or default ways of viewing the world. For example, commonality may be found with extended wilderness journeys (and particularly the Vision Quest) where basic tenets underpinning the *U-process* align with the three-step process of: *severance*; *threshold* and *incorporation*, i.e. 'the leaving', going to 'the edge' and 'the return' and embodiment. Colleagues returning from wilderness trails have remarked how it felt like they "dropped into 'that' space" – which we might conceive as being akin to *co-presencing*. However, wilderness trails often end there; the challenge is continue with *co-creating* and *co-evolving*.

Facilitated wilderness trips are capable of providing a gateway to fundamental shifts of mind and being with themes of deep connection and personal metamorphosis often experienced among participants (Jaworski 1996). However, a recurring the challenge is how to achieve such outcomes through a "less elaborate and expensive process" (Jaworski 1996: 108). As an early Scharmer collaborator and co-developer of the *U-process* (Reos 2005), Jaworski, reported how he and colleagues sought to adapt forms of dialogue used in wilderness (e.g. tribal council, ceremonial circle) to unleash the power of collective thinking, learning and acting in alternative contexts (Jaworski 1996).[163] The idea of designing a process capable of realizing wilderness outcomes in other contexts is admirable; in a South African education context, it is also crtical. A major perceived impediment to any EE, EfS or *education in connectedness* is the feasibility of actually being able to allow learners to access nature given the scarcity of opportunity and human and financial resources.

In recent times, the application of *Theory U* has been largely centred on organizational and institutional change by using the power of human agency to initiate and realize transformation. For example, *Theory U* has been prototyped with mission-driven companies; the Indonesia federal government and its financial institutions; and a climate leadership lab in South Africa. Increasingly, *Theory U* is broadening its application to various other settings, such as in education and sustainability contexts, where its application remains nascent.[164] Given that *Theory U* is inspired by Goethe's phenomenology – and that this is grounded in sustained nature observation and contemplative connection – it is vital that *Theory U's* application for social and institutional change (as a collective people-oriented process) does not inadvertently sideline 'nature.'

[163] Dialogue in this sense remains true to its Greek roots of *dia* and *logos*: *meaning flowing through* (Jaworski 1996). Dialogue and empathetic/generative listening are also remain key elements of the *Theory U* methodology and was based on recognition that humans are connected through fields of thought and perception (Jaworski 1996).
[164] South African-based not-for-profit foundation Living Lands has been applying the approach as part of efforts to enable social change for realizing 'living landscapes' across the Baviaanskloof Mega-Reserve and elsewhere.

6.3.2 Introducing Theory edU

Based on the movements of *U*-process and the cumulative results of this research, I developed ***Theory edU*** with a view toward:

i) Customizing *Theory U* as a practical framework for *education in connectedness*;
ii) Integrating the core identified *processes of connecting, harmonizing and becoming*;
iii) Ensuring that the process addresses both connectedness with nature *and* people.

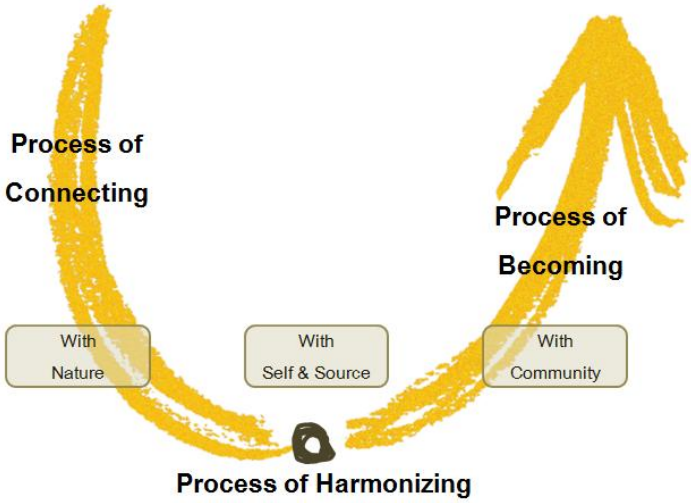


Figure 20: ***Theory edU*** **(core): foundational three-phase process**
(The *U-Curve* is licensed under Creative Commons *Presencing Institute – Otto Scharmer*)

A key trait or point of distinction of *Theory edU* is that it returns to Steiner's focus on individual consciousness, whereas *Theory U* is generally more concerned with the structures of collective attention (Scharmer 2009a). As processes, *connectedness*, *harmonization* and *becoming* (*self-actualization*) form the underlying structure for *Theory edU (core)* (Figure 20). These three distinct processes also provide the foundations for the more comprehensive *Theory edU (expanded)* which provides specific guidance on the phases comprising each process and as vital to an *education in connectedness* (Figure 21).

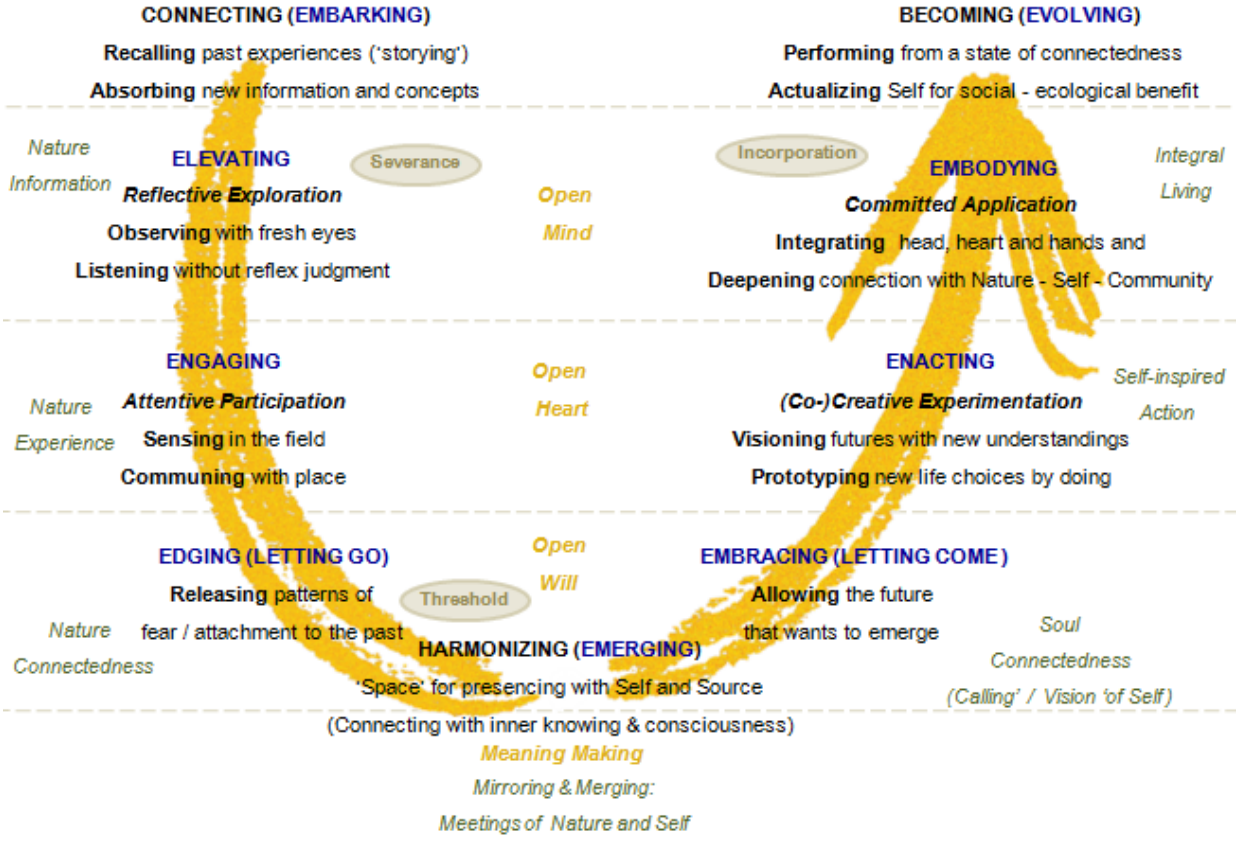


Figure 21: ***Theory edU*** **(expanded): an education in connectedness** (*U-Curve* licensed under CC as above)

Theory edU (expanded, Figure 21) has also integrated three important sub-processes:

i) the process of *connecting with nature* (largely drawing on Young et al. 2010);

ii) the process of *experiential learning* (drawing on Kolb 1984; Gurner et al. 2012);

iii) the process of the *Vision Quest / wilderness experience* (Foster 1989).

More importantly, *Theory edU* also integrates newfound understandings and implications of CWN, MNE, synchronicity and education for discovering Self (as elicited through research comprising this dissertation). Shadowing the *U-process* is critical recognition of the nature- and soul-centred pathway which should accompany the learning journey. This emphasizes the gradients of engagement with Nature through to the embodiment of Self *within* Community (Figure 21).

Theory edU is scalable or, more accurately, is *fractal* in its nature. In other words, whilst the learning journey may be represented as being germane to lifelong processes, the natural universal principles are equally applicable to shorter education programs which field-based components and activities. Shorter timescales are unlikely to deliver gains which are as significant or transformational. However, through repeated application, the processes inherent to *Theory edU* may be understood as being holographic: each phase forms the whole process which, in turn, is in itself is embedded within each phase (cf. Bohm 1980).

Before embarking on facilitation, it is important that the educator is familiar with the core philosophy, thinking and concepts which underpin *Theory edU.* Whilst various publications are recommended as complementary reading to support students' learning throughout each phase (e.g. Table 37) a number of additional texts are recommended as vital background / preparatory reading to help orient the educator:

i) Abram (1996) – *The spell of the sensuous.* Masterful writing which, in bringing together ecology, philosophy and education, elucidates how human sensory perception participates with the world.

ii) Riley-Taylor (2002) - *Ecology, spirituality & education: curriculum for relational knowing*. An excellent reflective text articulating the relational embodied philosophy and pedagogy driving *Theory edU.*

iii) Esbjörn-Hargens & Zimmerman (2009) – *Integral ecology*: The definitive exploration of Wilber's integral theory as applied to ecology in seeking to unite multiple perspectives on the natural world.

iv) Scharmer (2009a) – *Theory U:* Details this theory of profound change, learning and leading and the various processes of inner knowing and social innovation which comprise it. Inspired *Theory edU.*

v) Young et al. (2010) – *Coyote's guide to connecting with nature*: Comprehensive and empowering mentor's manual and field activity guide for learning, facilitating and blueprinting connectedness.

For educators seeking to include interdisciplinary methods in class- and field-work then Clark & Wallace's (2010) *Learning interdisciplinary problem solving and leadership skills: A comparison of four designs* is helpful. Alongside the literature outlined above, educators should be familiar with the recommended student complementary readings (e.g. Table 37) to support related class lectures, workshops or field-based studies / excursions which would be expected to feature during all phases of *Theory edU* learning. Cornell's (2009) *Flow Learning* process offers simple yet valuable guidance: i) awakening (or elevating) enthusiasm; ii) focusing attention; iii) concentrating on the direct experience of nature; and iv) gathering and sharing the inspiration.

6.3.3 Process of connecting

For an *education in connectedness*, the left arm of the *U* is critical. As identified (Section 5.4), themes for integrating MNE into curricula were spread across the tripartite of *theoretical concepts*, *experiential activities* and underlying *value sets* – all of which may be imparted to learners through various styles of learning. The challenge is to retain the necessary balance and ensure that linkages are made: i.e. what is intellectualized can be experienced and what is experienced can be later grasped intellectually. Dialogue around these learning moments should lead toward deeper reflection around related ethics and values sets. *Theory edU's process of connecting* aims to strike this balance by beginning with theoretical concepts (intellectual) and moving into activities (experiential), whereby values are discussed and negotiated throughout.

An individual ***embarks*** on a *process of connecting* through one of two ways: answering a persistent intuitive 'call' / synchronistic 'nudge' and/or being exposed to a facilitated process. For the purposes of *Theory edU*, we are largely interested in the latter (without negating the importance of the former). In both cases, it is recommended to commence the process with an opportunity to *recall* relevant past (lived) experiences within the student group. This may include sharing MNEs, perceptions of nature and/or conceptualizations of connectedness. This is accompanied by exposure to and *absorption* of new information and concepts related to diverse understandings of connectedness at biophysical (*matterscape – (inter)objective*), social-cultural (*powerscape - intersubjective*) and psychological (*mindscape - subjective*) levels (and may be extended to the theological (*spiritscape*) This difficult phase also marks the (turning) point of *severance* whereby accepted norms and ways of knowing are left behind as new concepts are introduced and confronted.

In order to negotiate this incoming and sometimes challenging information, students are asked to rise above habitual reactionary responses which might cognitively 'shut out' new ideas. Scharmer (2009a) refers to this stage as *suspending* one's inner voice of judgement which may be otherwise conditioned to dismiss ideas might destabilize belief structures. In ***elevating*** one's awareness to a plane of wide-angled openness, the student is better positioned to perceive new (nature) information and (nature) experiences afresh.[165]

New information should be ground-truthed through personal experience. This phase of ***engaging*** requires the student to become attentive to the intricacies of their own experiences. In the context of an *education in connectedness*, this primarily refers to focused interaction and participation with nature. Students work with any combination of sight, sound, smell, taste, touch and intuition to raise their *sensory awareness* of natural phenomena. The exercises may form a set of *core routines* (e.g. Young et al. 2010) and can be continuously practiced (outside of formals learning environment) to deepen connectedness (e.g. Table 4).

[165] Reflective exploration involves seeing with fresh eyes and listening without judgement. It signals an alternative way of understanding 'critical thinking'. However, as Lawrence and Moyo (2006: 170) observe:

> Academia often confuses the 'critical voice' with a comfort in sceptical criticism. In a world where progressive change is difficult to achieve, it is safer to conclude with formulations of doubt.

Critical thinking is often cited as a central learning aim for higher education yet, from personal experience, students may confuse critical thinking with scepticism, cynicism and rejection of notions which do not conform to pre-existing mental models. In this regard, it may instead be more appropriate to cast the aims as focusing on thinking *discerningly* (with open-mindedness) rather than critically (with close-mindedness).

> *It is inconceivable to me that an ethical relation to land can exist without love, respect, and admiration for land, and a high regard for its value…Perhaps the most serious obstacle impeding the evolution of a land ethic is the fact that our educational and economic system is headed away from, rather than toward, an intense consciousness of land.* ~ Leopold (1966: 261) in *The Land Ethic*

A key dimension to the *process of connecting* is developing a sensory familiarity and emotional affinity with a particular place. The meaning of connectedness is amplified when place is invoked. *Communing* through active experiential engagement (e.g. mapping sounds or drawing other sensory input) with place creates a sense of belonging and grounds connectedness in meaning. This is a long-term practice which students are encouraged to apply to their local surrounds. In doing so, they might find eventually themselves *communing* with nature in intimate, respectful and empathetic ways (with people, this stage is equivalent to dialoguing). It is clear that to cultivate this consciousness of place (of land, of nature), educators must insist that learners "regularly spend time out-of-doors building long-term relationships with familiar, everyday places" (Gruenewald 2003: 8). By beginning with exploring and deepening connectedness with the familiar (i.e. home, university), it creates the foundation for 'learning outward' and eventually expanding the scope of learning and connection to include the neighbourhood, region and beyond (Sobel 1996; Gruenewald 2003).

The *process of connecting* is the necessary foundation for the processes that follow. In signalling a sometimes uneasy departure from accepted norms, it invites students to drop their usual 'filters' and approach learning with fresh and expectant openness. The process encourages students to draw on intellectual (e.g. discerning reflective thinking) and experiential faculties (e.g. enlivened sensory awareness, creativity) which are not usually actively stimulated in conventional education. The process aspires to move students beyond being distanced observers of ecological interactions or environmental issues and to arrive at an enthusiasm for experiential embodied participation with Nature and Community.

The *process of connecting* encourages experimentation and creativity. It necessarily moves the educator and students out of their comfort zone to get in touch with neglected aspects of our shared human-nature. It is equally a process of observation, of in-the-moment attentiveness and of reflective awareness. In accumulating a body of new information alongside diverse nature experiences, we find connectedness arising as an emergent property of this complex exchange. The *process of connecting* leads students to the edge of their learning: particularly in being forced in question their current perceptions, belief systems and the value systems which underpin their interpretations. Discussion of values is a necessary component of this phase; however, equally, revision and reinforcement of values will be inherent to student experiences as they confront and engage with the context-specific complexity of the life world. Whilst the focus here is primarily in the context of CWN, we may adapt this process to person-person, person-Self and person-Source relationships. However, it would be erroneous to assume that a true and effective *Theory edU process* could completely and repeatedly exclude nature experience and connection – it is fundamental.

See Appendix 9.19.1 for reflections on personal experiences in introducing new theoretical concepts to facilitate the process of connecting (as part of initial efforts in field-testing dimensions of Theory edU).

6.3.3.1 Theoretical concepts

> *What one is dealing with here are these cultural filters and perceptions that we start employing before we even realize we are employing them. And they are what get in the way of our connection.* [Galeo, in-depth interviewee]

There is ample background literature for opening understandings of connectedness (Section 2.2, 2.3, 2.4) with much already standard to tertiary ecology courses. Indeed, the study of ecology is – or should be –

> …the mixed methods study of the subjective and objective aspects of organisms [including humans] in relationship to their intersubjective and interobjective environments at all levels of depth and complexity (Esbjörn-Hargens & Zimmerman 2009: 11).

This definition contrasts conventional definitions or conceptualizations of ecology which, in usually only exploring organisms at the objective or interobjective level of the ecology of *matterscape,* are fairly reticent in exploring contested interpretations and meanings in (inter)subjective *powerscape* and *mindscape*.

Literature that critically and succinctly reveals the fragmentation of Western thought and pervasive subject-object dualisms (Section 2.2.5, Table 1) is worthy of including in the initial informative, explorative and reflective phase of the *process of connecting*. In short, we need to know where we have come from, to know why we are here and where we are going. However, most pertinent to this phase is introducing literature that encourages students to explore and integrate multiple perspectives on 'nature'. Central to this is reflecting on one's default worldview and where it resonates or dissonates with other worldviews. Further, this phase invites students to explore their perceptual lens in terms of how it forms experiences or, in turn, how certain experiences conform to - or challenge – this lens. As Drengson (in Naess 2008) notes, inquiry into our ultimate values and beliefs about nature can instigate a shift that leads to a different quality of experience. Introducing and discussing other worldviews and the experiences therein is therefore valuable during this phase. Literature supporting learners' *process of connecting* should be credible, thought-provoking and highlight the centrality of perception and experience in coming to know the world (Table 37).

Table 37: Example literature for introducing theoretical concepts relevant to the *process of connecting*

Phase with relevant themes	*Example references / recommended reading*	*Purpose / expected insights*
Embarking : Integral ecology; Ecophilsophy Transdisciplinarity & complexity (in sustainability science)	*For students:* Esbjörn-Hargens (2009); Naess (2008) Max-Neef (2005); Morin (2007); Jahn (2008) Reyers et al. (2008); Pohl et al. (2010).	Acknowledging complexity & the multiple perspectives in ecology and/or sustainability research and practice.
Elevating : Extinction of Experience Ecological / Naturalist Intelligence Phenomenal & Eco-Perception Traditional ecological knowledge; Ecophilosophy / Ecosophy	*For students* Pyle (2003); Miller (2005); Samways (2007) McCallum (2005); Hayes (2009); Abram (1996); Seamon (2000a, 2005) Kimmerer (2002); Bernard (2007); Cocks et al. (2012); Ens et al. (2012); Shava (2013).	Emphasizing the value of direct experience - mediated by field-based sensory awareness – in engaging with the world. TEK highlights how alternative ways of knowing can inform ecology.
Engaging : Flow / natural cycles of learning	*For educators (students focus on experience):* Cornell (2009); Young et al. (2010); Ballantyne et al. (2011); White (2012).	Focusing on sensory awareness with/in nature using prescribed or unstructured activities.

Note: Literature largely selected according to: i) how pivotal it was to evolving personal understandings; ii) the extent to which it has resonated with students facilitated to support a *process of connecting*; and iii) relevance to a SA context.

6.3.3.2 Experiential activities

> *A primary responsibility of educators is that they not only be aware of the general principle of the shaping of actual experience by environing condition, but that they also recognize in the concrete what surroundings are conducive to having experiences that lead to growth. Above all, they should know how to utilize the surroundings, physical and social, that exist so as to extract from them all that they have to contribute to building up experiences that are worthwhile.* ~ (Dewey 1938b: 40 in Morse 2011: 64)

Diverse activities for CWN are available to the educator (e.g. Macy & Young Brown 1998; Louv 2005; Cornell 2009, Young et al. 2010, White 2012). Many of these have been outlined and include activities which address CWN 'competences' such as appreciation, attentiveness, attunement, awareness-raising, creativity, curiosity, holistic perspective, interaction, quiet mind, problem-solving and sense of place (Section 2.2.10, Table 4, Box 33). In particular, Young et al.'s (2010) *Coyote's guide to connecting with nature* is indispensable to the educator with many of these activities adaptable and equally relevant to older age groups and may additionally help tertiary-aged learners to balance an expanding intellect with playful sensory experience to rediscover the 'inner child' which tends to be orphaned during higher education.

The most simple and yet potentially most powerful activity is the 'sit spot' which invites students to sit solo for approximately an hour in (wilder) nature and just observe. Upon their return, students creatively and reflectively journal and then share their stories with the group. Any technique which stills attention, intensifies focus, opens up an initial participation with nature and invites introspection will be valuable in this respect. Alternatively, body-centred activities which awaken the student to an inner 'aliveness' or to subtle outer phenomena are encouraged. Finally, students' creativity should be stimulated in various ways (Table 38). The genre of *mythopoesis* (myth-making) may be instructive in this regard.

There is overlap between activities used for the *process of connecting* and those outlined in the *process of harmonization* (Table 38). Whilst there are some activities specific to harmonization, the main difference is extending the connecting practices in a way which allows the student to enter the *process of harmonization* and find deeper connections with nature. There is no 'rule' on which to use where and when; context, circumstances, group dynamic and intuition should guide the educator's decision.

Table 38: Suggested activities for the process of connecting (and process of harmonization)

Purpose	*Example Activities*
Awareness *(Letting in)*	Using 'sit spots' for mind stilling, place familiarization, focusing attention, intensifying sensory awareness through e.g. visioning (scanning, use of periphery), listening, touching, smelling, tasting.
Expression *(Letting out)*	Imaginative endeavour and/or creative vigour through art, dance, theatre, song, music, mapping, poetry, story, symbolism, journaling, dialoguing.
Mindfulness *(Letting be)*	Introspection and becoming present through ***extended*** retreat, ***deep*** reflection, contemplation, and ***meditation*** (including detached awareness / observation of thoughts, senses and emotions).
Aliveness *(Tuning in/up)*	Awakening (to) inner and outer energies through breathing exercises, ***fasting***, ***ritual, ceremony*** or ***other activities*** which disrupt perceptual-physiological-biochemical equilibrium of mind-body.

***Bold italics*:** indicates those deeper or extended activities usually more appropriate for the *process of harmonization*.

For more guidance see: Cohen (1994; 1997); Macy & Young Brown (1998); Baillie (2003); Shaw (2003); Taylor (2010); Young et al. (2010); Gurner et al. (2012); Bragg & Reser (2012); White (2012); Williams & Kabat-Zinn (2013).

Environmental psychologists suggest that nature can be encountered through structured, spontaneous and/or symbolic experiences (adapted from Kahn & Kellert 2002). *Structured* activities are planned and prescribed, e.g. giving students guidance on how to 'open up' their senses in the field. *Spontaneous* activities are unstructured and arise unexpectedly, but can be facilitated by allowing students to wander timelessly (and 'aimlessly') in a natural area. *Symbolic* experience refers to how nature is encountered - and given meaning - in the mind. Symbolic (vicarious) experiences may draw on mythopoetic ideas, archetypes of the unconscious mind, media (e.g. film)[166] storytelling or dreams. MNE often invokes symbolic interpretations and, in this sense, *synchronicity* may also form an important subset of symbolic nature experience. In this respect, the educator has a choice of whether to introduce the concept of MNE and synchronicity in the *process of connecting* in order to provide a lens *a-priori* through which learners can view experiences or, alternatively, wait until the *process of harmonization* in order provide a decoder with which learners can decipher subsequent experiences. The choices educators make regarding theoretical and experiential approaches will be dependent on constraints or flexibility of their teaching time and space as well as the depth and speed that students respond to the process and if certain phases / activities need to be repeated before proceeding. The *process of connecting* is both foundational and catalytic for the processes to follow.

6.3.4 Process of harmonizing

> *The truth is undeniable that so long as you are in perfect harmony with nature, so long as your mind is in tune with the universe and you are feeling and realizing your oneness with each and all, all the circumstances and surroundings, even winds and waves, will be in your favour.* ~ Swami Rama Tirtha, from a talk given at Golden Gate Hall, San Francisco in 1906 (in Combs & Holland 1996: 132)

The *process of harmonizing* is about finding that space where one feels 'in-synch' with various phenomena. At its core, it is has much in common with *Theory U's* 'presencing' whereby the deepest level of the *U-process* reflects the regenerative state which accesses a different stream of time: *the future that wants to emerge* (Scharmer 2009a). However, the term 'harmonizing' was chosen because it may be more instructive and inclusive for the breadth of process referred to in *Theory edU*.

'Harmonizing' recognizes a state of consciousness which delivers a sense of resonance with the world in a way not normally experienced. Accounts of MNEs comprising this research (e.g. Section 4.3.6) indicate that this state may be invoked after various activities which are associated with the *process of connecting* or in ***edging*** the student to their limits of their learning. Moving through this *threshold* requires *letting go* of patterns of beliefs and behaviour which may have been restrictive. Or as French writer Andre Gide (1869-1951) says: "The only real education comes from what goes counter to you." Whilst 'harmonizing' can arise (seemingly) spontaneously independent of a facilitated process, this phase nevertheless explores pathways capable of proactively cultivating and consciously enabling a 'harmonizing' between Nature and Self.

[166] Film can be a powerful medium for providing vicarious meaningful experiences. Research and personal experience shows that nature-themed films can, through evocative imagery and storytelling, motivate people to pursue ERB and may open a gateway to pursue authentic MNE (J. Swan pers. comm.; see also Appendix 9.19.1.2)

In a context of an *education in connectedness*, the *process of harmonizing* may be experienced as an 'earth harmony': a deeper connection which delivers MNE and associated feelings of, e.g. wholeness, inclusiveness, relatedness. Secondly, a *process of harmonizing* allows one to open up, 'tune in' and connect with Self, Source and Nature. In extending our sense of identification, we begin to see ourselves as being in harmony with others and our mind as being in union with the whole of Nature (MacDonald 2001; Naess 2008). It is also a state where a *mirroring, merging and meeting of Self and Nature* may be encountered. In connecting with Self and Source, one can access their *inner knowing* to find inspiration and answers to life questions, such that they become instructive for their ***emerging*** future. The *process of harmonizing* recognizes that synchronicity may be experienced. These moments of revelation are intimate processes of meaning-making arising from unexpected paralleling of Nature, Self and Source, such that the learner experiences a sense of communication to consciousness transcendent to normal psychic and physical functioning (Main 2007). In recognizing the wisdom imparted, one may feel compelled toward ***embracing*** a future wanting to be born.

As a change agent, synchronicity provides signposts to the future wanting to emerge and/or provides feedback on student progress with an evolving *consciousness of connectedness*. These experiences may equally provide a window to the student's Self or *soul calling*. Synchronicity is not a prerequisite for realizing a fulfilling *process of harmonizing*. It is merely recognized that this process may cultivate a ground of being which gives rise to synchronicity (as an indicator); that this, in being gently guided to their edge, the student has been able to 'let go' and open mind, heart and will to 'let come' and allow for meaning-making through an awareness of the ubiquitous yet mysterious meetings of nature and psyche (Figure 21). Synchronicity brings intellectual concepts of (inter)connectedness into the immediacy of lived and felt experience.

> *You know, that kind of stuff, a lot of people would think "Jaja, sure. This is nonsense " but you know you realize that there are…the world we live in is but one layer of a multifaceted multilayered existence of which we have a real small understanding, I think. And every now and then a little portal opens up, and you get a 'wow, thing'. And some people get much more profound experiences, even unasked for. Because sometimes I think…there is an unplanned connection that happens. Something just happens.* [Tony]

6.3.4.1 Theoretical concepts

The *process of harmonizing* does not aim to introduce more theoretical concepts. Rather, it is a focused process of experiential endeavour, mindfulness and an appreciation that intuition has reasons which reason cannot name. However, students can be primed with intellectual concepts which preface the *process of harmonizing* such as, for example, recognizing, interpreting and working with synchronicity (Appendix 9.19). The only other occasion where intellectual concepts may be relevant in this phase is if the student requires additional assistance in *presencing,* such that the educator finds it of added value to provide clarifying information to assist (or 'lubricate') the effective rollout, uptake or attainment of experiential objectives.

> *For Goethe, "science is as much an inner path of spiritual development as it is a discipline aimed at accumulating knowledge of the physical world. It involves not only a rigorous training of our faculties of observation and thinking, but also of other human faculties which can attune us to the spiritual dimension that underlies and interpenetrates the physical: faculties such as feeling, imagination and intuition."* (Naydler 2000 in Max-Neef 2005: 10).

Table 39: Example literature to accompany experiences encountered during the *process of harmonizing*

Phase with relevant themes	*Example references / recommended reading*	*Purpose / expected insights*
Edging : Meaningful nature experience	*For the student:* Ashley (2007); McDonald et al. (2008); Taylor (2010); Smith et al. (2011); Snell & Simmonds (2012); Morse (2013)	Providing a conceptual lens and a validated shared reference through which students can (re) interpret their experiences.
Emerging : Meetings of Nature & Self Synchronicity	*For the student and / or the educator* Plotkin (2003); Cambray (2009); Bolen (1979); Main (2007); Perry (2009);	Helping learners in deepening understandings or exploring meanings in their experiences,
Embracing : Pathways into environmentalism / transformational leadership Opportunism	*For the student:* Chawla (1999, 2006); Swan (2010); Jaworski (1996); Scharmer (2009a); Biggs et al. (2008); Knight & Cowling (2007)	Embracing experiences as a basis for creating futures by offering supportive, inspirational and pragmatic literature.

6.3.4.2 Experiential activities

> *To develop love and concern for the earth, we need deep, absorbing nature experiences; otherwise, our relationship with nature will remain distant and abstract and never touch us deeply…Absorbing experiences bring us face-to-face with nature. The observer and the observed become united - and only then is true empathy, knowing, and love awakened in the observer's heart.* ~ Joseph Cornell (as posted on http://sharingnature.com/cms/, *retrieved 4 December 2012*)

Experiential activities for the *process of harmonizing* are mostly concerned with extending, prolonging and deepening those activities which have already been practiced during the *process of connecting* and which facilitate introspection, fluid expression, mindfulness, and awakening (Table 38; words in ***bold italics*** are specific to the *process of harmonization*). For example, increasing mindfulness, can help harmonize one's relationships with nature and people (Drengson in Naess 2008). Ritual, ceremony, extended retreat (e.g. Vision Quests) prolonged meditation, deep listening and dialogue are effective means of deepening respect for and communing with the wilder energies of nature and the spirit of place (Drengson in Naess 2008). Such activities are therefore considered more effective in *harmonizing* Nature, Self and Source. Ideally, students will have a number of options available which might best suit their liking and/or (intuitive) calling.

The *process of harmonizing* is, paradoxically, both the most delicate and most powerful part of *Theory edU*. It is delicate in the sense that it must be approached with the correct intent (which may well draw on the recognized underlying values of respect, humility and reverence) and it is powerful in that students may encounter potent and influential experiences, some potentially unpleasant (although usually only initially). If synchronicity is encountered during this phase, it may be catalytic in that it opens doors to the totality and quantum reality which we can find so mysterious (Bolen 1979). This is critical in being able to instil a belief in the learner that they have actual agency in the future that they wish to co-create. As articulated by Jargodzki (2010: 28) (see Section 4.5 for full quote), the experience of synchronicity feels as though we are being moved in a "direction of achieving successful outcomes and realizing our highest potentials."

See Appendix 9.19.2 for reflections on my personal experiences in an education setting related to applying certain activities during the process of harmonizing (as part of my initial efforts in field-testing dimensions of Theory edU).

6.3.5 Process of becoming

> *As Thomas Berry wrote, "We must invent, or reinvent, a sustainable human culture by a descent into our pre-rational, our instinctive resources." Such a descent is the purpose of the underworld journey to soul undertaken by those who have moved beyond the self-involved early adolescence in which our society has stalled. The most creative, inspiring deeds in the world today are being performed by visionaries who have made that descent and have returned with their unique contribution to the Great Turning.* ~ Animas Valley Institute (http://www.animas.org/about/htm, *retrieved 9 April 2013*)

The *process of becoming* is concerned with actualizing our highest potentials. It was unanticipated that the result of this research on MNE would lead to insights largely aligned with ideals of spiritual / life coaching. However, it is evident that even conventional understandings of EE/EfS implicitly or explicitly recognize that some form of *process of becoming* in finding life purpose is key to a fulfilling experience of being human.

It is not the aim to explore all understandings of *becoming* since it may only be the nuances of language that distinguish many phrases capturing such notions, e.g. *Finding your passion* (Robinson & Aronica 2009); *Awakening to your life's purpose* (Tolle 2005); *individuation* (Jung 1990); *self-actualization* (Maslow 1962); *self-realization* (Yogananda 1946; Naess 2008); *self transformation* (Laozi); *grand will* (Buber 1970); *sacred dance* (as opposed to survival dance) (various Native American philosophies, e.g. the Zuni, Hopi (Plotkin 2008)); *journey into adulthood* (Plotkin 2008); *celebrating your life's gifts* (8Shields Institute 2013); *original blueprint* (Young et al. 2010) and *the truth at the centre of the image you were born with* (Whyte 1997). The *process of becoming* is essentially, as Plotkin (2008) suggests, a nature and soul-centred model for human development.

The *process of becoming* begins with ***enacting***: a willing and integrated response to: i) fresh information and experiences accumulated during the *process of connecting;* and ii) inner knowing or synchronistic guidance as encountered during the *process of harmonizing*. This asks the student to seek ways to creatively apply new meanings, insight and understandings to the envisioned future. It is a regenerative stage of *Self-inspired action* which aims to birth or bring the desired future into being. Thereafter, the student expands experimentation of prototyping alternative life choices with the aim of ***embodying*** new futures and ways of living. The most effective avenue for achieving this is through an integrated 'head, heart and hands' approach: drawing on intellect, emotion and Self-led action. As recognized in the Vision Quest process, *incorporation* is literally about *taking on and into the body* newfound insights, learning and choices and this vision is equally brought into the body of the world – for the benefit of one's family, community and society (Bekker & Morris 2012). Similarly, our Self-realization is connected with the Self-realization of others: we cannot actualize ourselves if we diminish the propensity - and interfere with the possibilities - for others to do the same (Drengson in Naess 2008). Such an idea takes us to a new depth of understanding the essence of *ubuntu.*

The *process of becoming* allows the student to perform in life with a *consciousness of connectedness*, i.e. from a perspective of *wholeness*. At this point, the student may approach elements of self-actualization, having successfully embodied the essential dimensions of Self. What is experienced is *integral living*: ***evolving*** in accord with one's truth, path and purpose within the context of – and for the (transformative) benefit of -

social-ecological systems. This might equally be understood as *individuation*: the process by which a person becomes a psychological individual: an indivisible unity or whole (von Franz 1990)[167] within the whole.

As a lifelong process, it is unrealistic to expect that a standalone educational program can achieve such outcomes. However, it may afford a glimpse of potentiality, which in itself might be sufficient to encourage the student to continue engaging with cyclical processes of *connecting*, *harmonizing* and *becoming* outside of a facilitated approach. Moreover, a target is defined which aligns with an aspiration that has been recognized by great mystics, visionaries, philosophers, scholars, educators and leaders: to realize all that which we can become. Simply stated, the true worth of an education is in the revealing of the true worth of the student.

6.3.5.1 Theoretical concepts

Instructive resources include integrated frameworks for EE/EfS: e.g. Chawla & Cushing (2007); Mattson (2009); Esbjörn-Hargens & Zimmerman (2009); Le Grange (2011b) as well as Naess' (2008) 'ecosophy' – a personal philosophy for finding ecological harmony inspired by nature. In particular, Riley-Taylor (2002) speaks of education curriculum as being about conversation and, with a hermeneutical goal of understanding practice and experience, is thus central to a *process of becoming*:

> Education begins with each individual being, not only "turning inward" but also "moving outward;" a search for self and also self's relation within the larger frame of community, society, world. It is also about children and about those who would guide them toward a "becoming" of their own – in the fullness of life, the richness of relationships, the strengthening and broadening of skills and abilities. It is about nourishing their capacities for negotiation, discernment, and fairness, so that they may come to recognize their own responsibilities as members within a larger matrix of life – responsibility of being (Doll, 2002), of their own self-growth, their relationships, their communities, the planet. It is living and acting with an intention to create a better world, recognizing the responsibility it takes to be an integral part of something larger than ourselves. Critical, then, is educators' task to help children understand their interdependence within the ecological habitat from which humans draw their life and sustenance. My intent and my commitment is to foster this understanding, in myself and others, through the educating process (Riley-Taylor 2002: 4-5).

Table 40: Example literature to support, inspire and guide the *process of becoming*

Phase with relevant themes	*Example references / recommended reading*	*Purpose / expected insights*
Enacting : Conservation behaviour (knowing-doing / ERB guidance / relevance of connectedness)	*For the student and/or educator:* Kollmuss & Agyeman (2002); Knight et al. (2008); Schultz (2011); Harré (2011); Swaisgood & Sheppard (2010, 2011);	Motivating & guiding learners on how / why they need to enact and how to navigate barriers which they encounter.
Embodying : Autobiographical / self-help text	Mandela (1995); Jaworski (1996); Palmer (2001); Tolle (2005); Blythe & Harré (2012)	Helping reassure, reorient & inspire during the challenging periods expected in this phase.
Evolving: Leadership / adulthood / mentor	Campbell (1949); von Franz (1990); Plotkin (2008); Manolis (2008); Naess (2008); Young et al. (2010)	Places journey in context & maps elder/leadership scenarios – matures one's worldview.

[167] McCallum (2005: 76) writes: "To know this self is a lifelong process - what Jung called the process of *individuation*. Marie-Louise von Franz… described this process as "discovering what it means to be authentic, of discovering that which can only be given by the Self - one's vocation and with it, one's natural authority." In this light, individuation also implies, in every individual, the possibility of an emerging ecological intelligence. Individuation means coming to know, little by little that we are not the masters of our fate, but we can choose our attitude towards it"

6.3.5.2 Experiential activities

If the educator remains in a position to be able to further engage with his / her students subsequent to the *process of harmonization* [168] a number of experiential approaches are available to help instigate (enact), support (embody) and further (evolve) the *process of becoming* (Table 40).

Table 41: Suggested experiential activities to facilitate the *process of becoming*

Purpose	*Example Activities*
Sharing	Provide an open supportive space for students to share stories from their process of harmonizing. Allow all present to speak their personal truths and realisations;
Reflecting	Allow students to creatively learn from their experiences through 'mythopoeia', e.g. art, music, symbol or story which represents (the myth pervading) their story etc.
Visioning	Encourage students to process new meanings, insights and understandings alongside emergent patterns, themes, values to envision and co-create the emergent future. Convene sessions around: What would you now like to do with what you now know?
Committing	Urge students to experiment with outcomes by setting achievable take-home targets. Pair or group students in a buddy-system which, through peer support, encourages students to monitor and follow-through on commitments and their courageous steps.
Reviewing	Providing opportunities (or alternatively finding an elder (preferably family) to 'anchor' the process) for students to 'check- in', report progress, ask questions, share experiences, feedback.
Celebrating	Using informal or formal gatherings / ceremonies to acknowledging progress toward choices made for a better way of living and being in the world. Expressing gratitude.

*'Reflecting' and 'visioning' are adapted from Gurner et al. (2012) and originally based on Kolb's (1984) experiential learning cycle. 'Committing', 'reviewing' and 'celebrating' are based on parts of the 8Shields model (8shields.org, *retrieved 22 June 2012*). See also Mezirow (1978) for a transformative learning process which aligns with *Theory edU*.

As overwhelming as it may first appear, educators should feel enthused and empowered that they are placed to create conditions which may assist students' *process of becoming*. Most conventional education processes tread a well-worn path through the upper left arm of the *U*, focusing only on nature information and critical reflection on theoretical concepts and issues. *Theory edU* invites the educator to accompany students on a liberating and transformational learning journey. Whilst the larger process is indeed life-long and extends beyond the formal education setting, the advice is to begin small. *Theory edU* has a fractal nature: it is a learning journey which may be replicated at many scales - from sixty minutes to sixty years, from class time to lifetime (e.g. Box 36). Even undertaking a PhD can and should fit *Theory edU* (Figure 50).

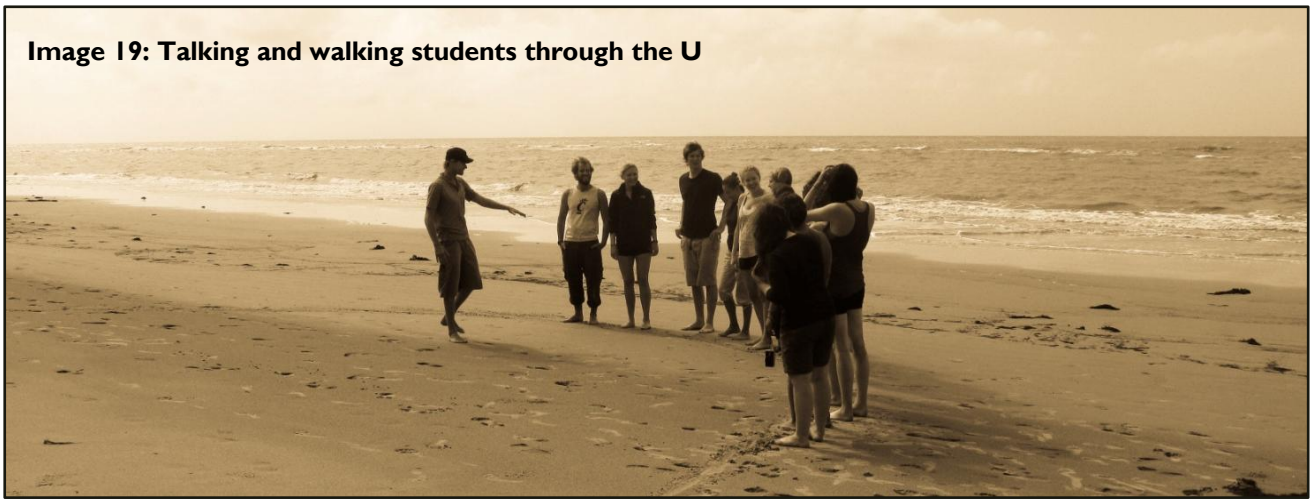
> *…we have not even to risk the adventure alone; for the heroes of all time have gone before us; the labyrinth is thoroughly known; we have only to follow the thread of the hero-path. And where we had thought to find an abomination, we shall find a god; where we had thought to slay another, we shall slay ourselves; where we had thought to travel outward, we shall come to the center of our own existence; and where we had thought to be alone, we shall be with all the world.* ~ Joseph Campbell (1949: 18)

See Appendix 9.19.3 for reflections on my personal experiences in an education setting related to applying certain activities during the process of becoming (as part of my initial efforts in field-testing dimensions of Theory edU).

[168] Having conversed with numerous nature-based facilitators or wilderness guides, it is important to recognize that one the biggest pitfalls in being able to extend upon these deep experiences (of connecting and harmonizing) is that there is often little scope to offer the kind of reintegration support required to fully realize one's becoming. It becomes a taste (albeit an important and pivotal one) which has the propensity to wane over time. Such a scenario only serves to reinforce the need for a 'mentor' or 'anchor' as part of a supportive cultural / community fabric.

6.4 Leadership through embodiment

Image 19: Talking and walking students through the U



Theory edU's process of becoming may be cast as the *inner path of leadership* (c.f. Jaworski 1996). Leadership is a relatively new frontier in conservation science and it is suggested that it is the most important trait in the toolkit of a conservation biologist (Dietz et al. 2004; Manolis 2008). Manolis (2008) proposes two types of conservation-science leadership: i) shaping conservation science through innovative research; and ii) advancing conservation science into policy, management and society. We could equally substitute the term 'conservation science' for 'sustainability'. However, true (e.g. transdisciplinary and transformative) success with these types of leadership must be underpinned by a matured *process of becoming*. As Greenleaf (1977) argues, the domain of real leadership is grounded in a state of being, not doing. This forms the basis of what Greenleaf calls *servant leadership*: a desire to serve one another and to serve something - a higher purpose - beyond ourselves (Jaworski 1996). This reflects an embodied appreciation of an interconnected universe, whereby serving another is to serve oneself – and to lead from the future as it emerges (Scharmer 2009a).

6.4.1 Mirrored processes

> *The success of an intervention depends on the interior condition of the intervenor.* ~ William O'Brien (in Scharmer 2009b)

Whilst aspects of *servant leadership* might be unlocked during learners' *process of becoming*, it is a necessary trait to be pursued by the educator. As interveners in powerful and transformative education processes, it is our responsibility as educators to improve our own qualities of being, i.e. to embody *Theory edU*.

Beyond the well-worn dictum of 'students learn by example', it is insightful to consider brain functioning. Since the discovery of premotor *mirror neurons* in macaque monkeys (di Pellegrino et al. 1992) and subsequently confirmed as also existing in the human brain, research has shown that when confronting the intentional behaviour of others, we experience a specific phenomenal state of *intentional attunement* (Gallese 2006; de Waal 2008). Therefore an observer (e.g. student) attending to another object's state (e.g.

educator or even wildlife) will automatically and unconsciously activate the same (i.e. mirror) neural representations as if experiencing the emotion themselves (Preston & de Waal 2002; de Waal 2008). This *perception action mechanism* provides a cellular link between perception and action, may underpin cognitively more advanced forms of empathy and can therefore motivate behavioural outcomes (de Waal 2008).

The implication for an *education in connectedness* is that if the educator is emotionally disenthused about or disconnected from nature (despite teaching to the contrary) then students may unconsciously attune to and mirror this state, inhibiting their progress in building CWN. Similarly, if an educator 'talks' sustainability but does not 'feel' or 'do' sustainability then we cannot expect students to resonate with or embody the concept to the extent needed to motivate them into committed action. As Higgins (1996a: 37) writes:

> Young people are often 'smarter' and more observant than we give them credit for. They know when our actions belie our words. If we don't take this process seriously and make them aware that we are aware ourselves that there are consequences to our actions and act accordingly, they will spot the inconsistency and will be less inclined to take the message on board.

In the face of everyday burdens of education 'reality', e.g. administration, course preparation, assessment and associated time constraints on teaching schedules, the idea of implementing *Theory edU* and following it ourselves may seem fanciful. This is fully understood; however, in making these challenges transparent it is envisaged that, as Robinson and Aronica (2009) suggest, we must seriously acknowledge that the most powerful method of improving education is to invest in the improvement of teaching and the status of teachers. This view aligns with an *interpretivist* approach which believes that the development of teachers is more important than the *behaviourism* ideal of curricula developed by outside experts (Schulze 2005).

> *The search for me* [as an educator] *involves an exploration of my own "becoming," a process that is never finished, a continual path of creation toward that "moreness" (Huebner, 1995, p.344), that "as-yet" (Greene, 1996), that ever-opening onto possibilities for an engagement with the spirit of living. For me, the focus of education – learning – is a spiritual journey. It is creation itself.* (Riley-Taylor 2002: 4-5)

6.4.2 A call for mentorship

We invariably speak of teachers, lecturers and educators; however, this tends to imply and often reflects a more impersonal unidirectional process of 'feeding information'. Whilst there is a place for this type of learning environment, there is a dire need to (re)introduce, elevate and expand the role of the *mentor*. In my view, if teachers are at the face of education, then mentors sit at the heart.

Mentors steer the learning journey. Mentors truly know their students and use that insight to identify students' innate potential and a favourable learning space for their students which, in capturing their curiosity and extending them to the edge of their awareness, knowledge and experience, allow them to learn by trial and error as part of their personal journey (Young et al. 2010; Robinson & Aronica 2009). Mentors recognize that knowledge and 'truth' are not immutable but rather contextual and transient.

Effective mentors have mastered the art of questioning. They can skilfully pull the student into learning without giving the answer – that is, they avoid the urge to simply show students all they know. Mentors recognize that the power is in holding the question and keeping it alive (AOM 2011). They constantly give clues, attentive to students' changing body language which might signal a mini-epiphany. Mentors know that curiosity creates a vacuum for learning and that inspired and excited states (associated with, e.g. MNE) are the states which quicken the process of brain re-patterning, by combining attentive focus and sensory input (AOM 2011). Mentors recognize that learning happens at 'the edge', so 'boundary pushing' experiences are critical to the process. But mentors are also acutely aware that they must know the range and limits of students' 'edges', so as not to over-extend and act in a way that is counter-learning (AOM 2011). Over time, students will recognize their own boundaries and begin to seek out edge experiences for themselves.

Table 42: Summary of mentoring roles and styles

Mentoring	*Approach*	*Purpose*
Roles (based on Robinson & Aronica 2009)	Recognizing	To identify the talents and abilities of individual students
	Encouraging	To support students in their quest for learning and finding potentials
	Facilitating	To create a fertile space conducive for learning and realizing purpose
	Extending	To extend students to the edge of their beliefs, perceived capabilities, comfort zones such that learning is a natural by-product of curiosity
Styles (based on Young et al. 2010)	Didactic	To pass on information (through e.g. lectures, stories)
	Questioning	To prime for didactic answers and awaken curiosity
	Trickster/ Transformer	To pull unwilling learners from their 'ruts' and gently lead them to their edges through utilizing appropriate activities, e.g. which bring excitement.

Mentors understand that good teachers teach subjects, but great teachers teach students. If the subject is CWN, mentors recognize the students' abilities and barriers and improvise accordingly. In recognizing that the difference between CWN and committed CWN is mentorship (Figure 2), mentors aim to co-create a space for students to 'drop into' – and where profound CWN is sought rather than taught. They do not see education as the *amount* of information transmitted and left undigested but rather as the character-building assimilation of *quality* ideas and values (Vivekananda 2001). Mentors encourage students to embrace and embody dimensions of the subject, e.g. connectedness, which are relevant to their *process of becoming*. The nature of such a relationship is about having conviction in the extent of human possibility. Mentors know that a process which allows the learner to awaken to their purpose and deep sense of connectedness with all life is the most meaningful gift they can give, the most important legacy they can leave.

6.4.3 Culture of support

Mentors assume just one, albeit highly important, role within what needs to be an enabling culture. Effective and enduring CWN may only succeed when carried in the container of community (AOM 2011) and, in this sense, the task for Westernized cultures is to redefine and recreate human community (Lopez 2003), In formal education settings, this represents supportive institutional structures at, e.g. university departmental and Faculty levels. In many cases, this is lacking: economic constraints, risk and litigation concerns and a compulsion to meet outcomes-based assessment suffocates opportunities to benefit from (unstructured) time in the field or in engaging with cultural or community-based activities (Section 5.5.4). This begs reform.

Similarly, at the societal level, communities of practice (with CWN as a core concern) need to be formed in order for *Theory edU* processes to have maximum effect. As interviewees lamented (Section 5.5), we have lost the vital role of elders in our communities. Perversely, the Internet assumes a position of surrogate elder, feeding an endless stream of information, yet incapable of enticing questioning and coupling with the direct experience capable of instilling wisdom. These are long-term regenerative processes which acknowledge that we may be the first generation (since a time immemorial) that must actively recreate culture in order to save itself (AOM 2011). The culture needing to be woven must recognize that formal education processes cannot remain isolated and detached from the everyday domain of family, community and society. As Robinson and Aronica (2009) argue, transforming the educational system demands more personalization rather than standardization. This approach recognizes that true achievement is the ability to unlock the individual talents of each learner as well as create an environment where they want to learn and can naturally awaken their true passions (Robinson & Aronica 2009). However, often this 'ability to unlock' may be a chance outcome. *Theory edU* provides guidance for a more targeted and structured approach.

Such a process is not without stiff challenges: growing class sizes; educator workload; different learning capabilities and standards of students; and short lecture / class times can all subvert these aspirations. At a much larger scale, can the "iron cage" of the modern world (cf. Weber) allow true passions to flourish? Ultimately, we may need to admit that conventional education settings are simply unable to provide the culture of support needed to ensure the effective delivery of approaches like *Theory edU*. Indeed, it appears the time is more than ripe to echo and heed Robinson's (2010) call to: "Bring on the learning revolution!"

6.5 Applications of *Theory edU*

6.5.1 A fractal process

Robinson (2010) believes that we are enthralled by the idea of linearity in education. This, in his view, is at odds with life because life is not linear, it is organic: we create our lives symbiotically as we explore our talents in relation to the circumstances they help to create for us (Robinson 2010). In visualizing a strategy for an *education in connectedness* across various scales and contexts (e.g. workshops, excursions, field courses) it must be recognized that *Theory edU* represents one model for approaching a complex reality: it is therefore not a representation of reality since processes and phases may interweave and overlap. Yet, in symbolizing a stepwise process, *Theory edU* risks invoking linearity and imbalances if the framework is taken too literally. For example, it would be futile for a student to turn their back on the process of connecting (and especially CWN) once absorbed in the process of becoming (Box 36). However, it is accurate to assume that Theory edU asks students to devote primary attention toward CWN before 'crossing a divide' to give greater focus toward their becoming, i.e. sharing their gifts with their community. An inherent dualism also emerges here: the conceptual split between nature-focus and people-focus.

Box 36: Various pathways of *U*: linear, organic and fractal

A risk is that we may become too: i) fixated on following or fitting to a framework; and ii) absorbed with acting upon new futures as part of the *process of becoming* such that we neglect the *process of connecting* and the *process of harmonizing* which are the foundations for getting to and staying with 'the becoming'.

Figure 22: Disconnected or linear series of *Theory edU* processes

Specifically, students should not leave the *processes of connecting* and *harmonizing,* never to return – or to only revisit once barriers are encountered. It is essential that through the *process of becoming,* students constantly refer to the concepts, practice the activities of connectedness and seek out 'that' space of harmony which has effectively guided them along the journey of becoming. As Abraham Maslow found in his extensive research, a common quality of self-actualizing people was an *enduring* love of nature (Swan 2010). Transient connectedness hampers harmonization and becoming (Figure 22).

Educators are advised to continuously orient student efforts on the *process of connecting* and then, where possible, the *process of harmonizing*. If they can master the dimensions of facilitating connectedness, the seeds of harmonizing and becoming are planted, habituated and growth toward becoming is likely to be a natural outcome as students continue to respond to inner awakenings linked to deepening connectedness (Figure 24).

Figure 24: Connected, cyclical or organic series of *Theory edU* processes

Similarly, we should not be under the illusion that the *U-process* can be completed in one fell swoop. In reality, it may be better conceived as an infinite number of smaller 'U's' (e.g. activities, events, experiences) embedded within an underlying 'U' process which, true to its fractal nature, magnifies (or spirals) outward to represent lifelong growth and journeying (Figure 23).

Figure 23: Fractal nature of *Theory edU* processes

6.5.2 A universal learning journey

6.5.2.1 Natural cycle of learning

Theory edU finds similarities with other models for learning or life journeying. In this sense, the *U-process* appears archetypal, i.e. it consists of a pattern of instinctual behaviour which strikes a common chord because of its (sub/un-conscious) universal appeal (Bolen 1979). The following figures illustrate commonalities between: Young et al.'s (2010) *Natural Cycle of Learning* (Figure 25); Campbell's (1949) *Hero's Journey* (Figure 26); the Taoist *Taijitu* (Figure 27); and Wilber's (1995) *Integral Theory* (Figure 28).

Young et al. (2010) profile the learning journey in terms of both short-term education (e.g. as a process for guiding activities) (Figure 25: grey text) and long-term mentoring (e.g. as part of a life journey) (Figure 25: crimson italicised text). These processes align with the natural 'moods' or qualities of the eight cardinal directions. In their conceptualization, Young et al. (2010) depict the cycles from a northern hemisphere perspective (i.e. where the sun traverses the southern sky); the representations here (Figure 25) have been adapted to conform to the southern hemisphere (i.e. where the sun traverses through the north).

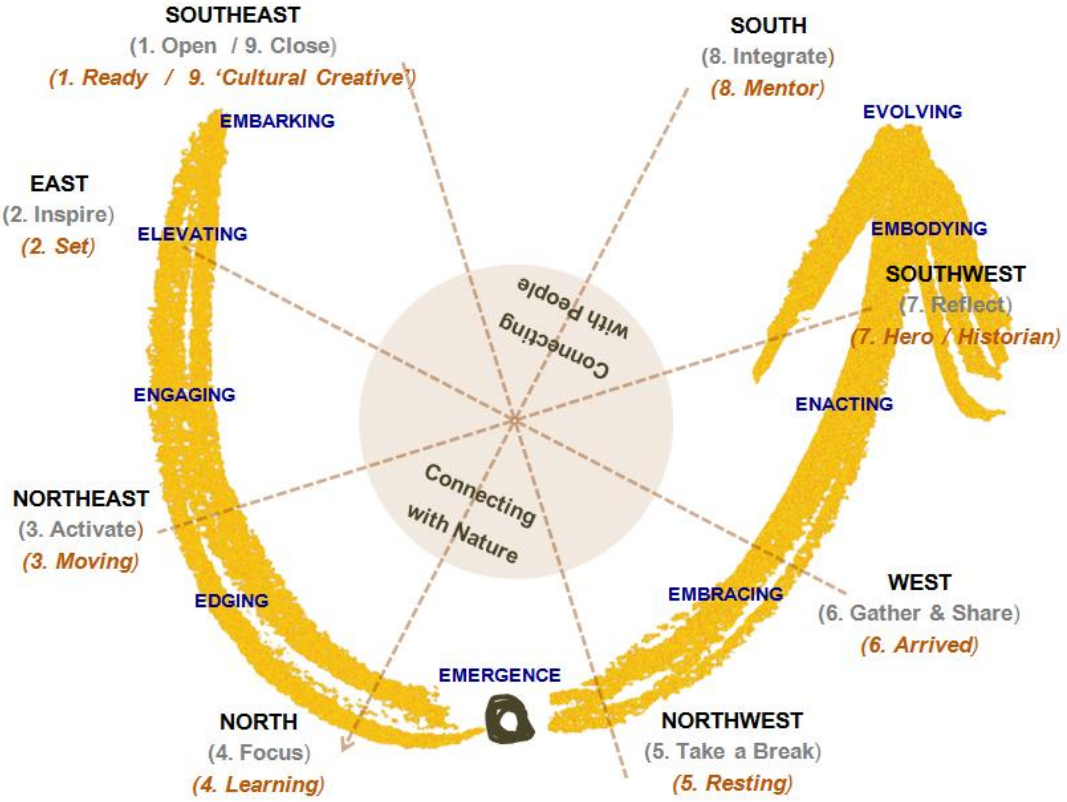


Figure 25: Commonalities between *Theory edU* and the Natural Cycle of Learning (Young et al. 2010)

Key: *Blue text:* phases of *Theory edU* with stages associated with the eight cardinal directions
Grey text: Steps to guide natural cycle of learning for short-term activities (Young et al. 2010)
Crimson italicisized text: Stages as part of a long-term journey of personal mentoring (Young et al. 2010)

The basic premise of the stages of these *Natural Cycles* (Figure 25) is relatively self-explanatory (refer to Young et al. (2010) for detailed explanations). Clarification may however be needed for the 'final' stages: 'Hero / historian' refers to learners who have 'arrived' and are now wizened experts on their subject, ready to share the stories from their journey with peers, communities and elders (Young et al. 2010).[169] This wisdom, derived from integrated personal experience (including distilling insights from literature, dialoguing with colleagues and communing with nature), means that learners evolve to become mentors and are in a position to be able to use their own interpretations and insights to engage with other learners (Young et al. 2010). Finally, the 'cultural creative' (Ray & Anderson 2000) is the front-line cutting edge leader who expands new possibilities, invents new approaches and drives the creation of culture (Young et al. 2010).

Robinson and Aronica (2009) argue for a move from manufactured industrialized models of education to a process based on the principles of agriculture, i.e. creating the conditions under which learners will flourish. Successful agriculture attunes and works with earth's cadences and this plumbs the essence of *Theory edU*: in ***connecting*** with the natural cycles which govern our existence and ***harmonizing*** with the rhythms and dualities of nature and psyche, we journey through an integrated process as part of our growth and ***becoming*** bears fruit through the discovery of talents which can nourish and sustain society.

[169] The terms 'hero / historian' could be challenged on the basis of being culturally biased and laden with unfavourable (Western) interpretation based on myopic historical accounts or distorted hero personas that transmit a version of 'truth' or (linear-based) 'triumph' which might be insensitive to non-Western minority groups (H. Lemelin pers. comm.). Elder, champion or a context-specific Indigenous term could be more appropriate (H. Lemelin pers. comm.).

Box 37: The *U-process* and The Hero's Journey

Young et al.'s (2010) long-term *Natural Cycle of Learning* (Figure 25) not only follows phases found within *Theory edU* but also bears resemblance to Joseph Campbell's' *The Hero's Journey* (in Jaworski 1996) (Figure 26).

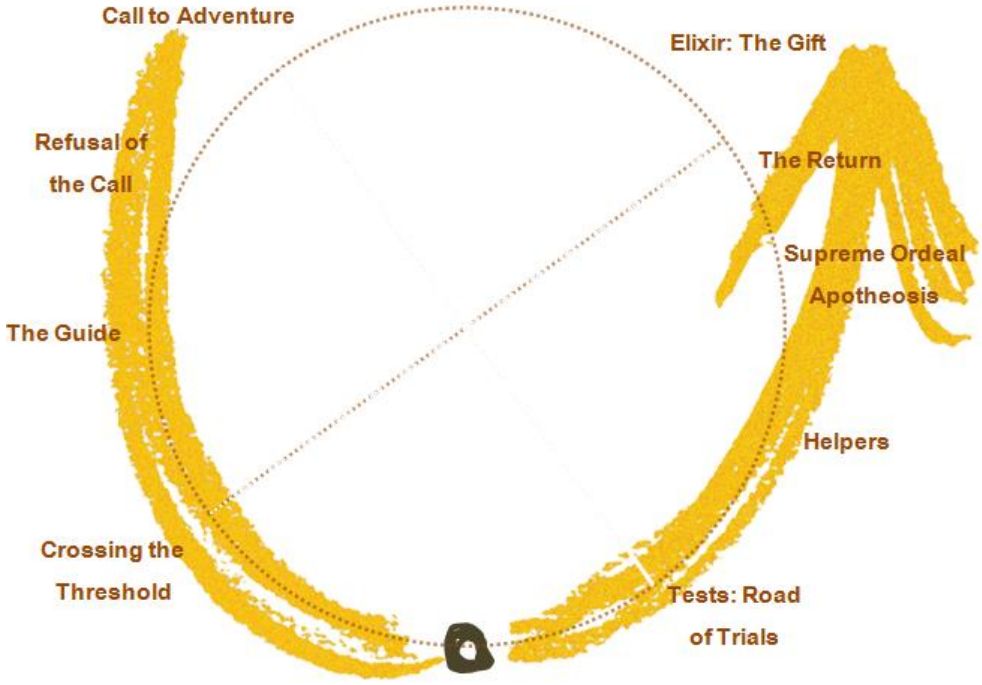


Figure 26: Commonalities between the *U-process* and the Hero's Journey (Campbell 1949; Jaworski 1996).

The commonality with archetypal cycles and comparative mythology as explored in the *Hero's Journey* reveals another association: *Theory edU's* link with 'rites of passage'. Numerous interviewees lamented the loss of a form of initiation and rites of passage process in contemporary society (Section 5.5.4). Yet, for many youth, there seemingly remains an innate drive to seek out such passages and is invariably sought out in ways (e.g. living and backpacking abroad, voluntary military service, gangs, promiscuity and drugs experimentation) which are rarely appropriately facilitated and may become harmful and/or lack constructive purpose for the individuals concerned. Implementing *Theory edU* in the classroom does not recreate rites of passage. However, it may help awaken students to a natural journey which is, as some argue (e.g. Campbell, Jung, Young), part of a deep-seated disposition in the human psyche. Therefore, such a process must, at some point, be integrated into one's life in order to avoid either psychological dysfunction or to promote psychological wholeness. It draws attention to powerful ancient processes which, as part of collective mythology, warrant attention. It urges reflection on the required steps into adulthood and elderhood.

6.5.2.2 Contraria sunt Complementa

> *Tao produces unity; unity produces duality; duality produces trinity; trinity produces all things. All things bear the negative principle (yin) and embrace the positive principle (yang). Immaterial vitality, the third principle (chi), makes them harmonious.* ~ Goddard & Borel (1919), *Laotzu's Tao and Wu Wei*

Commonalities may also be found in Eastern philosophy. The Taoist *Taijitu* (i.e. 'diagram of ultimate power', known as *Yin-Yang*) represents the notion of opposites existing in harmony, the 'dance of duality': light (*Yang*) / dark (*Yin*); East (*Yang*) / West (*Yin*); masculine (*Yang*) / feminine (*Yin*); ego (*Yang*) / Self (soul) (*Yin*); and the rational (logic, reason) (*Yang*) / relational (intuition, emotion) (*Yin*) (Max-Neef 2005) (Figure 27). The essence is awakening to the profound realization that opposites are not dichotomous but rather 'complementaries' that must converge, merge and harmonize without losing their identities (Mallman et al.

1979). Physicist Niels Bohr was so enamoured by this ancient symbol that he requested it be placed at the centre of the coat of arms which was designed for him when being granted a title of nobility by the king of Denmark (Mallman et al. 1979). Underneath the symbol he requested inclusion of the phrase: *Contraria sunt Complementa* (i.e. 'opposites are complementary') - and thus revealed "the essence of the most transcendental truth his wisdom had allowed him to surmise" (Mallman et al. 1979 in Max-Neef 2005: 11). The *Taijitu* is therefore helpful for understanding *individuation* and the gradual integration and unification of the temporal Ego (masculine) structure with the more permanent essence of Self (feminine) (Figure 27).

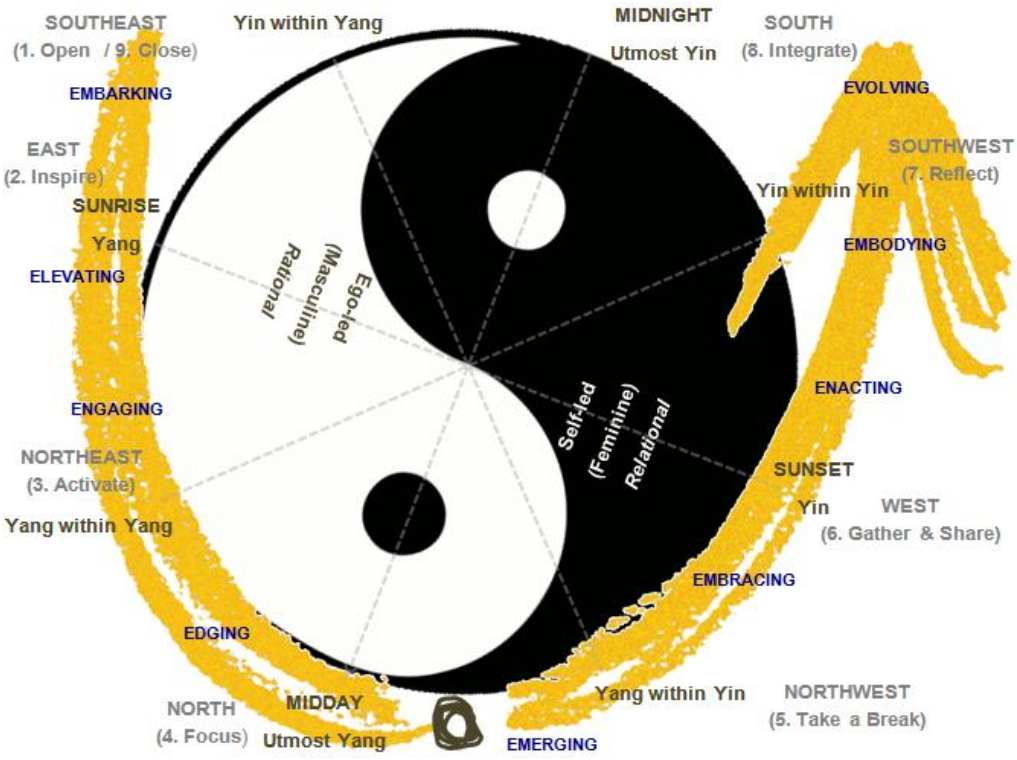


Figure 27: Commonalities between the *Theory edU* and the Taoist *Taijitu* (cycle of *Yin-Yang)*

Humanity's separation from nature is largely a result of pervasive dualisms (Section 2.2). By its very name, connectedness is about bridging those divides. However, as this research has revealed, at all scales there is a necessary dualism to the nature of existence. Where the conceptual shift needs to be made, however, is that these dualisms are both embedded within each other and form part of a connected whole. Simply, it is about shifting from an *either/or* to a *both/and* mentality, i.e. we equally need rationality and intuition, intellect and creativity, logic and emotion, and observation and participation. Dualisms therefore only become an issue when they are out of balance and non-integrated. In this respect, one may reflect on the Taoist *dance of opposites* (as represented in *Taijitu*) and the quest to integrate within a unified whole (Figure 27).

This presents a challenge for transdisciplinary research which, ideally, strives for a unified *both/and* approach in order to ameliorate the dualisms that are symptomatic of Western thought. Importantly, this includes integrating natural sciences with the social sciences and traditional knowledge (e.g. TEK) alongside conventional scientific knowledge. As this dissertation has demonstrated, this can be a near insurmountable task since the *mindscapes* and *powerscapes* which produce - and are produced by- these knowledge systems

persistently struggle to accommodate the other, such that understandings and claims on *matterscape* are constantly contested instead of being used as basis for collaborative and complementary approaches.

6.5.2.3 Integral learning

The *process of becoming* or of *individuation* point to a(n) (educational) journey which compels us to integrate the various diverse (and often dualistic) dimensions of our being. Integral theorist Ken Wilber is known for describing such a process with the *all-quadrants, all-levels (AQAL)* approach (Appendix 9.1). Wilber argues that effective human development can only occur when individuals pass through all levels and integrate all quadrants. Wilber terms these quadrants *holons* based on the idea that *holons* have: i) an exterior that can be known objectively and an interior that can be interpreted subjectively; and ii) an existence as individuals (wholes) embedded in communities or collectives (of which they are a part)(Riedy 2003). The combination of these properties gives the four quadrants (Wilber 1995; Riedy 2003; Esbjörn-Hargens 2009) (Figure 28):

i) *Behavioural quadrant*: visible exterior of individual *holons*, or the objective observable behaviour and structure of brain and organism (assoc. with empiricism and the 'hard sciences' (Figure 28);
ii) *Intentional quadrant*: subjective felt interior of individual *holons*, or self, consciousness and personal experiences (associated with psychology, phenomenology, mindfulness and spiritual practice) (Figure 28);
iii) *Cultural quadrant*: intersubjective shared interior of *holons* in collectives, or culture, worldview and mutual understanding (associated with hermeneutic cultural theory and cultural anthropology, ethnography) (Figure 28);
iv) *Social quadrant*: visible interobjective exterior of collective *holons* and the complex social, ecological and economic systems (associated with ecology, sociology and systems theory and economics (Figure 28).

Sustainability is usually portrayed as balancing the exteriors manifestations of economic, ecological and social concerns at the exclusion of interior dimensions of development (Riedy 2003). Mattson (2009: 228) also observes that there is "an irreducible interiority to our ecological problems" and that Wilber's (1995) *AQAL* "acknowledges neglected interior dimensions and offers a framework for ordering and honouring the many perspectives with which ecology must engage". This also answers Sterling's (2001) vision for sustainable education which, in heightening an awareness of worldviews, develops broader and higher-order capabilities and knowledge that enables systemic and critical understanding of patterns, virtues and options for wise action (Podger et al. 2010). One critical interpretation which may therefore be drawn from the combination of *Theory edU* and the *AQAL* approach is that it emphasizes that ***only by first moving through interior dimensions and transforming individual consciousness can we hope to achieve the desired changes in the collective consciousness and a sustainable world of exteriors***.[170]

[170] Riedy's (2003) paper and the *four-quadrant AQAL* model was originally included as a guiding approach in my PhD research proposal submitted to the transdisciplinary doctoral programme in 2009. I subsequently shelved it in favour of more conventional peer-reviewed approaches. In reacquainting with Integral Theory, it again felt like coming full circle, returning to the same point, as if exploring the model and its implications anew for the first time.

Wilber's (1995) *AQAL* also resonates with Jacobs's (2006) classification of landscape realities, in that the different quadrants address dimensions of *matterscape* (physical reality), *powerscape* (social reality) and *mindscape* (psychological reality). From a *Theory edU* perspective – and in particularly in terms of field-based education - we are again reminded of the value of commencing learning processes with statements and observations about the 'objective' outer (*matterscape*), before moving inward to our experience of those natural phenomena in consciousness (*mindscape*), and then bringing our fresh understandings and insights back into our community or the broader social-cultural-ecological domain. In this regard, the four-quadrant model has been rearranged and rotated to illustrate how I see *Theory edU* as aligning with Integral Theory and, specifically, one (and possibly preferred) way that learners could use *Theory edU* in order to move through inner dimensions (quadrants) and achieve desired changes in the exterior world (Figure 28).

Figure 28: Commonalities between *Theory edU*, the *four quadrant* (*AQAL) model* and the three modes of landscape phenomena: *matter-, mind- and powerscape* (drawing on Wilber 1995 and Jacobs 2006)

For students trained in the natural sciences emphasizing testable predictions and quantifiable outcomes, the upper-left quadrant usually presents the best platform from which to *embark*. Scientific (e.g. neurological) understandings of human behaviour and the workings of perception (e.g. Section 2.2) can be discussed. From there, students are encouraged to *elevate* preconceived beliefs as other cultural worldviews are introduced whilst also critically reflecting on Western mythos. Observation and sensory awareness is then practice as learners *engage* with natural phenomena but also with their interior experience. This sustained practice *edges* them into terrains of consciousness which allow for connecting with Self and the emergence of fresh perspectives and possibilities. Learners are encouraged to privately reflect and *embrace* these insights as they return to the world of exteriors and seek to *enact* new understandings and *embody* life choices within society. Specifically, the class should explore how their becoming can *evolve* within and seek to shape and influence prevailing social-ecological-economic-political systems in the world of exteriors.

6.5.3 In the context of MNE

> *We always have a choice: we can limit our perception so that we close off the vastness, or we can allow vastness to touch us.* ~ Chogyam Trungpa (1984)

Where does MNE fit into *Theory edU*? The simple answer: everywhere. However, the process of developing *Theory edU* provides clarity on the different types of MNE available to learners and how their timing and quality may be associated with certain phases of *Theory edU* which nuance the interpretations available.

This opens up exciting avenues for the role of MNE in education and provides additional leverages for mentoring. For example, for some people a MNE might be the catalyst or 'call' for their initial process of connecting and journeying through the *U*. Results illustrated how many respondents indicated that a particular MNE was seen as a prime motivator for their decision to enter into an education or career pathway linked to conservation or environmental sustainability (Section 5.2). This experience may assist in elevating and activating one's perceptions to help see the world anew. In the context of this research, these experiences may be novel childhood or adolescent memories of exploring and learning about phenomena in nature for the first time.

MNE may be encountered through the process of *engaging*. In actively seeking to increase one's attentiveness in the field, learners encounter new ways of seeing, which begin to transform an experience of nature into a CWN. In the context of this research, these experiences are those which may arise after 'sit spots' or sensory awareness activities, which gradually heighten learner's alertness to their surroundings as well as to the idea that they have influence and agency over the way they participate with nature. Similarly, spontaneous experiences in this phase may be sufficiently powerful to evoke a previously unfelt emotional affinity with nature.

Some of the most significant MNEs - including synchronicity - are encountered more regularly during the stages of letting go (*edging*), harmonizing and letting come (*embracing*). It is here where the learner meets previously hidden dimensions of the psyche (Self and Source) as the emotionally charged archetypal level of their psyche becomes active (Bolen 1979). Profound (inter)connectedness may be felt. In investigating spontaneous synchronicity as a spiritual experience, Main (2007) also notes how this holistic perception and unitive state of consciousness delivers a sense of 'coming together' between oneself and the world.

It is this 'coming together' which has the effect of transmuting the meaningless coincidences into something more meaningful as if the events were triggered by one's own reflection, intentionality and commitment to a process unknown (Main 2007). As Laurens van der Post writes:

> I have noticed that when one renounces an established order, and the protection of prescribed patterns of behaviour and, out of a longing for new meaning, commits oneself to an uncertain future… [that]…coincidences crowd fast in on one like the salvoes of stars shooting out of the night in Southern Africa towards the close of the year (Plaskett in Main 2007: 100).

Experiences during the *process of harmonizing* may also be the most transformational. They represent and unknowable enigma and liberates by jolting us "beyond the limits of our old patterns of thought and feeling" and compels a reorientation of one's being, such that we may be open to the prospect of agency outside of our normal psychological and physical sphere (Main 2007: 48). A transformational effect on consciousness (through, e.g., a new awareness) may also be facilitated by the feeling that synchronicities felt in this phase are potential "bearers of revelation" in that the content of such experiences appears to be a form of higher-level communication to human consciousness (Main 2007: 62).

It is possible to perceive MNE in this *process of harmonizing* (between e.g. nature and psyche) as being an indicator of flow. It feels as though the bottom of the *U* presents an opening through which the consciousness inside of us finds resonance with the consciousness outside of us. This is the phase where deeper meanings manifest and whereby synchronicity may provide guidance toward the unfolding future. Accepting this line of thought requires opening to the idea that synchronicity is aligned with an empirically-based aspect of (divine) providence and/or the deepest truths of the soul or aspirations of Self which call to be realized during this particular lifetime (Jargodzki 2010).

MNE 'shape-shifts' again throughout the *process of becoming*. During this phase, they may be understood as 'helpers' or 'beacons' which continue to reorient the learner on their journey of enacting and embodying envisioned futures. In this respect, we are confronted with a daring yet illuminating proposition: synchronicity may provide a new foundation for ethics. Instead of focusing on prescribed classifications of right and wrong, the new criterion is the extent to which the events assist the learner's *process of becoming*, as measured by feedback of increased or decreased flows of synchronicity (Jargodzki 2010). This is also congruent to the idea that following increased synchronistic guidance (through MNE) allows one to feel grounded in a sense of "providential care and invulnerability" (Jargodzki 2010: 31), such that students feel drawn to pursuing their self-actualization.

As the student integrates the various dimensions and abilities of their being, their orientation moves outwards towards nourishing relationships within their community. In maintaining their CWN, MNE may serve to affirm their new life choices with a sense of 'I am on track in creating the conditions for my soul purpose which wants to manifest in this world, in this lifetime'.

6.5.4 In the context of IAS

Two ways in which we might apply the *U-process* to *invasive alien species* (IAS) in terms of an *education in connectedness* are presented here: i) *Theory edU*; and ii) The *four-quadrant connected action typology* (*Q4-CAT*) - an adapted *U curve* for IAS action. The *Q4-CAT* is not strictly an application of *Theory edU* but more a typology which is more instructive as educational objective when overlaid with the directional *U curve.* To being, a stepwise example of IAS in the context of *Theory edU* will be presented. This example also aims to illustrate how the *Q4-CAT* can be realized through the phases of *Theory edU*.

6.5.4.1 Stepwise example

The application of *Theory edU* in helping to redefine perceptions of IAS may be best illustrated through a working example. In this case, IAS is used here to primarily refer to invasive alien plants (e.g. *Acacia spp.* in South Africa). In a field-based educational setting, *Theory edU* (Figure 21) may be applied as follows: [171]

Embarking: Students / learners begin by recalling and sharing past personal experiences with IAS. At the same time, the educator presents new, alternative or contested conceptualizations of IAS as part of a process of gradual severance from information and worldviews which were accepted without question.

Elevating: Students are encouraged to retain an openness – to listen without judgement as part of the process of reflecting, entertaining and exploring new information presented (i.e. without dismissiveness).

Engaging: Students enter the field and employ any number of sensory-based (CWN) activities which, in shedding default analytical 'lenses' and 'labels', pulls them into raw pre-reflective participation with the surrounding natural environment. Students may be asked to carry out a 'sit spot' in a stand of IAS, be guided blindfolded to an IAS and asked to describe their sensory impressions, be invited to creatively write a poem or draw the detail of an IAS or simply to 'be' with the IAS for an extended period of time.

Edging: Engaging in the ways described is likely to create dissonance with past patterns, particularly if experiences (e.g. favourable sensory impressions) do not support the knowledge or beliefs held (e.g. 'all IAS are bad'). In being encouraged to release these now instinctive patterns of judgement, students edge out of their rational and reasoned comfort zones toward a more affective and intuitive CWN.

Emerging: In deepening CWN through various (unstructured) ways (Table 38), students are left to find or create a space through which to find presence and connect with their inner knowing. For example, an extended contemplation, meditation or 'sit spot' seated before or among IAS may eventually give rise to new meanings and understandings of IAS in a specific context. This phase need not be removed from scientific observation: in fact, as Goethe conceived and practiced science, its highest objective is to awaken the feeling of wonder through extended contemplative observation (*Anschauung*), in which the scientist would come to see the divine in nature and nature in the divine (Naydler 2000 in Max Neef 2005). Therefore, during this phase, students remain attentive for answers to questions such as "What understanding wants to emerge here?" "What aspects of IAS can I learn from and seek to integrate?"

Embracing: In gradually leaving their presencing space, students take the necessary time for simply allowing new information to come or 'be born' without coercion. Students retain their openness in order to arrive at a 'knowing' of what to do with and how to apply their cumulative learning - a necessary harmonized blend of knowledge (e.g. logic, reason), experience (e.g. sensation, emotion, intuition) and insight.

[171] This simplified example applies *Theory edU* (Figure 21) to an *education in connectedness* aimed at shaping IAS perceptions and action. Additionally, these phases of *Theory edU* as described here can help move the student through the *Q4-CAT* four-quadrant typology outlined in the following section (i.e. toward connected action (Quadrant 4)).

Embodying: Students experiment with various practices across diverse contexts. This phase maintains integration of rational thought and relational reflection and emotional affinity and hands-on action (head, heart and hands). For example, students may participate in a local IAS removal weekend as a means of prototyping new 'ways of being and doing' the required activities. They may share their recently acquired insights with others present in order to elicit feedback. They may initiate their own IAS activity session.[172]

Evolving: Students can use this transformative learning process to strengthen and affirm their CWN, presencing together with Nature such that they remain open to both the 'call of the world' and their Self.

The above represents one 'ideal' process; in everyday reality, educators in most contexts may only be able to progress as far as 'engaging' or 'edging'. Nevertheless, even attaining these steps has potential to make substantial gains in opening perceptions and laying the groundwork for CWN. In fact, it is almost a prerequisite that this left-arm of the *Theory edU* be traversed multiple times before effectively moving into the deeper phase of 'emerging' which prefaces the all important action-oriented phases to follow.

With respect to IAS, it is possible that students' final actions or resolve resulting from this process may not be overly different from that with which they had before embarking on *Theory edU*. From a product or output-based approach, it may be therefore seem like a fruitless exercise. However, what is likely to have changed is the guiding intent or motive from which action springs. What this process fundamentally sets out to achieve is that future actions may be performed from a state of connectedness, as opposed to operating solely from either detached rationality or overpowering emotion. It is a complementary and integrative process which ensures that complex problems such as IAS management utilize the array of human faculties to discover *different ways of knowing*. *Theory edU* lays foundations for exploring these possibilities.

6.5.4.2 Action typology (Q4-CAT)

The *Q4-CAT* in tandem with *Theory edU* aims to shift IAS orientations from apathy to action. The *Q4-CAT* draws on emergent themes from this research and personal observation and experience in recognizing that people tend to lean toward one of four distinct orientations toward IAS. These orientations are separated along lines of (dis)connectedness and (in)action with disconnectedness often underpinned by stronger cognitive (mind / logic / reason / ego-) driven patterns and connectedness to be driven by more affective (heart / intuition / emotion / Self-) concerns (Figure 29) (Sections 2.2; 5.3.5). Further, each quadrant tends align with a type of 'knowing' on a continuum of: *information*, *knowledge*, *understanding*, and *wisdom*.

The four-quadrants of the *Q4-CAT* could function as a stand-alone typology. However, the purpose here is to provide a typology and framework for recognizing or identifying stages and then moving through these various stages in order to be able to perform from a state of wholeness which compels responsibility through action. In this regard, the *U curve* (as proxy for *Theory edU*) is used to illustrate a (possibly idealized) way through which the quadrants may be traversed (in an anti-clockwise direction) (Figure 29).

[172] ***Note:*** this is an ongoing iterative process which will usually be beyond the scope of formal educational settings and may either require follow-up sessions or rely on students' own volition in their own time.

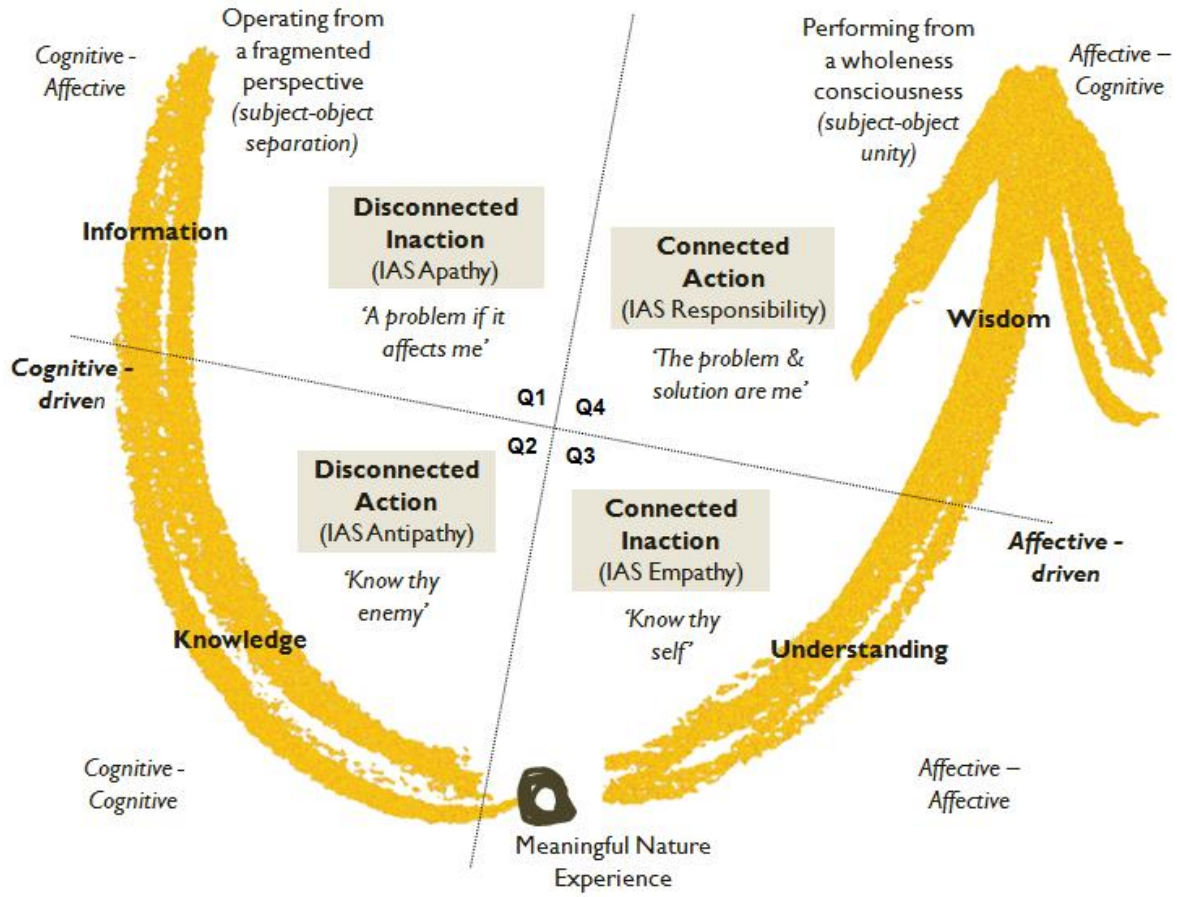


Figure 29: The four-quadrant connected action typology (*Q4-CAT*)

Quadrant 1 – Disconnected inaction: *Quadrant 1* represents those persons furthest removed or least concerned about issues surrounding IAS. In many cases, these persons may have a peripheral awareness of IAS based on *ad hoc* encounters with relevant *information* or 'facts'. This information tends to have limited impact since the general attitude toward IAS is likely to be one of apathy in the sense that 'it is only a problem if and when it affects me personally'. Such an attitude is congruent with patterns of disconnectedness whereby persons habitually (consciously or unconsciously) operate with a detached or fragmented perspective which alienates themselves as *subject* from nature as *object*. Persons often associated with this quadrant include disconnected city dwellers, industrialists, developers and farmers primarily focused on securing economic returns from their agricultural activities. Whilst predominantly based on personal (albeit sometimes misguided) logic and reason, persons situated at the very top of the *U curve* may also be prone to view or form decisions based by emotional reactions.

Quadrant 2 – Disconnected action: *Quadrant 2* is possibly the most contentious categorization since it may be applicable to academics and practitioners involved with endeavours with a strong (natural) scientific base (including conservation). This quadrant is dominated by cognitive functions such as logic, reason and rationality which find symbiosis with *knowledge* generated through the scientific method. Persons in this quadrant tend to display an aversion - sometimes bordering on hostility – toward IAS and, as a result, may (consciously / unconsciously) employ volatile language or metaphor to express their views (Section 5.3.5.4).

Whilst notions of interconnected social-ecological systems may be accepted in theory, an overemphasis on cognitive functioning (i.e. logic, reason) appears to have the unintended effect of perpetuating the subject-object dualisms (entrenched in scientific method) and thus dilutes or displaces CWN. Based on their growing knowledge, these persons tend to demonstrate a zealous commitment to action in order to 'win the war' against IAS, 'the enemy'. As a result, bouts of emotion may fuel an otherwise cognitive motivation.

Quadrant 3 – Connected inaction: *Quadrant 3* moves toward more connected states of being which can be initially characterized by a shift from knowledge to *understanding*. This does not insinuate that persons more aligned with *Quadrant 2* have little or no understanding; rather, it picks up on Max-Neef's (2005) foundations for transdisciplinarity whereby 'understanding' is conceived to be only "that which you become a part, when the Subject that searches and observes becomes inseparably integrated with the Object searched and observed." Or, as Goethe, conceived and practiced it, *Anschauung* - contemplative looking where the person (e.g. student, scientist) comes to see the essence of themselves in nature and experience the essence of nature in themselves (Max-Neef 2005). In this realm of understanding, no 'problem' exists; but instead just different relations and transformations of an integrated subject-object (Max -Neef 2005). This is the basis for connectedness. In this mode, one can find empathy for IAS since IAS are no longer cast as separate entities or objects from our subjective selves – knowing our self (and our society) helps us to know IAS and knowing IAS help us to know our self (and our society).

In following the *U curve*, entry into *Quadrant 3* may be prefaced by a MNE or other type of revelatory *Anschauung* which shatters the boundaries that previously confined persons to the perceptual realities beheld in *Quadrants 1 or 2* (e.g. see Ashwell 2010)[173]. In what may be akin to a polarity 'flip' (in the sense of the sudden shift out of intense cognitive processes and toward affective experience), this also marks point where emotion and intuition may be strongest and most influential on perception. However, in this newfound state of unity awareness and connection, the notion of IAS removal and destruction may (now) appear abhorrent. Alternatively, new insights about 'Self' may become stuck in whirlpool of narcissism (Appendix 9.17). As such, *Quadrant 3* may be characterized by (a period of) inaction: IAS are not perceived as the 'problem' (that they were). Or, if they are, greater ethical, emotional or personal concerns impede a willingness to act. In IAS' unlabelled 'is-ness', there is a love, empathy and affinity for what lives. There is no 'wrong' - everything is one and as it is in this moment of evolution.

Quadrant 4 – Connected action: *Quadrant 4* is that which we aspire toward as enlightened ecologists, ethicists, educationalists and activists. It represents that state of consciousness which *performs* from a perspective of wholeness. Drawing on diverse direct experience, persons in *Quadrant 4* have effectively transformed information, knowledge and understanding into *wisdom* – an understanding which is embodied,

[173] This does not infer that persons finding affinity with *Quadrant 3* previously passed through *Quadrants 1* and *2*. Some persons (or personality types) will naturally gravitate toward *Quadrant 3* just as some persons' life experiences or personalities will pull them toward worldviews associated with *Quadrants 1* and *2*. In this regard, the ecologist vs. 'bunny-hugger' confrontation (Box 28) may be understood as a clash between *Quadrants 2* and *3*.

lived and enacted. As such, persons in *Quadrant 4* draw on other Quadrants to 'know' that the challenge of IAS is not 'out there' but is tightly woven into their everyday choices and actions. This knowledge demands responsibility and, alongside deepening understandings of social-ecological interconnectedness, *Quadrant 4* persons 'know' that the fate of ecosystems is ultimately their own fate. This compels action in the interest of human (social) and other-than-human (ecological) communities.

Persons in *Quadrant 4* are no longer consumed by affective dimensions but yet use their strong roots in emotional affinity and CWN to motivate the required ERB toward IAS (which draws on prior knowledge and understanding). Balancing cognitive and affective facilities (e.g. reason / emotion and logic / intuition), these persons understand the importance of Bohr's *Contraria sunt Complementa* (Section 6.5.2) As such, the affinity that *Quadrant 4* persons may feel for an individual IAS is supplemented with the affinity felt for the integrity of entire ecosystems – a realization that the 'part' must be harmonized or sacrificed to preserve balance of 'the whole'. Yet this does not imply defining certain species as inferior but rather cultivates solidarity for those that are foreign (different or 'other') (Le Grange 2012). The resulting actions (guided by an *education in connectedness* and a 'reconciliation ecology' (Miller 2005) are performed with mindfulness, respect and humble acceptance that it is largely through human ignorance that atonement (through a form of 'sacrificial love') is warranted. Yet it is understood that this still may not, in absolute terms, represent 'right action' but instead 'right volition': a well-informed and intuitively-inspired good intent. For complex problems like IAS, replete with their ethical dilemmas, diversity of perspectives and imperfect knowledge, 'right volition' may be the best we can aim for at a given point in time.

It is imperative to understand that individuals cannot and should not be pigeon-holed into one of these four quadrants. Rather, it is more realistic to expect that persons will often migrate between the four quadrants depending on factors such as knowledge and/or affinity toward particular IAS and/or stage in life.

Image 20: Wattle we feel, wattle we do: This saunter through a forest of black wattle (*A. mearnsii*) prefaced a group reflection on the impact of IAS on experience as part of a multi-day wilderness trail for local community in the Baviaanskloof Mega-Reserve (2010).

See Appendix 9.20 for stepwise guidance on integrating ***traditional ecological knowledge*** *into Theory edU.*

Summary and key messages for Chapter 6

This chapter tied in various research strands and insights in order to put forward applied implications for *meaningful nature experience* (MNE). Two foundational realizations were that:

i) The real value in MNE is in providing a gateway toward a sense of connectedness (with nature (CWN));

ii) The real value in connectedness is in its utility:

- As a cornerstone in education for sustainability (EfS) (and by default sustainable behaviour) ; and
- To integrate and transcend 'sustainability' and open pathways for the actualization of 'Self'.

Therefore the real pedagogical pursuit is to create and implement an education in connectedness (as the real EfS). In this chapter, connectedness encompasses connectedness with Nature, Self, Community and Source.

- MNE provides an empirical gateway to connectedness;
- Connectedness is fundamental to education for sustainability;
- Connectedness with Nature is pathway and partner to connectedness with Self (for self-actualization)

As an adaptation of *Theory U* (Scharmer 2009a) ***Theory edU*** is proposed as a methodology and framework for integrating and applying three foundational processes of: *connecting*; harmonizing; and *becoming (self-actualizing)*.

- *Process of connecting*: consists of *embarking* (on a journey); *elevating* (awareness above past conditioning / judgements / belief structures); *engaging* (with sensory awareness and interactive experience in nature);
- *Process of harmonizing: edging* (to the limits of comfort zones) and *letting go* (of past patterns of behaviour); allowing an inner knowing (from tuning into Nature, Self and Source) to *emerge* and *embracing* the future;
- *Process of becoming: enacting* (on new information and insights from the *process of connecting / harmonizing*); *embodying* (new futures and ways of being); and *evolving* (in accordance with Self truth, path and purpose).

Each of these processes is accompanied by theoretical literature, experiential activities and personal experiences.

Theory edU seeks educators to recognize that:

- Their own commitment to and embodiment of connectedness and becoming is imperative for instilling the same in their students (based on neurological understandings of mirror neurons and *intentional attunement*);
- *Mentorship* is at the heart of education and *Theory edU* and consists of various roles and styles which allow mentors to awaken and extend student's learning capabilities, sense of connectedness and purpose in life;
- An effective *education in connectedness* requires a culture of support whether that is found through family, educational and institutional settings or through dedicated communities of practice;
- Whilst simplified as a somewhat linear process, in reality *Theory edU* is linear, organic, cyclical and fractal;
- Destructive dualisms can be bridged and integrated within a *both/and* mentality which balances opposites.

Theory edU finds common (natural, archetypal, universal) ground with other learning or life journeys as described by various scholars or traditions.

In *Theory edU*:

- MNE may be encountered within any stage of the process of *connecting*, *harmonizing* and *becoming* and, depending on interpretations (nuanced in space-time), they may provide additional leverage for mentoring.
- Orientations and perceptions toward invasive alien species (IAS) can be characterized in a four-quadrant typology (*Q4-CAT*) and, equally, *Theory edU* processes can be applied as a way of moving learners toward 'Connected Action', whereby they assume personal responsibility for taking action toward IAS.
- *Traditional ecological knowledge* (TEK) should be included to support learning outcomes (Appendix 9.20).

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...In trying to solve some of the constellation of attendant problems here...it seems clear that by cutting ourselves off from nature, by turning nature into scenery and commodities, we have cut ourselves off from something vital. To repair this damage we can't any longer take what we call 'nature' for an object. We must merge it again with our own nature. We must reintegrate ourselves in specific geographic places, and to do that we need to learn those places at a greater depth than any science, Eastern or Western, can take us. We have to incorporate them again in the moral universe we inhabit. We have to develop good relations with them, one that will replace the exploitative relations that have become a defining characteristic of twentieth-century Western life...

~ Barry Lopez (2003: 164-165)

7 Summary: scientific, personal and final close

The outline of this final chapter is based on: i) Moustakas' (1994) and Creswell's (2007) recommendation for a summary, implications and outcomes with statements about how findings compare with literature, limitations of the study, future recommendations and the inclusion of a creative closure that speaks to the essence of the study and its inspiration to me as the researcher; and ii) Silverman's (2010) ideal of a dissertation conclusion that, in striking a balance between confessing errors and proclaiming achievements, connects findings to the broader (theoretical and practical) issues with the (inter / trans)disciplines and provides an imaginative and/or stimulating conclusion (in Stonehouse 2012a). This chapter therefore begins with the scientific close - consisting of theoretical, practical and methodological implications, limitations and recommendations – followed by a close disclosing personal the essences from the study. The section concludes with a concise three-page final closing, synthesizing the entire study's key results and messages.

7.1 Scientific close: theoretical and practical implications

This study brought together four concepts: *connectedness with nature* (CWN), *invasive alien species* (IAS), and *education for sustainability* (EfS) – all of which were explored around the core theme of *meaningful nature experience* (MNE). In adopting a transdisciplinary approach, this research integrated diverse disciplinary perspectives but ultimately drew most from conservation ecology, (eco-) psychology and education (for sustainability) and was underpinned by a phenomenological orientation. This hybrid dissertation accepted the primacy of human perception and experience in shaping our being in the world. It remained attentive to the realm of *mindscape* (i.e. the makings of the inner 'reality') and recognized that regardless of whether perceived phenomena actually exist (i.e. in *matterscape*, physical 'reality'), they nonetheless have agency over persons' thoughts (e.g. motivations, attitudes) and actions (e.g. behaviours, practices).

This research probed novel territory. Trialling a transdisciplinary approach within a single study format, it sought to investigate MNE and CWN - topics that remain relatively fringe within the current conservation and EfS discourse. It seeks to open dialogue both within and between science and society on the relative importance and relevance for ERB and, more broadly, EfS as part of an actualization of human potentials.

The most important theoretical and practical implications - as they pertain to EfS – are already embedded in Chapter 6 as a form of transdisciplinary integration that makes scientific knowledge useful and relevant for societal praxis (cf. Jahn 2008). Therefore, this chapter uses the core concepts of the research (as they relate to the research questions) to orient reflection on more explicit theoretical and practical implications of the study. The theoretical and philosophical underpinnings of this study (i.e. transdisciplinarity and complexity, and phenomenology, respectively) are addressed in terms of how they were applied in the context of this research and what lessons were learned.

Table 43: Summary of key theoretical and practical implications as linked to core research themes

Research theme	*Theoretical implications*	*Practical implications*
Connectedness with nature (CWN)	Disconnectedness is driven by psychological and physical separations from nature. CWN involves all aspects of consciousness: cognitive (incl. perception), affective and behavioural (and experiential) dimensions. Empirical validation on the effectiveness of various practices for CWN is needed. CWN evaluation should reflect the extent that a person's thought and actions embody understandings of interrelatedness and are coupled with respect and responsibility. CWN is distinct from - yet emerges out of - *information about nature*, *experience in nature* and can be deepened as *committed CWN*. CWN instruments may be improved by drawing on the core attributes of CWN, qualitative themes arising from this research and testing / adapting cross-culturally.	CWN is praxis-oriented but must address 'head', 'heart' & 'hands' for individual action with a view to effect collective change. CWN brings multiple benefits for physical and psychological health and well-being and motivates (and can be a predictor for) ERB. Some CWN practices can be contextualized to fit a classroom situation when needed. CWN should be framed as being core to conservation and sustainability concerns. Conservation researchers and practitioners can benefit from CWN as a buffer against perceived ecological destruction, crises and as an embodiment of sustainability itself. The implementation of CWN is too vital to be left to the discretion of decision-makers distanced from an experiential appreciation of its value. Individuals must collectively act.
Meaningful nature experience (MNE)	The themes and structures illustrate the diversity of MNE, the essential ingredients and create a basis for shared meaning. Primary (sensory) and secondary (reflective) perception and as referenced against mental concepts defines qualities of the experience. In being entwined with CWN and, possibly linked with ERB, MNE should be considered in broader intervention / change strategies.	MNEs' traits allow learners & practitioners to identify with experiences as well as providing beacons for creating their own. Drawing on key MNE structures, practices should facilitate, e.g. focused attention; openness & discovery; respect & humility; novelty; appreciation of beauty; group and solo time; a sense of being a significant interrelated part of something bigger.
Invasive alien species (IAS)	Understanding the perceptual / conceptual components of IAS in *mindscape*/ *powerscape* highlights areas of dissonance with MNE. Language used within invasion biology can influence IAS perception and experience and how 'problems' are framed across realities of, .e.g. *mindscape* and *powerscape*.	Existing presence IAS stands can be utilized to support place-based EfS learning. Educating on IAS demands sensitivity to language and (social) metaphor which can either support or undermine CWN. Leveraging CWN can support responsibility for taking action on IAS in one's local area.
Education for sustainability (EfS)	*Theory edU* provides guidance for how EfS can be theoretically conceptualized as an *education in connectedness* which can be understood and applied at various scales.	EfS should integrate intellectual concepts, experience activities and active reflection on moral & values as part of practice-oriented learning approaches which support CWN. In the *Theory edU* context, *EfS* is a process of connecting with Nature, Self & Source to bring potentialities back into Community.

7.1.1 Theoretical implications

7.1.1.1 Connectedness with nature (CWN)

The comprehensive interdisciplinary literature review (Section 2.2) of CWN was motivated by:

i) The realization that the human disconnect from nature is at the heart of social-ecological crises;

ii) The observation that the phrase "reconnect with nature" is often used in scientific and popular discourse with little clarity on what: CWN involves; benefits may be derived; practical outcomes are desired and, most critically, what CWN's relevance is to conservation and sustainability; and
iii) The need to affirm that CWN was in fact a construct worthy of pursuing in relation to MNE and EfS, specifically in related to its purported benefits and in being a reliable predictor for ERB.

The breadth literature on notions of CWN went far beyond personal expectations and this, in itself, instilled a realization that many of solutions we desperately seek are already 'out there' as theoretical knowledge but lack translation, dissemination, communication and application with a view toward effective implementation. Much of the writings on CWN are dispersed across disparate disciplines and therefore neither distilled nor framed in a way which makes them readily accessible to either environmental science or broader society. Whilst considerable work has been done in articulating the drivers for the human disconnect from nature and emerging relationships between CWN and well-being, little guidance exists within scientific literature (particularly in conservation and EfS) on accepted and empirically validated practices for cultivating CWN. In fact, science seems mostly mute on the matter.

A key theoretical outcome of the CWN literature review (Section 2.2) was the finding that the severance and maintenance of the human disconnect from nature can be understood as being a fusion of either *physical* or *psychological* factors. In the same vein, it was apparent that human perception is also very much a marriage between these two realms and therefore any attempts to reconnect must focus on these necessary complementarities. Furthermore, humanity's separation from nature has been cast as a cognitive or perceptual split and, increasingly, as an emotional detachment. However, the findings revealed that the human-nature disconnect pervades all aspects of our intellectual-perceptual-emotional-experiential nexus and led me to propose the operational guidance for understanding CWN in a contemporary context:

CWN is a stable state of consciousness comprising symbiotic cognitive, affective and experiential traits that reflect a sustained awareness of the interrelatedness between one's self and the rest of nature. CWN is the extent to which thoughts (e.g. reflective perceptions, conscious or implicit attitudes, or cognitive beliefs) and actions (e.g. instinctive, reflexive, reasoned, intentional or cultural practices) embody the relatedness between humans and nature and reflect a sense of personal responsibility, respect and reverence for all life over varying (temporal and spatial) contexts.

Building on Young (2011), it seems theoretically prudent to conceptualize as CWN as existing on an continuum preceding (and also consisting of) *information about nature*, *experience in nature* and followed by *committed (or deep) connectedness with nature* (Section 0, Figure 2). This distinction helps to better clarify whether efforts aimed at measuring or educating are in fact targeting CWN. Additionally, it serves to guide the development of measures and criteria for evaluating CWN in that CWN should consist of intellectual, experiential, emotional, perceptual and possibly spiritual dimensions. In some ways, CWN may be seen as an emergent property arising out specific combinations of information and experience.

The theory of isolating and validating CWN as a construct is still evolving and researchers seeking to improve instruments are advised to consider how the core attributes of CWN (Table 3), the established practices of CWN (Table 4) as well as the way in which CWN entwines and is emergent from MNE (Section 4.5.1.7) might be used to improve current CWN instruments. For example, additional or amended statements (used in the scales) might be needed to more fully capture what CWN is or might be (or, rather, what it is *becoming* - see Section 7.1.3.3). Furthermore, this research highlights that CWN is cannot be fully captured with quantitative instruments alone and assessment of CWN should be complemented and validated by a qualitative component - at least to 'insure' against methodological limitations. Qualitative dimensions are particularly important if CWN constructs are to be applied in other cultural contexts. Doing so may also reveal certain biases inherent to Western worldviews and conceptualizations of CWN.

7.1.1.2 Meaningful nature experience (MNE)

Unlike other studies examining MNE in a set location (e.g. Frederickson & Anderson 1999; De Wet 2007; Morse 2011, 2013), this study, in opening a broad exploration of MNE and their typology, did not prescribe geographical or contextual boundaries. The aim was to gain insight into the commonalities of MNE across contexts and allow for identification of themes and structures which might find greater shared meaning. Given that this investigation was somewhat removed from 'place', i.e. a specific locale common to every experience analysed, it inevitably makes finding an *invariant structure* - that which is essential to the MNE - very difficult and possibly unobtainable. Indeed, the responses illustrated the rich and, literally, extra-ordinary diversity of MNE. This reemphasizes that there is no defined range of homogenous experiences 'out there' ready to be harvested and consumed; rather, MNE grows out of undisclosed interactions and intimate exchanges between nature and psyche - a co-created process promising infinite indistinct possibilities with highly distinctive outcomes emerging from the fluidity of the human-nature transaction.

As Morse (2011, 2013) finds, and as identified for CWN, this speaks volumes of the role of perception in forming the essences of experience. It again highlights the important distinction made between perception as existing simultaneously in the sensorial immediacy of experience and in the mental reflective field of memory (Box 2). For both, perception is constantly filtered by and referenced against mental concepts or models. This intricate blend manifests meaning and, when known concepts are transcended or challenged, it allows for a 'something more' to imbue the phenomena and infuse profundity. We cannot access the mind of every individual to understand how phenomena are perceived; however, the phenomenological exploration of MNE was able to reveal much of what is perceived by the *experiencing self* but, and possibly more importantly, that which is recalled by the *remembering self* (cf. Kahneman 2010). From a theoretical perspective, the results demonstrate the interpretive power of mental concepts (in *mindscape*) in defining and forming every experience. Yet, in acknowledging the primacy of perception in interrelating with the world (cf. Morse 2013), this research highlights that concepts to support MNE are shaped through how we physically 'be' in and attend to a world of subjects (in *powerscape* and *matterscape*).

The phenomenological analysis found that MNE is influential for the persons involved; however, the 'how', 'how much' and 'to what end' (i.e. 'so what') remained unclear. Subsequent analysis (Sections 5.1 and 5.2) employed conventional quantitative and qualitative analysis to reveal that MNE is related to - and entwined with - CWN as well as perceived to effect important changes in respondents' attitudes, behaviour and overall life outlook. These results strongly support the view that MNEs are more than 'just' rich sensory or emotive experiences and, in motivating ERB or a conservation career path, may make tangible gains toward the sustainability ideals sought in conservation and education.

7.1.1.3 Invasive alien species (IAS)

The primacy of perception in shaping experience, attitudes and behaviours is brought to the fore with the social-ecological challenge of IAS. From the sensory-based aesthetic desire for 'beauty' to the reflective conceptual collide in recognizing uncomfortable metaphors between ecology and society, it is evident that IAS are as much a problem in matterscape as in mindscape and powerscape. Once the conceptual concept of IAS as being 'bad' is etched into perception, it has every prospect of undermining MNE. However, given that experience of IAS can in itself become a MNE, this research again highlights the importance of direct experience in changing perception. From a theoretical perspective, it is important to know what aspects of the experience instigated such a shift and how the concepts in mindscape which were fractured can be supplanted by other concepts which support connected action and responsibility for IAS (

Figure **31**). This research reinforced concerns voiced by, e.g. Larson (2005, 2010) and Simberloff (2003, 2006, 2012b) that the field of invasion biology should reflect on the language employed in both theory and practice. Language is always coupled with concepts - indeed, it forms them. We must therefore be aware of the subtle yet pervasive ability of language to colonize mindscape and powerscape with concepts which might ultimately be at cross-purposes with conservation goals, particularly those relating to the formation of new human identity that can be articulated in terms of CWN (Carruthers et al. 2010).

7.1.1.4 Education for sustainability (EfS)

The theoretical implications of this research have been largely covered through its transformation as *Theory edU* and an *education in connectedness* (Section 6.3). Indeed, the implication arising out of this research is that any *education for sustainability* (EfS) should, at its core, be an *education in connectedness* (EiC) (Chapter 6). Whether EfS or EiC, it appears necessary to think of such education as a union between intellectual concepts, experiential activities, reflection on values, belief and morals and an exploration of learning approaches (including exposure to different knowledge systems, e.g. TEK, and ways of knowing, e.g. intuition) which facilitate the effective delivery of each. As found with IAS, we should be aware of the language employed in constructing theory; it should avoid suggesting that connectedness or sustainability is something outside of education and ourselves.

A fundamental point is that the educational aim is not MNE *per se* but rather CWN as a precursor and grounding for tapping into living a more purposeful and fulfilling life. The presentation of *Theory edU* was contextualized with both theoretical and practical guidance for implementation as well as personal reflections on lessons learned during processes of experimentation. It was found to have universal, archetypal and fractal traits – in terms of its essence being scalable to courses of varying length or applicable to processes comprising a lifelong learning journey.

7.1.2 Practical implications

This research was explicit in its intent to ensure that practical implications and outcomes could be identified at its conclusion. Such an objective is naturally congruent with a transdisciplinary approach but it is also a response to the repeated calls in literature to bridge the knowing-doing divide shackling the effectiveness of the conservation endeavour (Knight et al. 2008; Biotropica 2009; Esler et al. 2010).

7.1.2.1 Connectedness with nature

CWN is inherently praxis-oriented and any attempt at cultivating (committed) CWN must involve activities addressing all dimensions of consciousness: intellectual concepts providing new or alternative perceptual frames, experiential activities supporting / challenging such concepts and, in the process developing knowledge of place, form enduring emotional bonds with nature. Whilst action is needed at both individual (personal) and at collective (societal) levels, it is an individual's CWN and the inner transformations which may inspire themselves and others and that is likely to drive and sustain change within a community.

Diverse potential activities and opportunities relevant to practice have been explicated in this dissertation as well as being implicated in the MNEs which formed the phenomenological analysis. However, some may argue that, in a southern African context, many might appear unfeasible. Whilst educational institutions need to give far greater attention to CWN and the benefits of direct nature experience, educators can, at the very least, allow time for tuning sensory awareness at a 'sit spot' in any kind of nearby nature. Failing that, bringing nature into the classroom as part of activities stimulating creative, observational and imaginative faculties of learners may be a valuable first step.

Empirical evidence supports CWN as a reliable predictor for ERB as well as a range of other indicators for psychological performance and physical well-being. The implications for conservation practice and EfS are self-evident and demand to be recognized. Additionally, CWN may benefit conservation and EfS by: building hope and psychological resilience in the face of crisis addiction; buffering against the despair felt when being confronted with images or messages of ecological destruction; and constitute a more positive and enduring motivation for ERB; and providing an accepted avenue for tackling 'fuzzy' issues often avoided in conservation research and practice. Yet it is evident that in a neo-liberal culture which increasingly considers 'green as extreme', sustainability advocates and activists need to remain positive yet prudent in

how arguments endorsing CWN can be framed to citizenry and decision-makers in a way that strikes a precarious balance between 'reaching out' and 'selling out'. We can ill afford to allow the accepted baseline for what constitutes acceptable CWN to be continuously ratcheted down by a dominant culture which, enraptured by the fetishes of unbridled consumerism, may soon be deficient of any real desire or ability to comprehend why CWN is important at all.

7.1.2.2 Meaningful nature experience

This study sought to plumb the depths of MNE to create a shared portrait of what the experience of this phenomenon is really like. Before considering potential impacts and influences of MNE on behaviours as they manifest in the physical world, it was considered crucial to dwell on the immediacy of experience as lived in the fluid perceptual realm of images, symbols, patterns and meaning. It is experience which moulds consciousness and, as revealed in this research, a consciousness attuned to – *and 'tuned' by* - natural phenomena should be a fundamental aspiration for humanity at this moment in history.

The essential qualities of MNE created a 'resonance of meaning' (cf. van Manen 1990) which could be assimilated with a sense of '*I identify with that – it speaks to me'*. In highlighting these essential qualities of MNE, educators and facilitators may be better positioned to cultivate MNEs for students. Such efforts may also enable educators to fall into empathetic relation with students as part of their own *process of becoming*.

The phenomenology of MNE (Chapter 4) distilled multiple themes, variables and structures which may be of interest to the educator, facilitator and/or guide (for, e.g. tourism or wilderness experiences). These individual findings cannot be broadly generalized outside of the specific context from which they were derived. However, in revealing common themes over multiple stories, there are elements which (with further testing) may act as a point of reference for designing learning journeys or enabling experiences which embody themes found in this research as being conducive to MNE and its impacts (Morse 2011). As Dewey (1938) maintains, educators need to be aware of: i) which types of physical and social settings are most conducive to supporting learner's growth and ii) how to extract and utilize qualities from a range of settings in order to build up worthwhile experiences.

For example, it was revealed that MNEs may be associated with both physical and non-physical activity; however, at a deeper level, both types of activity may have, in their own way, been *focusing attention* and thus disrupting the perceptual equilibrium and the *modus operandi* of consciousness. Educators can therefore consider activities which eliminate distraction and encourage focus and awareness on, e.g. body, mind or objects in nature. Again, a silent 'sit spot' in nature is a simple and effective way of achieving this. Similarly, in finding that certain states are aligned with MNEs, of particular pertinence for both MNEs in general and *synchronicity as a MNE* an *openness* to what may or may not arise. This is difficult for an educator to guarantee; however, apart from gently encouraging students to remain open and non-dismissive to whatever sensations or experiences may arise, it can be aided by refraining from giving too

much prior information which might pre-empt or colour perceptions, create false expectations or, even dictate the type of experience the student may be likely to have and thus deny students "the immediacy of discovery" (Morse 2011: 258). Conversely, openness can sometimes be secured by presenting compelling information which goes against ingrained beliefs or tendencies and therefore serves to open up new possibilities in the mind of the student (e.g. as exposed though TEK). It is important for the educator to consider under which contexts an 'experience-first' vs. an 'information-first' approach will have greatest effect. Personal trials have found that a three-step: i) experience; ii) then information / concepts; and followed by iii) another deepening experience often works best. Over time, sustained openness across a variety of contexts can foster dispositions of *respect* and *humility* which also seems too often supports MNE.

The duration of the MNE (i.e. *length of time*) is important but is heavily dependent on program aims, flexibility and structure. Outcomes of a one-hour wander through the local nature reserve cannot be expected to reap benefits comparable to a seven-day wilderness trail. When only brief outings are possible, the educator will need to be more proactive in prescribing activities which 'create the space' for CWN, MNE and reflection, even if the activity itself is unstructured. For longer periods, minimal structured facilitation may be required and the educator can almost 'let nature do the rest'. Despite cost and logistical barriers, the rewards from longer excursions are substantial. However, note that 'extended' is relative and for nature-deprived persons, the *novelty* of even 15 minutes of sitting still could achieve significant gains.

The social setting may be highly influential but no 'one best way' emerged. Solo and shared experiences both have value in the appropriate context. However, a nuanced blend could bring the most benefit, e.g. a solo experience followed by group reflection, or a shared experience (preferably with 'a significant other') followed by a period of contemplation. The role of the educator in encouraging subsequent enquiry or interpretation may amplify the meaningfulness but this needs to be performed with care and sensitivity.

Under the right conditions, MNE can occur any place or time. However, without guarantee of important personal variables (e.g. state of mind, intense emotions), the situational variables of the natural settings are key. Those that can deliver *a sense of remoteness* or vastness and which may, in turn, induce a sense of humility or *vulnerability* seem most conducive to cultivating MNE. Additionally, exposure to environments which distinguish themselves by their 'purity' or *naturalness* such that they inspire feelings of awe, beauty and *appreciation* are also powerful conduits. In this respect, settings which afford the possibility of 'natural' (i.e. uncontrived) *close-up* encounters with wildlife are particularly effective. Ultimately, any setting that diminishes one's sense of self-importance as an interrelated *part of something bigger* is recommended.

Naturally, the opportunity to be able to access settings which allow (situational) variables to conspire to be able to form MNE in the first place is paramount. As referred to below and elsewhere in this study, in a South African context such opportunities are much harder for historically disadvantaged persons to obtain. Poverty and remnant systems of social injustice continue to form 'barriers' (if not in 'reality' then at least in one's mind) that limit or exclude the extent to which certain natural areas can be accessed and enjoyed.

Some MNEs (e.g. synchronicity) are obtainable in less nature-rich areas and this may be incorporated into the respective belief system in its own way (e.g. as a message from the ancestors). However, without regular nature experience, the natural world and its life forms may become increasingly feared and/or neglected since their relevance to individual and community well-being and cultural practice is diminished.

On the other hand, it cannot be assumed that individuals with greater discretionary income are assured of accessing MNEs. Whilst these persons clearly have greater freedom of choice, that freedom is increasingly curtailed by perceived systemic barriers (e.g. busy lifestyles) and persuasive alternatives (e.g. spending free-time indoors) that further divert them from the natural outdoors. With changing recreational patterns toward shorter but more frequent holidays (H. Lemelin pers. comm.), the development of a 'satisfaction-on-demand' mentality may limit the extent that authentic MNEs can be derived, particularly if a 'wow' experience is sought as an end in itself, whereby accompanying processes of CWN are seen as expedient. Furthermore, those that do seek out wilderness experiences may do so with a mindset adverse to CWN, e.g. a dominionistic 'overcome the elements' intent (possibly with the aid of the latest outdoor equipment). As 'wilderness' increasingly assumes a 'commercial persona', we are more likely to consume experiences as we might consumables: i.e. rapidly, repeatedly and thus superficially, particularly if such outings primarily serve to enhance our persona on social media outlets (Curtin 2005; Dell 2009; H. Lemelin pers. comm.).

7.1.2.3 Invasive alien species

Earth's unprecedented loss of biodiversity has a multitude of adverse impacts. The urgency to reverse this trend takes on greater significance when the impacts on the quality and frequency of MNE are considered. As a severe threat to ecosystem services and biodiversity, IAS may have a chronic effect on MNE. However, the practical implications are slightly more complex and counter-intuitive than expected. Like MNE, the perceptions of IAS are informed by the unpredictable and sometimes volatile interfacing between the subject (person) and the object (the IAS). More specifically, these experiences are based on information about and within the physical landscape (*matterscape*) but which is heavily influenced by the information, language and concepts embedded in a disparate social-cultural (*powerscape*) and psychological (*mindscape*) 'realities' (Jacobs 2006). Therefore, whilst IAS are generally perceived as detrimental to one's propensity to derive MNE (and this would support their continued eradication), they may, under various contexts, fuel an MNE and contribute to personal wisdom and understanding of interconnected social-ecological systems.

In this respect, the most critical practical implications reside with 'the how 'rather than 'the what'. Given the extent of IAS populations, this study does not call into question their continued management. However, it flags three key implications: i) utilize existing IAS presence as part of experiential and reflective EfS (*Theory edU*) processes which aim to change perception, cultivate and potentially catalyze a MNE (Section 6.5.4.1); ii) approach IAS education with sensitivity to the language and (social) metaphors which may be used to support CWN as opposed to perpetuating the human / nature separation; and iii) leverage learners' CWN to support a growing responsibility for taking action on IAS in their local area (Section 6.5.4.2).

7.1.2.4 Education for sustainability

The transdisciplinary motivation for this study demanded that results be relevant to society. Stakeholder preferences coupled with personal experiences and parallel endeavours pointed in the direction of EfS. Results resoundingly established that current models of education inadequately prepare learners to seek, recognize, interpret and/or understand MNE and are equally ineffective at precipitating the urgent changes needed to chart a course toward a sustainable world. Educationalists expressed frustrations with curricula dominated by 'facts' and the accumulation of knowledge (of, e.g. topical issues). Participants in this research saw a dearth of experiential opportunity as inhibiting the affective bonding necessary for CWN and ERB. Lucid ideas on how the balance might be redressed centred on exploring alternative modes of learning that: i) enable direct *experience* of nature; ii) are complemented with the *knowledge* that enhances eco-literacy and fosters intimate understandings of the web of life; and iii) is sharpened through discussion and reflection on *values and ethics* alongside the role of culture (as represented in language, beliefs, concepts and paradigms) in framing experiences. Further, the need to acknowledge the more transcendent dimensions of experience and its links with motivation for conservation should receive greater coverage within EfS.

In approaching EfS with the intent to provide practical guidance, it would be easy to reinvent the wheel, particularly since so much valuable material exists yet remains unimplemented. In this respect, I reverted to Husserlian ideas of phenomenological insight by letting 'that which revealed itself from itself' (i.e. bringing to light that which was initially hidden) during the course of this research endeavour. The essence of this study - the golden thread - was both an expansive and deeper notion of *connectedness* – i.e. finding relation with Nature, with Self, with Source and with Community. The phenomenological roots of *Theory U* provided a fitting foundation upon which understandings and insights from this research, coupled with my accumulated experiences, could be integrated. The resulting *Theory edU* captures the 'bigger picture' of what CWN and MNE point toward: an invitation to embark on a threefold process of *connecting*, *harmonizing* and *becoming*. This approach seeks to illuminate the dualities which may inhibit connectedness by addressing theory and practice, logic and intuition, the rational and the emotional, ego and Self and nature and culture to ensure that CWN can effectively translate into healthy purposeful action for actualizing individuals *within* society. Paradoxically, it is also a recognition that the ebb and flow between these polarizations provides a substrate for reflecting upon our own separation as well as how we can best connect and perform in the world.

Operational models need to be understandable, transferrable, implementable and achievable. *Theory edU* was designed to meet these criteria and amplified when coupled with a strategic *mentoring* process. Personal reflections on testing and applying elements of *Theory edU* in formal educational contexts (Appendix 9.19) is intended to be both instructive and an invitation for dialogue and feedback around its potential merits or shortfalls. In any case, *Theory edU* has come to serve as an edifying roadmap charting and reflecting my own lived experience in traversing this PhD process. Rather than signifying 'a final result' of this work, it instead marks the beginning of a new conversation and journey waiting (and wanting) to emerge from the future.

7.1.3 Methodological implications

The following sections reflect upon lessons learned from the application of the three primary philosophical and theoretical concepts underpinning this dissertation: transdisciplinarity, complexity and phenomenology.

7.1.3.1 Transdisciplinarity

As testing ground for a transdisciplinary PhD, this effort raises many questions. Of prime concern, is the exploration and application of method in this context (Section 3.1) and if those methods are considered acceptable under the auspices of transdisciplinarity. With understandings of transdisciplinarity continuously evolving is could be argued that this form of research amounts to a 'new' social-ecological inter-discipline in itself – a field which must then in time also present its own methods capable of addressing complexity and the aims of transdisciplinary endeavours (J. van Breda pers. comm.) Whilst current consensus appears to argue against developing this kind of new *trans*discipline, it is acknowledged that there is a need to develop integrated research methods which move *between* and *across* the natural and social sciences and which effectively incorporate and legitimize different knowledge systems (J. van Breda pers. comm.)[174] In this respect, transdisciplinary methods would go beyond 'just' a *mixed methods* approach, i.e. integration of quantitative and qualitative approaches as outlined in this dissertation; it would demand methods which contain a transformative dimension as well as ensuring validity across contexts (J. van Breda pers. comm.).

Theory U: Did this study make gains in realizing such outcomes? Whilst not intending to propose 'new' methods for transdisciplinary research, in moving between the natural, social and human sciences, I am now in a position to reflect on the approaches utilized in making those disciplinary crossings and integrations. Alongside the conceptual models outlined in the methodology (Section 3.1.4), the phenomenological exploration enabled me to realize retrospectively that the *U-process* in itself was highly instrumental to this study's progress (even if not always consciously applied). Following the *U-process* provides a set space for going to 'places of stillness' and connecting with Nature, Self and Source. In doing so, it can unlock different ways of knowing (e.g. intuitive guidance, synchronicity) which point toward emerging futures that either complement or contradict those dictated by logic / reason alone. Two examples of emergent futures arising from this *U-process* were: i) writing-up this research as a novel which, in submitting to rationality, I did not pursue (Section 7.2.3); and ii) creating *Theory edU* which, whilst unforeseen in that phenomenologically grounded research does not explicitly seek to propose a new theory, felt like an idea which 'needed to be born'. Following a *U-process* provided clarity in addressing the complexity demanded from this study. Based on this experience, I have depicted how the *U-process* may fit a transdisciplinary PhD endeavour (Appendix 9.22). I also strongly urge researchers and practitioners to look at applying the *U-process* to initiatives which involve multiple stakeholders and perspectives as part of an on-going collaborative and co-creative process. As a methodology, framework and social change technology, *Theory U* (cf. Scharmer 2009a) appears well-placed to add much value to transdisciplinary endeavours that aim to collectively solve a societal problem.

[174] This paragraph is based on an email exchange between John van Breda and my supervisor Prof. Karen Esler.

Integral Theory: The prospects of Integral Theory (cf. Wilber 1995) to provide a valuable model or framework in a transdisciplinary endeavour is increasingly appealing. Whilst it is promoted as being suitable in that context, it is also argued that Integral Theory is in fact *post-disciplinary* in the sense that it can be successfully applied in *disciplinary*, *interdisciplinary*, *multidisciplinary* and *transdisciplinary* contexts as an adaptable yet comprehensive and integral approach (Esbjörn-Hargens & Zimmerman 2009). I was unable to fully test Integral Theory (as part of Integral Ecology) in the context of this research but initial experiences in its application appear promising (Appendix 9.16.4). Indeed, Integral Theory makes much conceptual sense and can effectively capture many - if not all - of the dimensions expounded in this research.

Phenomenology: The phenomenological orientation used for this research also made advances toward exploring alternative transdisciplinary methods. In remaining attentive to lived experience and 'observer intersubjectivity', it was possible to tap into individual and collective knowledge (and its creation and application) by affording that knowledge legitimacy and recognizing its fluidity across multiple realities. Phenomenology also holds the transformative potential desired in a transdisciplinary process, although not necessary with the directness or tangibility envisaged by researchers and practitioners working in multi-stakeholder case studies. Nevertheless, in terms of how Pohl (2011) sees progress in transdisciplinary research, we may consider that this dissertation, through its use of mixed methods, has made specific gains in: grasping the complexity of the phenomena; accounting for diverse perspectives; highlighting alternative approaches to a specific real world issues; and becoming more critically aware of the 'thought-styles' applied across various disciplines to the various themes under study, e.g. CWN, MNE, IAS and EfS.

Lessons from the field

The transdisciplinary methodology explicitly included a commitment to outreach endeavours that served to: i) enrich and inform phenomenological aspects of the research topic though participant observation and deepening my own lived experience; and ii) to contribute to societal discourse and place-based praxis by engaging with education, outreach and awareness activities. As outlined (Section 3.1.3.4), the three primary ways in which these were achieved was through: i) sharing selected research results, stories and reflections online via eyes4earth.org and related social media pages; via a periodic email newsletter for stakeholders and subscribers; and making selected PowerPoint presentations and conference posters publicly accessible by uploading to eyes4earth.org (Appendix 9.23); ii) organizing wilderness trails, camping weekends, training workshops and funding to empower and learn from community youth involved in the Baviaanskloof Nature Awareness (BNA) Group; and iii) facilitating the six-week Wildlands Studies field program and through which new insights were gleaned and evolving approaches could be experimented with. In giving consideration to what transdisciplinarity requires in practice, the following reflections are provided:

Communication and awareness: Engaging with online media can be time-intensive, potentially distracting and, without conducting more formal research, offers few reliable ways of measuring actual impact. It should therefore be approached with caution or, alternatively, with a high certainty that the time invested

can meet desired objectives. It is recommend that, where appropriate, communication efforts utilize avenues that already have an established audience (e.g. newspapers, magazines, radio) and, further, from a transdisciplinary perspective, seek avenues that encourage the public to actively engage with your research and provide feedback (e.g. active and specialized online forums). In the absence of place-based research, online media is important in helping to form an accessible community to benefit from results and learning. It also allows for the timely sharing of fresh insights as they happen (which can otherwise be inhibited by the time-lags associated with scientific publishing). Astute popular writing may result in greater societal impact.

Community outreach: Engaging with the BNA Group was thoroughly rewarding and reinforced a conviction that any research, transdisciplinary or otherwise, should strive for such engagement. During a seven-day wilderness trail in the BMR, the idea of the BNA Group spontaneously emerged and was entirely initiated / willed by the participants themselves (i.e. Coloured 20-30 year-olds from various reaches of the BMR). The two key learning points were: i) such efforts require substantial logistical efforts, e.g. arranging transport, accessing land and, in my case, doing personal visits or asking colleagues or local community members to act as 'messenger pigeons' to pass on details of arrangements to participants who had no other means of being contacted; and ii) such initiatives require sustained facilitation and guidance. Despite having experience with participatory approaches, empowerment and how to identify a champion and appoint a mentor, the BNA Group momentum waned and then ceased when I was unable to offer regular support for their efforts (given that I had to write-up this dissertation from abroad). The loss of momentum is for various reasons – some are due to misfortunes associated with persons tasked to help support group activities (e.g. ill health and other employment) but most setbacks were a result of the everyday frustrating realities facing historically disadvantaged (and unemployed) youth and communities in rural South Africa. Despite these challenges, all our outings and workshops were of immense learning value to the participants and myself and also provided cherished memories and their own stock of MNEs (Appendix 9.23.3).

Education and pedagogy: Engaging with the Wildlands Studies program has been equally rewarding. It has shown the value that extended periods (i.e. six-weeks) in the field can achieve with many students reflecting that they learn more on these programs than throughout their entire undergraduate degree. Opportunities to interact with expert field ecologists, managers and other cultures to explore and reflect upon their own knowledge, skills, beliefs and experiences in new and often challenging environments is immeasurable. For the facilitator, the intensive program is demanding and requires physical, mental and emotional investment but the reward of seeing learners 'come alive' has, on occasions, led me to quietly reflect that 'this is the best job in the world'. However, it is recognized that, in a South African context, the opportunity for such experiences is well out of the reach of most learners. Yet I am aware that the former 'Veld Schools' and programs still run by certain high schools capture(d) elements of this form of learning. Most encouragingly, are the current efforts being made (by e.g. *usiko*, *Eco-Schools*, *Camp Africa*, *Educo, Earthchild*) to afford similar opportunities to historically disadvantaged persons. However, much more is still needed and, as argued in this dissertation, we can ill-afford to ignore creating opportunities for teenagers and twenty-somethings.

My experiences have reinforced a belief that engaging with such activities should be a necessary part of PhD research and even mandatory for a transdisciplinary endeavour (except where it runs counter to objectives). It significantly enhances understanding of the topic under investigation and provides necessary 'reality checks' through forms of 'ground-truthing'. Alongside the other activities in which I participated (Section 3.1.3.4), these opportunities have exposed me to the diverse and often unpredictable value of MNE and afford insights into how MNE and CWN may be cultivated in EfS in the face of everyday realities.
Transdisciplinary research is often judged by the extent to which it contributes to solving a problem in society. The scope of 'the problem' addressed in this dissertation (i.e. the human / nature disconnect) may put such an ideal far beyond my reach. However, my planned continued work in a local context (e.g. with Wildlands Studies, the BNA Group and other education initiatives) subsequent to this research intends to further aims of making place-specific contributions. In the interim, it is hoped this research makes advances toward another important criterion: *phronesis* – i.e. this body of work delivers a form of 'practical wisdom'.

7.1.3.2 Complexity

The phenomenological process coupled with more conventional methods used in this research also served to illuminated essences of *complexity theory*. Many of the identified characteristics of complexity - the subjective layers of perception, experience, context and meaning moving across and permeating defined boundaries - were revealed through this research. With (inter)connectedness repeatedly surfacing as key themes, it emphasizes the roots complexity, i.e. as it is derived from the Latin *complexus* meaning "what is woven together" (Morin 2007: 6). Most importantly, results of this research indicate that far from complexity remaining only as intellectual *theory*, MNEs are capable of providing insight into its *experience.*

This research leaves multiple questions unanswered and touches on themes which hover at the edge of current comprehension. Such outcomes are inherent to *complexity theory* which urges constant critical reflection on the nature and limits of knowledge and understanding (Cilliers 2000b). In encouraging such reflection in the context of this research - particularly with respect to the phenomenology of MNE- advances might be made toward "system transformation through multiple subjective experiences, and their accompanying diversity of interpretative, meaning-giving frameworks." (Allen 2001: 42). This diversity again highlights the centrality of perception in forming experience and that meaning and knowledge cannot be fixed in any representational way but are instead always contextual and contingent (on, e.g. experience) (Cilliers & Hofmeyr 2010; Morse 2011).

Complexity theory posits that models, as meaning-giving frameworks, are our only way of understanding the world, even though we cannot conceivably deal with reality in all its complexity (Cilliers 2000a). Various models were presented in this dissertation: from standard diagrammatic representations (e.g. Figure 10 and Figure 21) to the composite descriptions which comprised the phenomenological exploration (e.g. Section 4.3.4 and 0) and *Theory edU* (Figure 21) which are, according to *complexity theory*, valid in that they aim to reflect phenomena in the external world at a point in time (Khalil & Boulding 1996 in Cilliers 2001).

Critically, these models adhered to *complexity theory* aims of exploring possible futures and, rather than pinpointing 'what is', specifically remained open to addressing 'what might be' or is *becoming* (Allen 2001).

Finally, results validate the *complexity theory* concept of *emergent properties*. The phenomenology of MNE is essentially a study of the emergent properties (e.g. perceived phenomena, meanings) of the interwoven exchanges and participatory transactions between people and place. Variables exist that each entity independently brings to the transaction, but as Chu et al. (2003) suggest, the intellectual challenge for complexity studies is to focus less on the details of these 'separate' mechanisms (e.g. traits of 'people' and 'place') and more on properties which emerge at the juncture when these two entities interface as part of an unbroken social-ecological 'whole'. The phenomenology of MNE aimed to illuminate this emergence.

7.1.3.3 Phenomenology

It took the greater part of this research process to fully appreciate all that phenomenology demands of the researcher. I also belatedly encountered deep philosophical arguments surrounding its ontological claims and representations as part of a range of 'post' theory (Adams St. Pierre 2013). As discovered during this research, the phenomenological aspiration of being able to access 'pure' reflective experience, as a basis for distilling an essence which can then be expressed in written language alone, is a nigh impossible task. This elusiveness of the immediacy of pre-reflective experience has been well acknowledged by the likes of Derrida (1981) and Foucault (1970): "What *is*, the present, is always contaminated by the trace of the past…and the future…" (Adams St. Pierre 2013: 651) i.e. the 'thing itself' always escapes us. Furthermore, the methods used (which were largely *ex-situ*) limited the extent to which the immediacy of experience could be accessed - pre-reflective or otherwise. I become aware of this shortcoming in sufficient time to be able to take the following actions: i) fully utilize 'Craig's' MNE as an in-depth case study (Section 4.4), since it had recently transpired and was still fresh and unanalyzed in his memory; ii) complementing formal in-depth interviews and questionnaires with field observation, *ad hoc* encounters and heuristic inquiry of personal MNEs; and iii) drawing from as many 'texts of life' as possible in order to build up a reliable composite of MNE across diverse contexts.

In any case, as Deleuzian ontology would have it, it is an anathema to speak of '*is*' (in terms of isolating and pinpointing a one static pre-reflective component of experience) since that it disrupts the continuous entangled flow of thought, ideas, concepts, speech and experiential relations which are always a part of human *becoming* (Adams St. Pierre 2013; Mazzei 2013). Whilst this Deleuzian view firmly challenges phenomenology's ontological claims, this dissertation, in embracing intersubjectivity and pragmatism as part of nuanced phenomenological grounding, did not seek to make definitive statements of 'what is' e.g. concerning the essence of MNE. Similarly, it acknowledged the limitations of language in conveying the resulting phenomenological assemblages. Finally, and admittedly unintentionally, *Theory edU*'s *process of becoming* finds a certain resonance with Deleuze's experimental ontology by recognizing that our humanness is always in flux: ebbing, flowing, creating, recreating thinking, knowing, doing and *becoming*.

Whilst gaining familiarity with necessary methodological texts (e.g. van Manen 1990; Given 2008; Creswell 2007) and phenomenological research papers (DeMares & Krycka 1999; Curtin 2006), these were not especially instructive as to how to design a dissertation. Additionally, the fact that there is 'no one right way' in phenomenology led to some uncertainty about which approach to follow. Morse's (2011) PhD dissertation proved an excellent reference; however, I received notice of it three years into my research – sufficient time to provide added guidance for the analysis but too late to change the research design. Similarly, all too late, I learnt of Brown and Toadvine's (2003) *Eco-phenomenology: Back to the earth itself* - and lament at being unable to draw on the insights from this highly relevant multi-authored compilation.

I am unaware of any dissertation that has attempted to combine phenomenological research within a mixed methods approach and probably for good reason. The length of Chapter 4 is testament to the assertion that a proper phenomenological analysis is a PhD undertaking in itself. Furthermore, since it may be epistemologically at odds with assumptions implicit to quantitative methodologies (e.g. in the natural science disciplines), it may be better pursued as a single method study. Given its omissions, Chapter 4 therefore does not represent an 'ideal' or 'pure' phenomenological analysis but rather is an outcome of what could seemingly be pursued in the context of this transdisciplinary research. As van Manen (1990) notes, perhaps the best answer for what is involved in phenomenological human science research is "scholarship": I trust that this result reflects the integrity of that ideal.

7.1.4 Limitations of the research

Table 44: Overview and description of key research limitations

Limitations	*Description*
Epistemological collides	The movement between epistemologies and methodologies might be viewed by some as inhibiting the uptake of results or knowledge advances within any particular discipline.
Phenomenological purity	The extent that this study adhered to a pure phenomenological approach is debatable; in particular, claims on accessing the pre-reflective component of MNE are contestable.
Questionnaire limitations	Questionnaires could have been better designed with the inclusion of multi-dimensional scales, improved questioning and greater exploration of key demographic variables.
Purposive sampling	Online questionnaire respondents and in-depth interviewees represented a biased sample in that they all had had MNEs so their views should be considered in this context.
Response authenticity	Online questionnaire respondents and in-depth interviewees may have been inclined to give responses which they thought the researcher wanted to hear.
Researcher subjectivity and interpretation	Questions may be raised as to what extent my prior held beliefs and dispositions affected the way in which interpretations and conclusions were drawn from the research.

7.1.4.1 Epistemological collides (research schizophrenia)

This research transgressed the traditional epistemological boundaries usually used to anchor a dissertation. Rather than situating the research in a disciplinary home *a-priori*, the intent was to instead let the research questions liberally guide the epistemology and methodology as part of transdisciplinary, post-modern and post-paradigmatic research. However, embracing such pragmatism means more than 'only' integrating qualitative and quantitative approaches; it can inadvertently lead to traversing of epistemologies which are

not always seen as being compatible or may find difficulty in being accepted into any one disciplinary home. For example, whilst being ontologically grounded in appreciations of intersubjectivity (with a primary knowledge interest of *understanding* (Section 3.1.2)) served the phenomenological presentation in Chapter 4 well, it was potentially epistemologically at odds with the analysis comprising sections in Chapter 5 that were more aligned with the knowledge interest of *prediction and control* associated with the natural sciences, which seeks to test theories and relationships. I refer to this dichotomous state as *research schizophrenia*.

7.1.4.2 Phenomenological purity

The extent that my phenomenological analysis adhered to a more puritan approach and, further, was able to tap into the pre-reflective component of MNE in a given context is contestable. A possible limitation of the phenomenological analysis (Chapter 4) is that it appears to combine or confuse phenomenology with conventional content analysis (e.g. Krippendorf 2004), particularly given the inclusion of the short answers as elicited though the online questionnaire. As a pragmatic phenomenologist, I wrestled whether it was more important to explore and decode all sources of MNE (i.e. various 'texts of life') in order to assemble and describe a rich picture of MNE, or whether it was more methodologically appropriate to stick with a puritan form of phenomenological exploration. In opting for the former, my decision was based on the underlying aim of understanding "what MNEs are like" and felt that including these responses provided triangulation and depth, allowing for multiple ways to describe MNE (Morse 2011). However, for future studies, it is advised that: i) multiple interviewees are revisited as part of a deepening process of questioning; and ii) that structured *in-situ* phenomenological questioning be included in the formal research, e.g. partake in nature-based trails, programs and speak with participants at various points in order to reveal what comprises their MNE - what it is - as it appears 'there-for-them' in that moment.

7.1.4.3 Questionnaire limitations

Multiple limitations, as common pitfalls to social research, can be found with the online (OQ) and public questionnaire (PQ) design: the OQ should have been briefer; some questions better worded; more recent and improved survey instruments might have been employed[175]; more multi-report measures adopted[176]; and more demographic data elicited. Of the various lessons learned in the context of this research, it is important to reflect upon - and make transparent from the outset – just how much disciplinary depth and robustness might need to be sacrificed in a single-study transdisciplinary endeavour. For example, needing to become rapidly proficient with methods spanning multiple disciplines at the same time led to shortfalls.

[175] Shortcomings and recommendations concerning the CNS survey instrument are identified in Box 24

[176] For example, in eliciting responses on how IAS was perceived to affect individuals' MNE, only a single Likert-scale question was used: to better explore such perceptions the online questionnaire (OQ) would use additional questions to probe from multiple angles and possibly seek to find correlations with education, values or belief systems. The same also applies for OQ questions pertaining to childhood contact with nature and frequency of contact with nature.

7.1.4.4 Purposive sampling

OQ respondents represented a biased sample group in that they all had had a MNE and, as became later apparent, were often associated with environmental occupations. The former was known in advance (i.e. it was activity elicited) and was not at cross-purposes with the primary research aims (i.e. to explore 'what MNEs are like' and if these persons having MNE had a greater CWN).[177] However, when investigating the relationship between MNE and CWN, apparently similar demographics within the OQ sample group infers that any statements about their relationship between MNE and CWN must be considered in light of any number of variables which may otherwise define the OQ sample group and their CWN. For this reason, the PQ was performed as a control and, in returning a positive relationship between CWN and MNE, allayed many concerns surrounding the OQ sample (although raised further questions as to why the OQ sample group did not return a correlation between MNE frequency and CWN). In any case, follow-up research should, draw upon a broader and more representative sample (of the target population) and, specifically, broaden its scope to include other cultural, ethnic and demographic groups.

7.1.4.5 Response authenticity

Further to the above, there is always a danger that respondents forming part of purposively sampled groups might be inclined to: i) exaggerate responses because they share a conviction for the subject matter and its implications; and/or ii) respond to what they think 'I am after' by e.g. embellishing or distorting their MNEs and its impact on their life. This was known in advance and strategies such as careful wording of questions in the OQ and refraining from 'leading' questions, reactions or judgements during interviews and participant observation were used to mitigate such effects. It also reinforces the need for a control sample (i.e. PQ) which should be administered - as it was for this study - by research assistants and not the researcher himself (which may also help mitigate the possibility of an 'experimenter effect' – see Section 7.1.4.6).

7.1.4.6 Researcher subjectivity and interpretation

Persons may have difficulty in accepting the implications of the results given the way that parts of this research embrace subjectivity and caution against transferability. The bracketing at the outset of this study (Section 1.3) attempted to suspend and make transparent my potential biases and preconceptions. Although actions were taken to limit additional researcher bias, subjectivity is almost unavoidable (Chapter 3). For the phenomenological analysis, this was of least concern since subjectivity and the participation with the phenomenon is integral to its understanding. However, concerns about the integrity of subsequent analysis which, in departing from phenomenology, turned toward more conventional quantitative and qualitative analysis are justified. Did personal involvement unduly influence data interpretations? Did I (un)consciously seek to support my own beliefs? Did I select data to fit personal ideals of the study?

[177] It is also important to recognize that purposive sampling OQ relied on persons who willingly and actively chose to share their MNE and related information. Might these persons therefore be more outspoken toward MNE impacts?

Whilst there was no intent to mould results or interpretations of experiences to pre-existing beliefs, there is nevertheless a powerful subconscious impulse in humans to seek out and select information which confirms their beliefs (i.e. 'selective perception') (Varvoglis 1996, 1997; Starbuck 2006; McRaney 2011; Wiseman 2011). Parapsychological research highlights that 'the experimenter effect' (i.e. the role of the experimenter in influencing both respondents and data (Smith 2003)) and 'the sheep - goat effect' (i.e. one's attitudes toward psychic phenomena affect the likelihood that such phenomena will occur in the first place (Varvoglis 1996, 1997; Section 2.4.5) may represent a significant limitation in studies involving consciousness.

Nevertheless, in reflecting upon this learning process, it has been surprising how often prior convictions have been unravelled by new insights and understandings (Section 7.2). Alternatively, parts of my worldview have also been reinforced and this dichotomous flux between 'knowing' and 'not knowing' has held greatest command over the changing interpretations which have informed personal learning. The lesson is that, just like the favourable disposition needed for MNE and CWN, 'openness' is a trait to behold.

Researchers participate with their research in intimate, symbiotic and unknown ways, such that pure objectivity is an unrealistic ideal. Instead, the best we can aim for is an intersubjectivity which meticulously distils perceptions, interpretations and experiences of multiple 'subjects'. In this regard:

> The project has not sought to reveal 'objective truths'; rather, it seeks to supply an enhanced and deepened understanding of the phenomena studied, and to make a contribution to the continually evolving dialogue around this topic, both academically and practically. Ultimately an assessment about the credibility and quality of this inquiry resides with the reader of this research, and the question 'does it ring true?' in providing an increased understanding of the phenomenon (Morse 2011: 253-254).

This process invited much reflection: Is this type of research part of a search for a new science which can uncover measurable objective truths as they relate to intersubjective phenomena (Greenway 2011)? Are explorations in this domain bound by strict epistemological and methodological bases which might inhibit the level of understanding needed? I concur with Greenway (2011: 163) in asserting that "the healing of the human - nature relationship is dependent on how creatively we answer these questions."

7.1.5 Recommendations and future research directions

The breadth of this research opens the possibility for many interesting avenues for further research (Table 45). However, given that this research has also called into question the overemphasis on intellectually derived knowledge (at the expense of practice and implementation), one must remain discerning in terms of the research directions recommended. It would be tempting to encourage research which explores all manner of combinations of personal and environmental variables in order create ideal settings for MNE and CWN. Whilst there is some merit in doing this, there is a danger that a thirst for novel insight and detail may conceal the bigger questions at stake. It is therefore imperative to 'see (and experience!) the forest while studying the trees'. The following sections detail key action areas for future research (Table 45).

7.1.5.1 Past research recommendations

Highly relevant recommendations of past research may not always be in places you expect to find them. Despite extensive initial literature searches, I had not encountered the term 'significant life experiences' as used in Environmental Education Research and which received considerable attention in this field during the 1980s and 1990s (Tanner 1980, 1998a, 1998b; Payne 1999). I later found that Chawla (2006, initially published in 1998) reviews and provides recommendations on research methods for investigating significant life experiences (SLE) (Appendix 9.21, Table 51) and, knowing this from the outset might have greatly enhanced how I situated and approached this research. In any case, Chawla's (2006) recommendations remain pertinent; their qualitative nature allows better exploration of the emotional interpretative side of nature experience usually avoided by other environmental research. Other strengths include alternating between open and close-ended questions, and moving from questionnaires necessary for qualitative analysis to in-depth interviews which allow for probing (Chawla 2006). Chawla (2006) also devotes considerable attention to the issue of 'autobiographical memory' and how reliable or valid it is as a basis for SLE research (see also Box 17). Whilst not setting out to explicitly meet Chawla's (2006) criteria, upon its belated discovery, I used it as a guideline and have since reflected on the extent to which this research meets her recommendations (Appendix 9.21, Table 51). Additional recommendations relevant to this research include those in: White (1999); Smith (2007); Ashwell (2010); Morse (2011, 2013); and Snell & Simmonds (2012).

Table 45: Recommendations and actions for future research directions

Recommendations	*Follow-up actions (in response to future research questions)*
Past research recommendations	Comprehensively search for interdisciplinary research related to the subject matter under study and attend to relevant research recommendations therein
Manipulable variables (mixed methods)	Investigate whether common phenomenological themes also translate as personal and situational variables which can be manipulated to produce desired MNEs and outcomes.
In-situ research (phenomenological)	Focus on a specific type of MNE (e.g. as identified in this research) and endeavour to get closer in time and space to the MNE as it happens in its immediacy and 'pre-reflectively'.
Intercultural research (phenomenological)	Employ phenomenological studies of MNE on persons of varying ethnicity and cultural background in order to see if core structures and themes differ with those revealed here.
Biofeedback (quantitative)	Experiment with biofeedback and other technologies aimed at measuring short- and long-term physiological and neurological responses to MNE or prolonged CWN. Consider also trialling experiments across different contexts: e.g. social and landscape settings.
Longitudinal studies (mixed methods)	Conduct longitudinal studies to gain better insight into if and how MNE and CWN affects specific values, attitudes or behaviours on an individual's life over time and context.
Demographic variables (largely quantitative)	Further investigate the influence of demographic variables (on CWN, MNE) by focusing on, e.g. education levels and test the validity of CWN scales on different cultural groups.
CWN & motivation (mixed methods)	Unpack the links between CWN and motivation (for ERB). Under which contexts does CWN outperform other motivations (e.g. incentives) or override systemic barriers?
CWN & IAS action (mixed methods)	Delve deeper into the formation of IAS perceptions and under what contexts CWN as a motivation supports of inhibits IAS action and how CWN might be leveraged in advocacy.
CWN & education (mixed methods)	Perform comparative assessments of CWN across various education setting or programs in order to measure / determine to what extent programs cultivate CWN and, if so, whether CWN in supports both conventional and recommended learning goals.
Synchronicity & MNE (mixed methods)	Perform further phenomenological explorations of *synchronicity as a MNE* alongside deepening investigations on its effect in supporting ERB over (time-space-place) contexts.
Theory edU & education (largely qualitative)	Further test *Theory edU* to determine it usability, adaptability transferability to different contexts and which parts of *Theory edU* require adjustment.

7.1.5.2 'Manipulable' variables

The phenomenological analysis (Chapter 4) identified common *textual* and *structural themes* of MNE. It would be useful to investigate to what extent these may be equated to *personal* and *situational variables* capable of being 'authentically manipulated' (i.e. with integrity) to produce desired experiences, responses and/or outcomes. Which themes or variables are sufficiently powerful to be used as 'aces' in the facilitator's toolkit? For example, Smith (2007) identifies research opportunities which align with such considerations, i.e. testing the effect of variables under different comparative conditions. His variable categories included 'setting' (e.g. experience at sunset vs. not at sunset, familiar vs. not familiar); 'lead-up events' (e.g. different prior blends of structured, e.g. ceremony, physical activity; and unstructured activities, e.g. wandering, sit-spot); 'animal' (e.g. effect of encounters with different species, proximity, number, rarity, age, orientation, presence of juveniles); and 'logistics' (solo vs. small group vs. large group, length of time) (Smith 2007). However, it is acknowledged that finding a 'counterfactual' is near impossible given individuals' unique lives.

Morse (2011) recognizes the different ways in which the focus of an activity, outing or journey can change the support or impede one's ability to interact with the surrounding environment in a way which might support CWN or MNE. In particular, there is evidence that activities which demand lower technical skills from participants seem more beneficial in developing relationships with nature (Martin 2005; Morse 2011). This might partly explain why ambling wilderness sojourns are more effective in fostering CWN or evoking MNE than the purposeful haste associated with, e.g. biological field research (see also Box 34). In this vein, it would be worthwhile investigating the role of adventure in inducing a personal sense of vulnerability (by creating 'edge' experiences) and if or how this is linked with MNE, CWN and future motivation to spend time outdoors (Morse 2011). Finally, the role of ritual and ceremony as an intentional / manipulable variable for evoking and/or deepening MNE and, further, in being linked with CWN and ERB is a topic which deserves greater attention than what was given in this dissertation. The implications could be far-reaching.

7.1.5.3 In-situ research

The phenomenological research would be bolstered by further *in-situ* research, e.g. accompanying participants on a wilderness trail and speaking with them as their MNE unfolds (cf. Morse 2011). However, a limitation of this approach is that it restricts the study of MNE to a particular context with preset environmental / situational variables (although this can also be beneficial in helping to isolate other variables, e.g. personal context). Numerous studies have been carried out on the effects of wilderness experience and, whilst I fully endorse the need for more work in this direction, I also recognize a dearth of research on MNE (particularly synchronicity and 'negative' / unpleasant MNE) which may spontaneously arise in other more everyday settings and which may be of equal or greater significance. The challenge is that is difficult to get 'close' to these experiences as they happen. One approach could be to 'follow' or track a focus group, for e.g. a six-month period, whereby participants would be required to immediately report MNEs to the

researcher during this time (with advances in smart phones and apps increasing able to facilitate such immediate approaches) and then make themselves available for follow-up face-to-face questioning.

7.1.5.4 Intercultural phenomenological research

It would be very insightful to undertake phenomenological research with persons of different ethnicity and cultural background. For example, what is MNE like for Xhosa persons? How do they perceive their MNE? What thematic commonalities and differences exist between MNEs expounded in this research and those which might be found with other cultural groups? How prevalent is 'connectedness' in their MNEs and are such experiences felt as sufficiently non-ordinary to instigate desirable changes in behaviour? This is rich territory, particularly in that it may reveal – and therefore be instructive toward – reflecting on how much our own (Western) cultural concepts, lenses and languages define not only our experiences and 'our world' but how such aspects may be increasingly colonizing the experiences and worlds of other cultures.

7.1.5.5 Biofeedback

Advances in smart mobile technologies may also assist future quantitative research, e.g. using biofeedback technologies such as electroencephalography (EEG). From a mental health and physical well-being perspective, it might be highly valuable to gain insight into the neurological and physiological responses evoked prior, during and after a MNE. Similarly, do deepening states of CWN correspond with different brain wave / attention activity? Can this be linked to heightened frequency of MNE? Which situational variables (e.g. landscapes, biodiversity) evoke the most significant neurological and physiological responses? Would the mapping of such areas help inform conservation planning? Outcomes may support arguments in favour of CWN / MNE in education; however, there is risk of falling into a 'techno-spin' and neglecting the deeper purposes for nurturing CWN.

7.1.5.6 Longitudinal studies

To build empirical evidence for the relationship between MNE and CWN and actual ERB, longitudinal studies should be employed which can reliably measure the different ways in which individuals' CWN and behaviour may or may not change.[178] This should include tangible 'exterior' instrumental actions (e.g. saving energy, recycling, consuming less, outdoor exercise and conservation volunteering) as well as the usually neglected intangible 'interiors' relating to psychological and emotional development and well-being (and which may prove to be of importance in harmonizing consciousness) (e.g. cognitive functioning, emotional maturity, gratitude, family bonds, humility, respect, mindfulness and reverence through, e.g. ceremony).

[178] As indicated in this dissertation (Box 24), the reliability of the purported relationship between CWN and MNE could be improved with multiple report measures and improved CWN survey instruments (e.g. the NRS).

7.1.5.7 Demographic variables

The influence of demographic variable requires further attention. In some cases, these may be of most significance in determining CWN (Luck et al. 2011) and shaping interpretations of MNE. In particular, additional investigations are needed to determine the influence of: the level of formal education; the type of formal education; childhood nature experience; type of current contact with nature; and spiritual and religious orientations. Future research should be expanded to include representative samples of different ethnic groups as part of efforts to text the cross-cultural validity and reliability of CWN instruments.

7.1.5.8 CWN and motivation

The precise role of CWN as a motivation for ERB would be worthwhile unpacking. If CWN is argued as a prime motivation does that hold over a wide-range of contexts? Under which conditions is CWN as a motivation compromised? Under what contexts does CWN serve to provide a greater motivation than, e.g. (economic) incentives, social desirability or moral values? Critically, given that ingrained personal habits and pervasive social / systemic barriers are arguably the most difficult barriers to overcome (Stern 2000, 2003; Kollmuss & Agyeman 2002; Sheldrake 2012), is CWN-derived motivation sufficiently strong and sustained to overcome such impediments? Since CWN exists in state of flux, how and when do those fluctuations affect motivation and, when so, how is ERB affected? Can certain threshold limits be identified?

7.1.5.9 CWN and IAS action

More work could be done on the formation of perceptions which appear to shape the experience of IAS, e.g. knowledge, beliefs. *In-situ* and comparative studies could be instructive in this regard. However, from an education and management perspective, it would be of interest to investigate (and thus validate Figure 29) whether persons exhibiting greater CWN (and/or who have had MNEs) are more likely to take responsibility and action toward IAS removal – and, critically, under what contexts. What are the barriers? Similarly, do emotions linked to the prevailing 'linguistic machinery' of IAS impede CWN and IAS action?

7.1.5.10 CWN and education

Comparative research should be carried out across education contexts to: i) assess the extent that respective programs cultivate or inhibit CWN over time; ii) identify the types of programs / strategies that are increasing CWN; evaluate the effectiveness of CWN activities (e.g. Section 2.2, Table 4) across various educational settings, age groups and demographics. Such explorations would be furthered by investigations into the ways that CWN support both conventional learning outcomes as well as those criteria argued for in this research e.g. eco-literacy, cognitive performance, curiosity, attentiveness, emotional development.

7.1.5.11 Synchronicity and MNE

Synchronicity as a MNE warrants further phenomenological exploration given its distinct themes, essences and links to relational worldviews which may be supportive of ERB or purposeful living. Given the unexpectedness of synchronicity, it is an extremely difficult phenomenon to pin down but certain settings, e.g. eco-therapy programs, wilderness trails, pilgrimages to sacred natural sites (e.g. Singh 1997, 2006; Swan 2010), might provide fertile ground for their manifestation. It would be instructive to know how insights from synchronicity might inform CWN and motivation for ERB or whether the initial and possibly greater benefits accrue in favour of self-healing and guidance. Popular literature and anecdotal evidence also finds synchronicity to pattern with other conditions not explicitly investigated in this research: e.g. patterns of times, dates, seasons, geometries, sacred sites or specific animals – and this could provide a further, albeit considerably more esoteric, avenue for future research (and is relevant if the experience of observing such patterns is suspected to positively influence CWN and ERB as part of forming a relational worldview).

7.1.5.12 Evaluating Theory edU

At the most practical level, further testing of *Theory edU* would be very useful. Does the framework resonate with mentors / educators? Is it usable, adaptable, transferable and implementable? Under which contexts is it most instructive? Which elements are most valuable and which should be amended? *In-situ* testing (e.g. in classes, on field programs), case studies and longitudinal research would be valuable in this regard. Furthermore, as outlined above (Section 7.1.3.1), *Theory U* may be highly instructive as a transdisciplinary methodology for addressing complex social-ecological problems and future research is advised to explore its application in this context. Finally, it is recommended that any PhD student desiring a meaningful research experience consider the *U-process* as a journey for realizing (profound) change within science, society and Self. Based on personal experience, *Theory U* is adapted (*TdU*) to depict an ideal but not unrealistic pathway for a PhD research process (Figure 30; see larger detailed version in Appendix 9.22).

Figure 30: *TdU* (core): A *U-process* for transdisciplinary PhD research (adapted from Scharmer 2009a)

7.2 Personal close: essence and inspiration to the researcher

> *I make no excuse for a fascination with a softer edge of science. It is here, it seems, that we get fleeting glimpses of strange shadows beneath the surface of current understanding.* (McCallum 2005: 156)

In recasting the dissertation's research questions back into an autobiographical context, Moustakas (1994: 184) recommends the researcher to:

> Write a brief creative close that speaks to the essence of the study and its inspiration to you in terms of the value of the knowledge and future directions of your professional-personal life.

I will approach this by addressing the essences of three distinct themes as they appear now at the conclusion of this research process:

i) Meaningful nature experience (MNE);
ii) Connectedness with nature (CWN) and MNE in the context of consciousness; and
iii) Personal experience.

7.2.1 Meaningful nature experience

From the personal interludes shared at points throughout this dissertation, it is evident that I have acquired an affinity for MNE: indeed that is what comprises the 'intense interest' of phenomenology that motivates one to devote years to a study from the outset. From a research perspective, I did not explicitly seek 'hard proofs': the prime interest was to thoroughly explicate the lived experience of MNE. In doing so, however, there was a latent hope that the *experience* (in subjective *mindscape*) might be legitimized which is very different from trying to prove the existence of the actual *phenomena* (in 'objective' *matterscape*). In other words, in revealing commonalities, MNE might move from the subjective to the *inter*-subjective, such that the reader comes away with a feeling of "I understand better what it is like for someone to experience that" (Polkinghorne 1989: 46). Or, that this work conveys a sense of "*It is OK for someone to experience that*", particularly in light of the compelling positive impacts MNE seems to have in motivating people to live better in community. . Nevertheless, and despite the evidence, I routinely questioned or denied the legitimacy of the MNEs in my own life. During the course of this research, I spent many hours reading rebuttals, dismissals and derisions of experiences described in this dissertation. This was done to provide a counterweight to my understandings and interpretations of MNE and, in particular, *synchronicity as a MNE.*[179] This was needed as personal convictions strengthened in response to my own MNEs which seemed to multiply during the course of this research. However, equally, I was more aware of the fallibility of selective perception in the search for meaning-making and in confirming beliefs. I was therefore increasingly discerning and critical of interpretations I constructed in the 'seems like' realms of my personal reality. This created a constant tension which culminated in a cathartic experience in mid-August 2012:

[179] Most of my MNEs tended to have a synchronistic quality; I cannot recall having highly emotive or all-encompassing 'oneness' type experiences that allow one to be totally present, without thought or overwhelmed with emotion.

Mantis and the Trickster

One morning, in reflecting on my need to make physical contact with earth the first priority each day, I realized how easy it was in an urban lifestyle to go for days without any part of my body actually touching nature directly. So I slipped off my footwear and decided to finish my breakfast toast standing barefoot on the tiny patch of lawn behind our suburban unit in Australia.

Thoughts were already racing ahead and mind-writing a new weblog post for eyes4earth.org. Earlier that morning, I had finalized a piece called Something with the Elephant and, in doing so, had again encountered the common, and usually condescending, retorts decrying any non-ordinary phenomena, particularly that which may be extra-sensory in nature, as being fantasy, delusional and incapable of withstanding scientific investigation. From within a traditional materialist worldview, such sobering arguments were largely legitimate and justified. Yet the fact that they sometimes seemed irreconcilable with personal experiences (which were suggesting that reality does not always seemingly conform to meaningless probabilities) caused ongoing consternation. I was determined to continue challenging my evolving beliefs by deliberately seeking out opposing opinions of sceptics denouncing such possibilities (and who hopefully would also - but often did not - provide (empirical) evidence to support their counterclaims).

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So on this crisp August winter morning, I was reminiscing about one such MNE which occurred in October 2011, while living in the remote cottage in the Baviaanskloof Mega-Reserve (Section 3.3.2). I had gone outside early to the water tank and recalled how, in the green grass beneath the tap, a tiny resident praying mantis could sometimes be seen. It had been months since last seeing it – it had likely matured and long since moved on - but, on this day, I had the clear thought, "I might see a praying mantis today." Turning on the tap, I peered hopefully between the well-watered grasses to see if this diminutive neighbour or its kin might be present. Nothing. I looked a little harder - still nothing. It was time to give up this wishful gawking.

The previous afternoon I had immersed myself in convincing rebuttals to the idea of one being able to find or extract any sort of meaning from coincidences. They were, as argued by these writers, purely statistical anomalies conforming to expected probabilities. Having taken their dismissals onboard, I made personal commitment to temper any urges to conclude otherwise.[180] With this in mind, I announced to myself:

> *Right, here you have it. Let it be noted that, on this day, I had subliminal thoughts about seeing the praying mantis and it is not here – those thoughts did not manifest into any appearance or anything meaningful. This is a clear counter-example which can be recorded as an instance when synchronicity did not signal amongst the stream of 'noise' in life. Done.*

[180] Doing so could be called *apophenia*: the belief that synchronicities are more than the occasional signalling rising from the chaotic noise of everyday life. The subsequent connecting of dots in your life in a way that tells a story that you interpret as having special meaning is considered to be "true apophenia" (McRaney 2011). This is said to be the result of the most dependable of all delusions – *confirmation bias*: a tendency to see what we want to see and ignore the rest, in order to confirm our preconceived beliefs (McRaney 2011).
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I returned indoors and continued working on the dissertation. Within an hour, an unmistakable creature was scaling the kitchen window outside: it was a praying mantis. The irony was impressive. It was the first mantis I had seen since the indelible MNE with two mantises one morning six months earlier (Image 9). Now here she appeared, pregnant with life and meaning – a visitation inviting my admiration (Image 21).

Image 21: Visitation

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Back outside on my lawn in Australia, I was quietly reliving that day in South Africa with some amusement and mentally penning the words of what would be a new post on eyes4earth.org. Lost in thought, I decided that the concluding line to the story would be: "*This event, of course, does not prove anything. Except maybe that Hermes – the Trickster in Greek mythology – is still alive and well.*"[181]

Standing there for a moment in the sun, I let those words sink in as the reflective green hues of plants beneath me met my gaze. I was satisfied with the story and reasoned:

> *Indeed, that is the real truth here. These synchronicities, like seeing the praying mantis on that day in South Africa, are just a product of our searching perceptions and interpretations. And whilst it may meaningfully interplay with our consciousness such that it becomes one's personal (inter)subjective truth, it does not become scientific (inter)objective truth or 'reality'. And just when you think it might, the Hermes in our psyche forces a rethink.*

At that very moment, in the outside right corner of my eye, a dull light-coloured shape wafted from the lilly pilly tree to the ground beside me. With a fresh Westerly breeze in the air and the possibility of leaves falling at any moment, it is difficult to say why the movement caught my attention. But a kind of numinous quality infused its slow-motion fall. With curiosity triggered, I felt compelled to locate this falling debris. Studying the pale coloured stones below, a contorted shape suddenly and starkly stood out from its surroundings: *the moult from a praying mantis*.

[181] See Combs & Holland (1996) for a thorough overview of how the Greek god Hermes embodies the Trickster (of the psyche). I had actually been reading their work at the time of this experience and had recently learnt that the scientific inquiry of 'hermeneutics' is also named after Hermes: it was his task to interpret the messages of the gods and make them understandable to the people – in essence a 'messenger' figure, translating what the gods had 'spoken' into meaningful and humanly understandable language (van Breda 2008).
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I was agape and struggled to fathom that which now rested in the palm of my hand. Worlds collided – the inner world of chatter, recall and reason had suddenly met with the softly spoken outer world of master symbolism and imagery. Gazing at the tree, my mind wheeled in wonder as I processed the powerful message that had seemingly been imparted. Statistical anomaly or not, this event seemed beyond all likelihood in my world. The content playing on my mind at that moment was unequivocal. Of all the things to have been thinking, it was the mystery of Hermes the Trickster. Of all the things that could have appeared in that moment, it was the mantis – and in the deftest of ways.

Image 22: Mantis moult

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The day after, whilst returning from a vigorous yoga session, I reflected on the event and felt gratitude for these sporadic yet tantalizing life-enriching moments. In that instant, I had the odd sensation of hearing a subconscious voice announce: "*Even the Mantis sheds its skin"* - as if stated with some kind of authoritative wisdom. I gradually began to realize the depth of its profundity: maybe it was 'only' a moult but, given the personal and PhD research tussles I was having at the time, this rich symbolism indeed spoke volumes.

I still question whether I have chronic apophenia and remain in denial about the 'severity' of my condition. Yet this inertia appears intrinsic to the essence of MNE and, upon reflection, seems to align with the Zen notion of 'middle way'. No matter how much evidence is accumulated one way or another, it is understood that one cannot speak the whole truth: there is always another side to whatever has been spoken (and experienced) (Riley-Taylor 2002). Invoking the timeless image of the *Taijitu* (Yin-Yang), it feels as though every event (e.g. MNE) is encoded with both a logical biophysical explanation ((inter)objective) *as well as* an intuitive psychological narrative ((inter)subjective), wherein each interpretation always exists with and *in* its natural complement. Both are always present and both are essential. Such an appreciation signifies a fuller understanding of 'wholeness' or, as Naess says (2008: 17): "Reality is all possibilities". So, as Jung conceded after returning puzzling results on his studies of synchronicity, I concur that "The question is still open…"

> *Science cannot solve the ultimate mystery of nature. And that is because, in the last analysis, we ourselves are... part of the mystery that we are trying to solve.* ~ Max Planck (1859-1947)
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7.2.2 MNE, CWN and consciousness

> *All becoming has needed me. My looking ripens things and they come toward me to meet and be met.*
>
> ~ Rainer Maria Rilke, 1899

If you were to ask how to summarize this research - or my experience of it - in five words or less I would reply: "*Mind what you attend to*" or, simply, "*You choose*". In every moment, we have a choice of what to attend to in realities of *mindscape* (psychological), *powerscape* (social-cultural) and *matterscape* (physical).

The central role of *intentionality* in consciousness increasingly fascinated me throughout this research (Section 2.2 and 2.3). It may seem common sense but I came to the vivid realization that CWN can only be achieved through selectively and persistently directing our attention toward phenomena in the natural (other-than-human) world. Similarly, in the shadowy fields of potentiality, it feels like MNE lies-in-wait for a sustained look, thought or emotion which impels it out of its dormancy and into lived physical reality. Hanging on the invisible trees of unseen possibilities, MNEs dangle patiently awaiting only for a moment to ripen under our gaze and fall into our privately knowable worlds. That gaze need not be only with one's eyes: it may equally spring from body, mind, heart or soul. There is, 'it seems', an alchemical quality to attention which, with consciousness, gives it an incisive power. This ability, I have learned, was understood by the Zen masters who knew that focused attention was the blade for consciousness, the instrument.

Cynics might therefore contest that since I was focused on MNE for over four years then of course I would be looking for it and therefore experience it more. And I would reply: "*Exactly - that's the point. Apply it!*" Whilst my descriptions above might subtly infer a more metaphysical dimension, it need not be esoteric. Since our experiences comprise our consciousness and our directed attention defines our experiences, it is a simple equation of harnessing our will to focus and on that which we want to fill our being. If you desire connectedness with people and community, attend to that; if you yearn for connectedness with nature then attune to its rhythms, patterns, textures, sounds, shades, scents – its silence. Be open when it responds.

In this, of course, also lies the tragedy spelled out early in this dissertation: the convergence of social and ecological crises is fundamentally a *crisis of consciousness*. And, in essence, the crisis of consciousness is really a crisis of misplaced attention (and distorted perception!). Modern technologically-fuelled society thrives on dismantling our stream of attention. Scattered and fragmented, our focus skims the surface of a multitude of diverse phenomena, lured by novelty and hooked by artificial super-stimuli which briefly holds us captive before releasing us again into a sea of senselessness. We rarely linger to descend into depths of meaning.[182] This reprogramming of consciousness distracts us from the (distress) calls of 'ordinary' natural stimuli. If we do hear them, it is usually only fleetingly, cursory – until our attention takes flight on another sensory jaunt.

[182] The same applies to education or PhD research. The risk in pinballing from concept-to-concept or article-to-article is that layers of information are fed in without ever being properly digested and absorbed. I read literature producing watershed moments in my thinking but these became irreversibly diluted in a haste to move and cover other writings.

> *The real voyage of discovery consists not in seeking new landscapes, but in having new eyes…* ~ Marcel Proust

As Maslow (1970b: 85) finds, "the great lesson" is that "the sacred is *in* the ordinary". This is a lesson that can be easily overlooked and, in the context of a dissertation which has promoted the 'non-ordinary', the irony is not lost. Is it possible that the more disconnected and distanced we become from nature, the more likely it is to encounter the non-ordinary since what was familiar is now so estranged? Either way, MNE holds promise as a competitive 'hook' for initially gaining attention which would otherwise be baited and consumed by the superficialities pervading artificial urban environments. The relationship is symbiotic and mutually reinforcing: communing attentively with the ordinary (to build CWN) can potentially unlock the non-ordinary (MNE). In penetrating our everyday awareness, MNE might act as the needed incentive for switching the habit patterns of a mind too easily persuaded to turn its attention away from nature. The non-ordinary need not be dramatic, supernatural or miraculous: its real power is in our *participation* with it. And the wonder is in connecting and harmonizing our consciousness with the consciousness of 'the other'.

Ultimately, we trail back to complementary dualisms. Without the ordinary, we cannot recognize the non-ordinary, without the profane, we cannot experience the sacred and, without occasional disconnect, we would not truly know what it is like to feel authentic connectedness. Consciousness, just like the social and ecological systems within which it is enmeshed, is always in flux – states of lasting equilibrium are rare.

7.2.3 Personal experience

> *Research is often compared to a journey. Sometimes it is a voyage of discovery to strange and foreign lands, from which we bring back mysterious insights and unfamiliar wisdom. At other times, we set out as conquering heroes or crusaders, blind to our own views of the world, intent on colonisation or conversion. Sometimes we explore our own home town, looking with new eyes at the taken-for-grantedness of everyday life. And sometimes we embark on a pilgrimage.*
>
> *This study has been my pilgrimage. It has led me through the marketplace, diverse in its voices and opinions, rich in colour and contrast, and into the wilderness of solo retreat and contemplation. I have learnt from wise sages, read their insightful texts, and communed with both nature and society. It has been a time of descent into the dark to wrestle with uncertainty and retrieve my inspiration. And now it is time to return with that priceless gift to serve our community of the human and more-than-human world.* (Ashwell 2010: 1)

To be frank, this is not quite the dissertation outcome I had envisioned. It has deviated substantially from an ideal which had invigorated me until making the tumultuous choice to turn my back on that urging. I have worked to a place of peace and acceptance with that decision but it has still slighted my soul. It is difficult to admit that, at the critical juncture, I did not step up to resolutely follow through on my own *Theory edU*.

Jaded desperate watery eyes
Seeking solace in southern starry skies
Pleading, struggling to justify why
He muted his soul's rallying cry

In June-July 2012, I hit a bitter wall with the write-up of this research. Unable to muster motivation or inspiration with either the research progress or its trajectory, I became an unhealthy and unpleasant person to be around. It felt like I was letting people down - my Self in particular - as I persistently questioned the value of this endeavour as part of a downward spiral of disillusionment. During this time, I stumbled across Keller (1977) and found solace in his description of Thoreau's *Dark Night of the Soul*. Whilst far from a hero, there was also found affinity to be found with Campbell's *Hero's Journey* (Figure 26), realized I had *Crossed the threshold* in undertaking this study, had overcome *Tests on the road of trials* (e.g. challenges inherent to non-convention transdisciplinary), recognized the *Helpers* (e.g. synchronicities) but, when it came to the *Supreme ordeal apotheosis*, despite my efforts to endure, it was evident that I was flinching and giving in. So now, on my *Return*, I carry something - a gift of sorts and of which I remain relatively satisified with – but it is, to my mind, not the personal *Elixir* it may have once promised to be.

To be sure, the path that may have yielded the *Elixir* was as idealistic as it was high-stakes and high-risk. But that is, I believe, endemic to any true soul calling. It is the call which seems rationally absurd but which is relentless in its intuitive beckoning. It is a call which, in throwing down a gauntlet, demands to know whether you will submit to your head or your heart in summoning your hands into action. It taunts with cries of "reason is treason, emotion is devotion". It ignites the searing question of: "How badly do you want this?" It is, as David Whyte scribes, "a promise it will kill you to break" (Footnote 12). When you do turn away from that high road - those true vows - you know the consequences are of your choosing. You see that what looks the safe secure path is actually illusory. Rounding that first bend, what was the benign low road soon becomes long, onerous and slow-going with no end in sight. Its promise of ease was a falsehood. With suspicions confirmed and one last longing look over your shoulder, you resign yourself to plodding and pandering a well-worn path toward disenchanted horizons.

This might all sound a touch melodramatic. Having moved through and on from that phase, I admit that it now seems quite irrational and histrionic to me too. Life goes on, of course, and one maintains humour and detachment to ensure that memories are free from the parasites of regret. But remnants of choices circling in the shadows of my past provoke me into wonderings about how the high road *might have been* had I embraced what emerged and acted upon and embodied that which wanted to *become* (Figure 21).

Scenes scrolling past on a ream
Reliving emotions from the Dark Night
Cut! With the penetrating scream
Black cockatoos numinous in flight

From my experience in descending 'the *U*', I sensed that what emerged and wanted to be born was a 'novel' or, some kind of integrated narrative which seamlessly combined scientific insight, personal narrative and creative writing as part of a uniquely transdisciplinary (and phenomenological) endeavour. At one point, a multitude of timely encounters seemingly - blatantly - signposted me in that direction. This beckoning - alongside stubborn writer's blocks and inertia with scientific writing - forced me to begin heeding the call.

The plan was to embed the Faculty requirement of scientific papers within a creative output which captured the results of the phenomenological and heuristic inquiry. In this way, there would be elements which would necessarily contribute to scientific knowledge (and engage the head) yet encased in a narrative accessible to society (and appeal to the heart). In my mind, it was lucid. In practice, it was turbid. There were repetitive patterns of oscillating between days of painfully slow scientific writing (ending in fumes and frustration) and days of flowing creative writing (which ended in unease with the realization that I was effectively turning my back on months of literature review, data collection, analysis and writing-up as well as concern that I was not meeting (half-imagined, half-real) expectations of research participants, supervisors and Faculty). For these reasons, and possibly because I increasingly felt the entire ambition was beyond my capability, I eventually abandoned the idea. Rather than a beautifully interwoven tapestry, I see this hybrid dissertation as more akin to an oversized patchwork quilt – where the parts are greater than the whole.

I alone wear responsibility for this decision. There are inevitably inert systemic barriers but ultimately any fingers of fault point toward myself. Whilst my supervisory team necessarily tempered any overzealous ambitions by highlighting standard concerns which might be registered by examiners, Faculty and funders, they otherwise demonstrated confidence in my earnest desire to push boundaries and explore new terrain. Despite being untrodden ground for them, I am grateful for their sincere interest and support in treading with me. Various persons advised me to "get the thesis done and then write your novel – you still have your whole life for that". It made a lot of sense then and it still does. But I am unconvinced that the soul - often the first to recognize real windows of opportunity – sees it that way. When the wind blows, open your sails and charge, for you never know when you might end up lolling about in the doldrums. Frankly, after almost five years on this topic, I am unsure there is still wind left in my sails for a novel, at least not immediately. An electronic screen has consumed too much of my attention and it is time for that to be directed elsewhere. I also have other life responsibilities to attend to and the privilege of that silent solitary space I was afforded during these doctoral years is unlikely to be so accessible again anytime soon. So I knew when finally turning my back on the 'novel idea' that I was likely up for a drawn-out and complicated process of completion. Maybe I pre-empted it such, but even when seeking otherwise, I was unable to rediscover the sense of flow, inspiration and productivity I found when writing more creatively (novel-like).

Whilst I did not end up fully testing it for myself, I remain committed to the impetus for stories in science. In the current climate of information saturation and the continued ineffectiveness of science in communicating core messages, (conservation) science needs evocative stories more than ever. Stories can more effectively communicate complexity without necessarily compromising the integrity of the knowledge being imparted. In recognizing that messages are value-laden and cannot be divorced from their underlying values and moral standpoint, stories hold promise in creating an appeal that speaks to the head and heart. At the PhD level, stories can avoid killing the chronology which is vital when reflecting upon the student's personal learning journey.

Despite the output being less than hoped for, I harbour immense gratitude for a thoroughly enriching PhD process. In some ways, it feels that the true personal lesson of this study was about 'process'. It is difficult for me to comprehend all that I experienced during the past five years – the texts digested, the people conversed with, the opportunities afforded and, of course, the experiences encountered. This collective blend is as mind-boggling as it is humbling; the privilege has been immense. This entire process – and the experiences comprising it – is fondly recollected and I expect it will only become more golden in memory.

> *From the point of view of instrumental reason it may be quite true to say that we cannot do anything with phenomenological knowledge. But to paraphrase Heidegger, the more important question is not: Can we do something with phenomenology? Rather, we should wonder: Can phenomenology, if we concern ourselves deeply with it, do something with us?* (van Manen 1990: 45)

Phenomenological research involves us so deeply in an endeavour that we explore and embody questions which spring "from the heart of our existence, from the centre of our being" (van Manen 1990: 43). It is a (re)search for what it means to be human - with its ultimate aim as the fulfilment of our human nature: to become more fully who we are (van Manen 1990). These are the roots for transformation - the fruition comes through an ever-deepening process of explicating meanings from the lifeworld into something which is lived and shared through the act of research (e.g. dialogue), writing and, ultimately, living and being. Certainly, the unfolding process of this research endeavour has compelled me to deepen my CWN, marvel at MNE and to live, share and integrate that where I can through pedagogical endeavours (cf. Pohl 2011).

My supervisor's PhD promoter told him that PhD's should be a life-changing experience. Although now a touch jaded, I have been undeniably enriched in knowing that there has been a progressive 'shift within'. Such things transpire on 'journeys', 'voyages of discovery', 'pilgrimages' or, as I saw this process, a 'rites-of-passage' – not in the sense of being granted a place in the esteemed halls of academia but in journeying outward, searching inward, crying for a vision and returning with a gift for community / society. Doctoral research is implicitly a learning experience for the student (Lawton 1997) but my steadfast view is that a PhD, in most cases, should be a vocation which allows the candidate to come alive through the realization of (intellectual and creative) talents and pursuit of passions. If a PhD no longer guarantees academic or professional careers (see Preface) or social and scientific prestige, it must at least be carried out in response to 'a calling' which should, by its very nature, be transformative. This equally speaks to the heart of transdisciplinarity which seeks to realize a degree of transformation in science and society (Pohl 2011). Inevitably, effecting tangible change in science or society may be beyond a student's sphere of influence. So if one cannot guarantee their research will advance science or benefit society, then ensure it serves *Self*. In the final analysis, this may be the only assured pathway for imprinting a positive legacy within the world.

> *Would you like to save the world from the degradation and destruction it seems destined for? Then step away from shallow mass movements and quietly go to work on your own self-awareness. If you want to awaken all of humanity, then awaken all of yourself. If you want to eliminate the suffering in the world, then eliminate all that is dark and negative in yourself. Truly, the greatest gift you have to give is that of your own self-transformation.* ~ Wang Fou in *Laozi Huahujing*, ca. 300CE

7.3 Final close (synthesis)

This study considers the growing physical and psychological separation of humans from nature as being the primary driver of the social - ecological challenges facing the planet. This research arose out of an intense interest in finding ways to rekindle humanity's *connectedness with nature* and, specifically, if *meaningful nature experience* might be an effective avenue for healing the divisive ways in which we think, see and act in the world – habits which could be conceived as being central to humanity's impending *crisis in consciousness*. In essence, this crisis is driven by *inattention nature blindness*: the wilful editing of ecological phenomena from consciousness-forming experience such that it reinforces the perception of being separate from nature.

This study brought together four key concepts: *connectedness with nature* (CWN), *invasive alien species* (IAS), *education for sustainability* (EfS) – explored around the core theme of *meaningful nature experience* (MNE). As a transdisciplinary endeavour, the research distilled and integrated various disciplinary perspectives, including (conservation) ecology, (eco- / environmental) psychology and (sustainability) education. Principles of pragmatism and mixed methods research underpinned the study with phenomenology – i.e. the science of lived experience – serving as a guiding philosophy and informing the interpretivist methodology adopted. The following paragraphs synthesize key findings and recast them back in line with the research questions.

In a contemporary context, CWN is a way of being which balances the cognitive, affective and experiential dimensions of consciousness such that it creates attitudes, emotions and actions which reflect a genuine appreciation of one's interrelatedness and shared essence with the natural world. CWN is more than only information and knowledge *about* nature (mind) and more than contact and experience *in* nature (body): CWN fuses these elements to proactively engage *with/in* nature in a way that is enlivening (of one's spirit). Cultivating CWN requires practices at individual and collective levels to awaken to a deeper appreciation, care, respect and empathy with nature as part of realizing true systems thinking. For conservation, CWN's key contributions may be in building resilience, a compelling language and an enduring motivation for ERB.

MNE is any non-ordinary experience with/in nature that is particularly profound, significant, affective and difficult to wholly describe (Swan 2010; Morse 2011). MNE is characterized by heightened awareness, intensified emotions (e.g. amazement) and related physiological responses. These MNEs may involve flora, fauna, landscapes or celestial bodies: e.g. the unexpected proximity, unusual behaviour or prolonged interaction with an animal; the beauty and form of trees; the vibrancy and pervasive energy filling landscape and one's own being; or the silence, solace and diminished sense of self when awed under expansive skies. In many of these scenarios, nature, in its myriad manifestations serves as 'the great leveller' – reigning in the human ego to be redefined and rediscovered as belonging in relation with this perennial earthly 'other'. *Synchronicity as a MNE* is distinctive as an uncanny (e.g. numinous) experience of insight, flow, intuitive guidance and 'knowing' and, critically, can dissolve perceived boundaries between mind and matter (nature).

MNE emerges out of intimate exchanges between nature and psyche to offer indeterminable outcomes. Yet common themes emerging from MNE and forming the basis for further discussion in this research were: proximity; reciprocity; intensity; non-ordinariness; aliveness; humility; (inter)connectedness; insight; spiritual experience; renewal and restoration; and the dynamics between lived experience and recalled experience. Notable and unexpected themes to emerge were the extent of perceived 'communication' with nature and the intriguing possibility that certain types of species may be more concomitant to *synchronicity as a MNE*.

In the external *situational* context, MNE appears more likely to result when natural phenomena suddenly and/or unexpectedly arise within awareness. The perception of authentic beauty (through, e.g. naturalness, remoteness, vividness, wholeness, harmony) is integral to the encounter. *Synchronicity as a MNE* appears more dependent on the inner *personal* context: in fact, the key distinction between these types of MNEs may be that the former is more reliant on external context whereas synchronicity is moved by the intensity of the inner world of thought and emotion such that it feels like this internal conspiring has invited the outer world into participation and conversation. It seems that a reliable trigger for MNE is being able to engage in activity which shifts perceptual equilibrium and/or focuses attention. This, coupled with openness (i.e. detachment to pre-held expectations) seems essential in attuning consciousness to a deeper CWN.

MNEs might appear 'only' as rich sensory and/or emotive experiences to be pursued and consumed. [183] As enticing as that may initially be, the results of this study reveal a more profound relationship. Firstly, persons who have had MNEs exhibit higher CWN: a positive correlation was found to exist between the frequency of MNE and the strength of their reported CWN. The relationship appears mutually reinforcing in the sense that a higher CWN can spawn more frequent MNE. This possibility was borne out by results which found that certain (spiritual) practices and activities - from regular contact with the natural outdoors to displays of gratitude - positively correlated with CWN and MNE. Notably, the experience of synchronicity corresponded strongest with CWN. Qualitative analysis supported such results in finding that respondents consider MNEs instrumental in shaping their perceptions of connectedness. MNE appears to act as conduit for CWN and may thus be instrumental in catalyzing and reaffirming a relational worldview.

Almost all respondents to this study agreed that their MNEs had a highly positive impact on shaping their attitudes and actions toward the environment and heavily influencing or transforming their outlooks on life. Specifically, respondents saw their MNEs as being pivotal in: forging understandings of interconnectedness; influencing (green) career choices; imbuing respect for nature; and opening new ways of seeing the world. MNE holds sufficient sway to motivate ERB and may serve as a vital catalyst for advancing personal growth. At a more profound level, both MNE and CWN appear to (re)activate a commitment to reciprocity and stewardship - as if the individual has, at some level, agreed to honour a sacred contract of great antiquity.

[183] The paradox is that the relentless pursuit of MNE might conversely put MNE beyond reach for multiple reasons: e.g. they become expected and thus lose their important 'unexpected quality', the sensory thrill assumes primacy and displaces the subtler meanings available; and as, novelty wanes, so too non-ordinariness. Therefore, as reiterated in Chapter 6, to avoid misplacing the intent, one must seek CWN: connection comes first; connectedness counts most.

Invasive alien species (IAS) are perceived as a threat to one's propensity to derive MNE. It seems this rests on two key traits of being 'human': we are visual and we are thinkers. As a result, IAS appear likely to undermine experience of landscape if it affects the perception of authentic beauty and 'naturalness' but this is heavily informed by what 'we know'. Knowledge colours - but also creates - perception (of 'a problem'). However, personal and situational contexts will ultimately dictate if and how IAS affects MNE. In this regard, this research conversely highlighted that IAS can comprise MNE in forming valuable learning experiences. Specifically, by being embedded in mirroring and social-cultural metaphor, persons may come to see themselves, their culture or their human counterparts in the IAS scenario. This may inspire feelings of empathy, relatedness, appreciation of their value as 'life' or deepen antipathy and aversion. Being prone to metaphor, the IAS issue elicits an adversarial language which can compromise MNE and impede CWN. This may inadvertently undermine conservation ethics and aspirations, particularly that which encourages the formation of new human identity that can be articulated in terms of CWN (Carruthers et al. 2010).

This study highlighted both the limitations and potential for formal education to impede or support MNE and CWN. Certainly, respondents expressed a widespread conviction that an education promoting a fuller of understanding MNE would deliver a range of benefits for social and ecological systems. Their collective solutions combined a range of ecologically-grounded intellectual concepts, experiential activities, values and ethics and integrated learning approaches which included advancing eco-literacy, honing sensory awareness and engendering respect for nature to support realizations of social-ecological interconnectedness. In-depth interviewees renewed calls for formal education to better bridge science and spirituality, adopt mentoring (for CWN) and encourage activities that allow for participation in, and sharing of, experiences with nature.

Theory edU emerged out of this study's mixed methods research approach. It was designed to weave in the various thematic strands (arising from literature, phenomenological analysis and conventional research as performed in this dissertation) along with the 'golden thread' that emerged from this extensive exploration. In essence, this highlighted that the educational aim is not to achieve MNE *per se* but to engender CWN as the foundation for a way of living that is purposeful, fulfilling, appreciative and in service to one's Self and one's Community (on whichever scale that may be defined). In having an archetypal and fractal nature, *Theory edU* was shown to be applicable at various scales: from short courses to orienting lifelong learning. *Theory edU* invites exploration of deeper and more expansive notions of connectedness - i.e. with Nature, Self, Source and Community - as part of a threefold process of *connecting*, *harmonizing* and *becoming*. This approach seeks to illuminate and integrate the dualities and dichotomies which may inhibit connectedness.

This research has revealed the perceptual significance of MNE. Against the backdrop of 'everyday life', a MNE affords a glimpse of 'potentials', i.e. other ways of thinking, seeing, feeling, engaging and being in the world. In making real a (felt) connectedness which might otherwise remain abstract and elusive, MNE urges reflection on how this alternative reality can become the new ordinary. Habitually connecting with nature may transform consciousness in a way that enables 'everyday life' to be lived as a meaningful experience.

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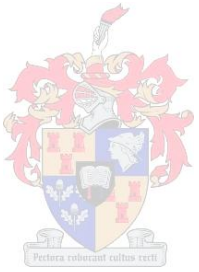
Exploring meaningful nature experience, connectedness with nature and the revitalization of transformative education for sustainability

Appendices
(Vol. II)

Matthew J. Zylstra



Dissertation presented for the degree of
Doctor of Philosophy
Faculty of AgriSciences
Department of Conservation Ecology & Entomology
Stellenbosch University

Promoters: Prof. Karen J. Esler, Faculty of AgriSciences, Stellenbosch University
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April 2014

Preface to Appendices

The appendices (Vol. II) are complementary to the main body of dissertation (Vol. 1). These appendices have been included on the basis that they:

- Afford deeper insight in the transdisciplinary process which formed this doctoral study;
- Present additional outputs and outreach that comprised the entire transdisciplinary endeavour;
- Allow for more detailed personal narrative and reflections on themes in the dissertation;
- Provide additional research results, figures, tables and graphs which complement material presented in the main body of the dissertation;
- List all relevant material pertaining to research methods, e.g. questionnaires, ethical clearance.
- Provide both important analytical background information and philosophical extensions of certain themes comprising and arising out of the research, particularly *synchronicity as a MNE*;
- Capture the creative dimensions of the research process with poetry, imagery, reflective narrative and other writings which may be more accessible and appealing to a broader readership;
- Offer additional conceptual and reflective insights from other authors (sometimes verbatim) which would be highly difficult or impossible for other persons to be able access on their accord; and
- Showcase the many strands which I have tried to interweave as part of this unique learning journey.

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9.1 The four quadrant (AQAL) model as used in Integral Theory

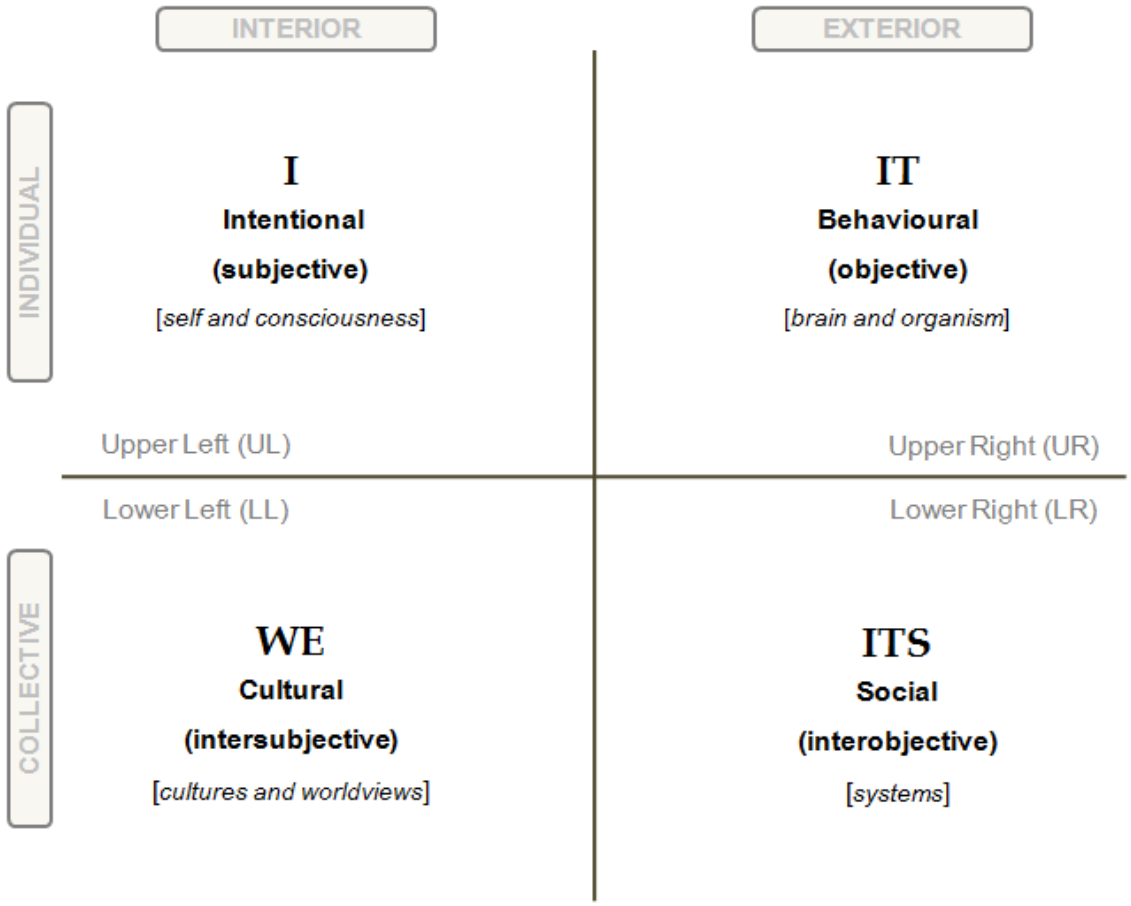


Figure 31: The four quadrant (AQAL) model (as applied to humans) (Wilber 1995; Esbjörn-Hargens 2009)

Wilber's (1995) *All Quadrants All Levels (AQAL) model* recognizes four irreducible perspectives or dimensions of reality, i.e. subjective, intersubjective, objective, and interobjective whereby the *subjective* ('I') quadrant consists of first-person perspectives (experiential phenomena), the *intersubjective* ('We') consists of second-person moral perspectives (cultural phenomena); the *objective* ('It') consists of third-person scientific and natural perspectives (behavioural phenomena); and the *interobjective* ('Its') consists of third-person scientific and natural systems perspectives (social phenomena). According to Integral Theory, these four quadrants represent *irreducible perspectives* "that must be consulted when attempting to fully understand any issue or aspect of reality (Esbjörn-Hargens 2009: 2). The quadrants remind us of the dimensions of reality that are present in every moment (in humans and animals) and which can equally be viewed from the interior (subjective) or exterior (objective) and/or from individual (singular) or collective (plural) perspectives.

9.1.1 Convergence of crises (an Integral Ecology perspective)

The *crisis of consciousness* (described in Chapter 1) can be considered as one of four main terrains of the social-ecological crisis alongside a *crisis of systems*, a *crisis of behaviours* and a *crisis of cultures* (Figure 32) (Esbjörn-Hargens & Zimmerman 2009; Mattson 2009). Within each quadrant, there are a range of adverse trends which may be seen as characterizing or fuelling the (perceived) respective crisis of each.

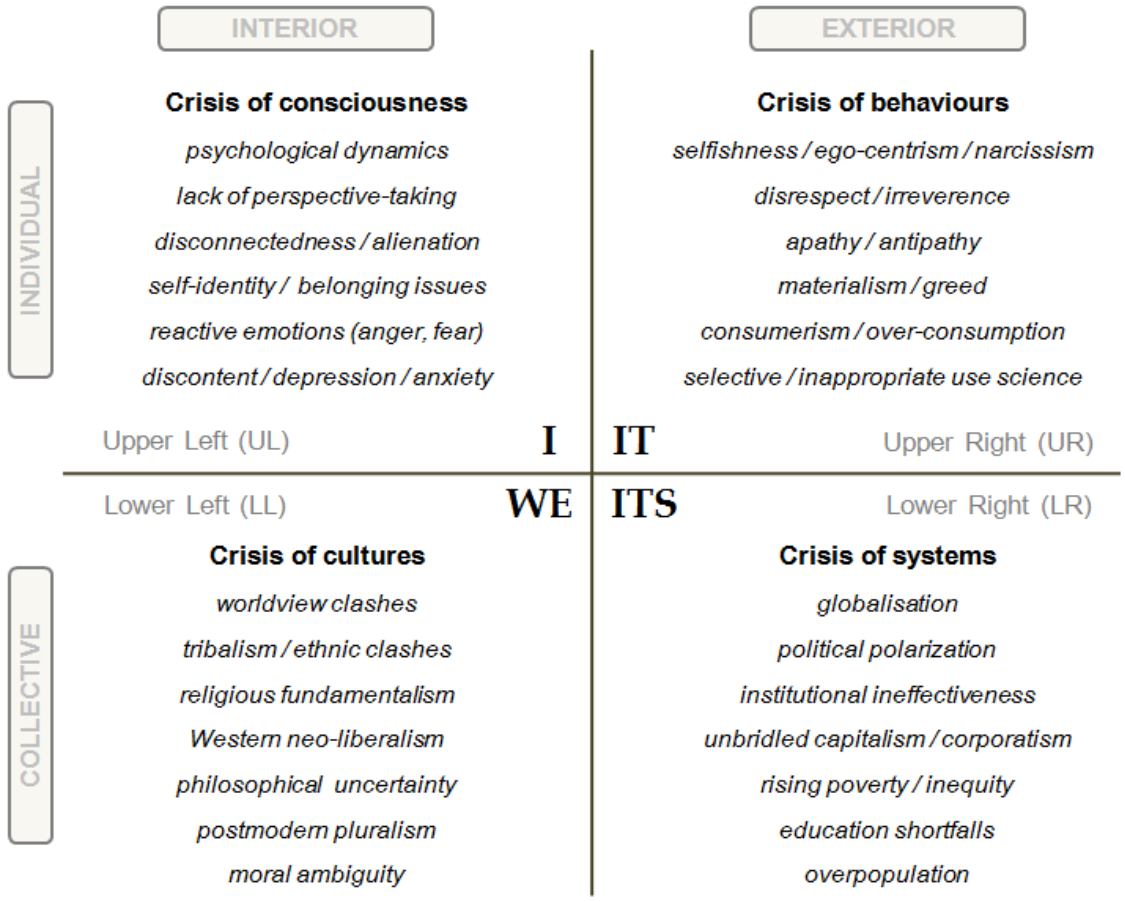


Figure 32: The four terrains of the social-ecological crises in Integral Ecology (adapted from Mattson 2009)

However, and ultimately, the "irreducible interiority of our ecological problems" (Mattson 2009: 226) means that it is the consciousness of individuals that will always underlie, infuse and influence – and be influenced by - every other quadrant: only by attending to our neglected interiors can we avert the unfolding crises in all other quadrants and cultivate the potentials needed to realize solutions in both our private individual and shared collective realities. In this regard, I prefer to conceptualize the terrains (and crises) as an interlinked Venn diagram makes a distinction between Self and a more expansive view of consciousness (Figure 31a).

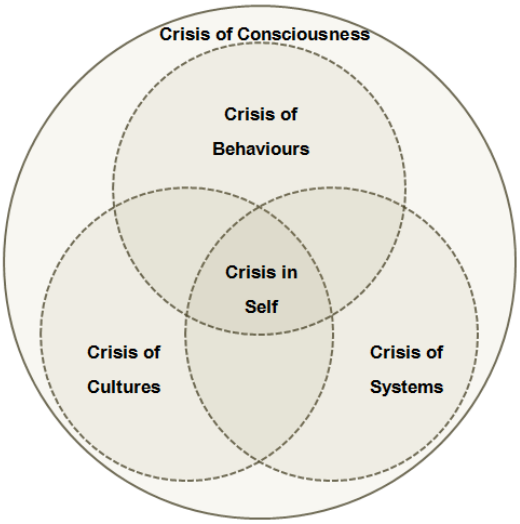


Figure 31a: A 'Self-centred' integrated conceptualization of the terrains of the social-ecological crises

9.1.2 Methodological zones

According to Integral Theory (cf. Wilber 1995) and Integral Ecology (cf. Esbjörn-Hargens & Zimmerman 2009), there are eight primary methodological zones (Figure 33). In adopting phenomenology as a way of accessing (and addressing the crisis of) consciousness, this study sits in Zone 1 and the (interpretivist) structuralism of Zone 2. However, in adopting pragmatism, forays are also made out of Zone 1 and employ methodologies which broach Zone 3/4 and Zone 5/6 (see Chapter 5). Figure 33 also helps conceptualize Integral Theory might be applied as a transdisciplinary methodology and further sheds light on its claims of being *post-disciplinary* (Section 7.1.3.1) in the sense that a problem can be viewed from within one, between several or in combination of all quadrants and the respective disciplines that they contain.

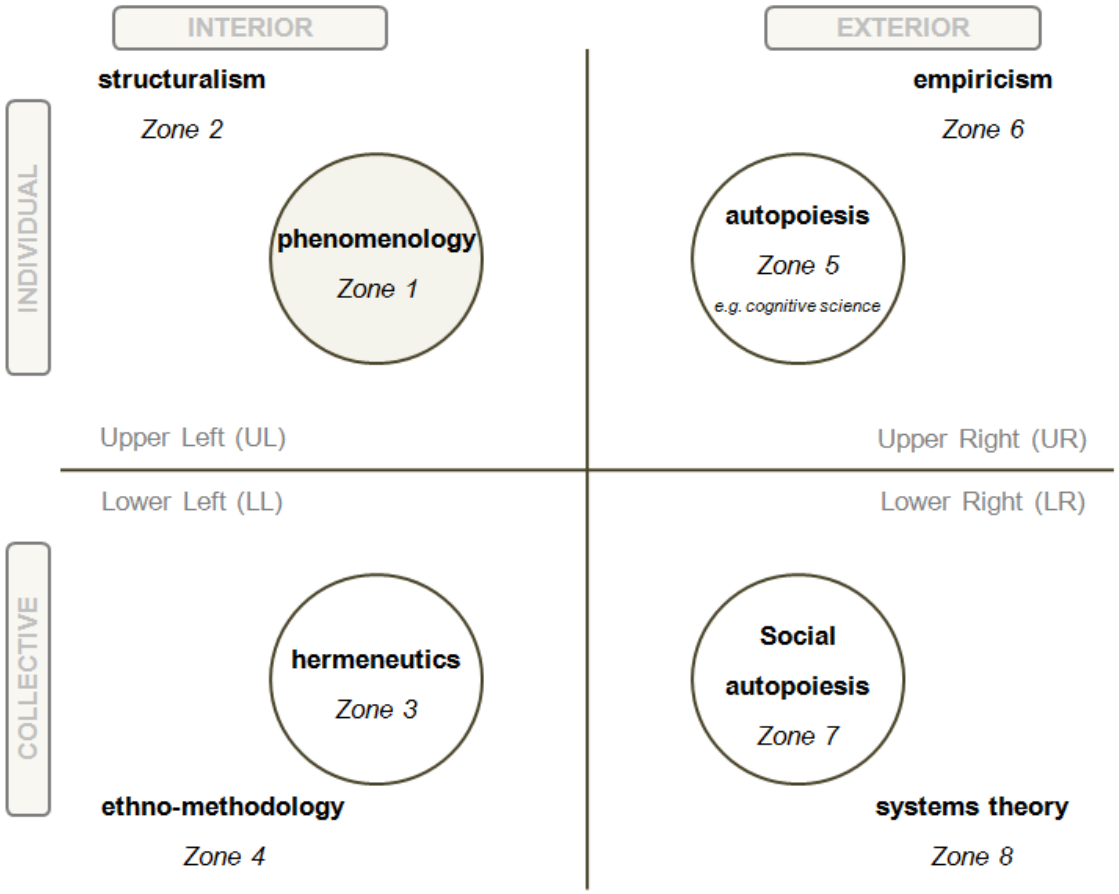


Figure 33: Eight methodological zones (Esbjörn-Hargens 2009: 17)

Note: As per Figure 31a, the four quadrants in Figure 33 could also be (better) conceptualized as a Venn diagram where phenomenology - as a primary methodology exploring the very ground of being itself - underpins all other methodologies, i.e. autopoiesis, hermeneutics, social autopoiesis.

9.2 Pivotal personal MNEs

This section reflects on the key experiences which were influential in igniting my interest and shaping my orientation toward this research topic.

After a turbulent 2005 filled with personal upheaval, I became increasingly uncertain about my professional / academic direction. The previous years of intense scientific endeavour had been incredibly illuminating and enriching but, at the same time, it felt like I was drifting from subjects that ignited my curiosity and passion for nature as they became buried under a mass of intellect, theory and frameworks. I had lost balance in life. The year careened toward rock-bottom with the sudden news that Christian, a close friend of mine, had died in a hiking accident. Distraught, I grabbed my bike and pedalled furiously into the nearby Dutch woods. Sitting facing the afternoon sunshine in a little clearing, I tried to come to terms with the news. Not really knowing what to do, I performed a half-baked attempt at a 'prayer'. I closed my eyes and tried to devote my fractured attention toward Christian and spoke silent words of solace:

Mate, I hope you're ok wherever you are. I hope you're in a good place. I hope you somehow let me know you're ok.

It was a desperate effort – prayer was not something I readily engaged with. I am unsure if I expected 'an answer': it was just that human tendency to try and cling to something (from, e.g. our upbringing) when freefalling through an isolated vacuum of despair. A response – if I dare to call it how it felt – arrived within half a minute. With eyes still closed, something came to rest on my forehead and then, seconds after, landed on my right shoulder and then left forearm. Strangely, I did not react with alarm. It seemed that a sense of expectancy at some level allowed me to retain a curious sense of calm and, increasingly, wonder at the dragonflies resting upon me.

Having three insects coming to rest on me initially felt perfectly OK and a natural part of the moment. I slowly opened my eyes to find my vision slightly obscured by a dragonfly perched on my forehead. I looked left - there was another dragonfly on my upper forearm. And to the right, there was also one on my shoulder. Sitting there dazed and amazed, I tried to process what was going on here and why. I happened to have my camera with me so I reached into my backpack and, after unzipping it from its case, was able to capture a number of images. In some ways, this seemed a little inappropriate but it has nevertheless served as a meaningful reminder - and hard 'proof' for myself - that the experience happened

Image 23: Dragonfly blessing

as I remembered it. Eventually - after what seemed like at least five minutes - the dragonflies departed, one by one. And I was left there, in the soft warm light of the afternoon autumn sun, relieved, honoured, bewildered, reassured and already doubting the legitimacy and my evolving interpretation of this cathartic experience. On the bike ride back to my flat, I began to convince myself that dragonflies must do this sort of thing all the time and I just do not get out into the woods nearly enough. But the couple of friends (also students of environmental sciences) I dared sharing the story with were not so quick to dismiss it. For one thing, there were no bodies of water anywhere near the area – the preferred habitat for these insects.

The experience gradually re-awakened my teenage interests in the ancient earth mysteries which had once captured my fascination. I was forced to reconsider the idea of a 'something other' than myself within the spectrum of our visible and non-visible reality. It briefly forced me out of my overly rational mode of thinking which I had been pandering to for the past three years. It begged me to start asking if such experiences were being shared by other persons. Is this just a desperate grasping for existential meaning, particularly during emotionally turbulent and ungrounded times? Real or imagined, what is the impact of such experiences? What is the role of the animate world in all this? Despite my questioning and intrigue at the time, I shelved this path of exploration for another few years. After all, were there not more important and grounded things to engage with in order to solve the burgeoning environmental crisis? Is this not just a flight of egocentric fantasy to recall during times of frivolous and inconsequential soul-searching? But I could not continue to compartmentalize this experience, i.e. something to place 'over there' when I needed emotional and spiritual nourishment whilst rationally getting on with my daily professional routine 'here' in the meantime. There was a constant and inseparable interweaving between the two. I sought clarity on this.

A few months later, in the early hours of 23 December 2005 and during my first ever ten-day Vipassana meditation sitting (after the year just been, I was willing to try anything), I experienced the most powerful dream of my life. Upon awaking at 4.00am, I realized something had shifted: for the first time in many years, I felt buoyant, positive and assured that there was a purpose in life awaiting me. The dream subsequently served as an inspirational beacon to orient life choices thereafter. The setting was in Africa (at which time, I had never considered the possibility of living there) and whilst the dream had a number of profound insights and key scenes, it was a spellbinding swim with orcas off the southern Cape which will always stay with me.

In the following year, after spending more time with Australian Aboriginal persons on 'country', I deepened my interest in Indigenous relationships to animals – from both a totemic and everyday interaction / survival perspective. There were profound experiences which forced me to reassess previously held understandings of human-nature relations. Spear-hunting for stingrays in crocodile-infested waters for almost two-hours based on our hosts' belief that there was 'an understanding' between them and the crocodiles was one such moment. Upon moving to South Africa in 2007, curiosity in this subject furthered as I learned of Xhosa relationships with nature, animals (as totems) and the role of ancestors. I found the commonalities with Aboriginal beliefs intriguing and wondered if remnant 'universal' traits still existed in the Western psyche.

9.3 Conceptual schematic of consciousness as relevant to CWN

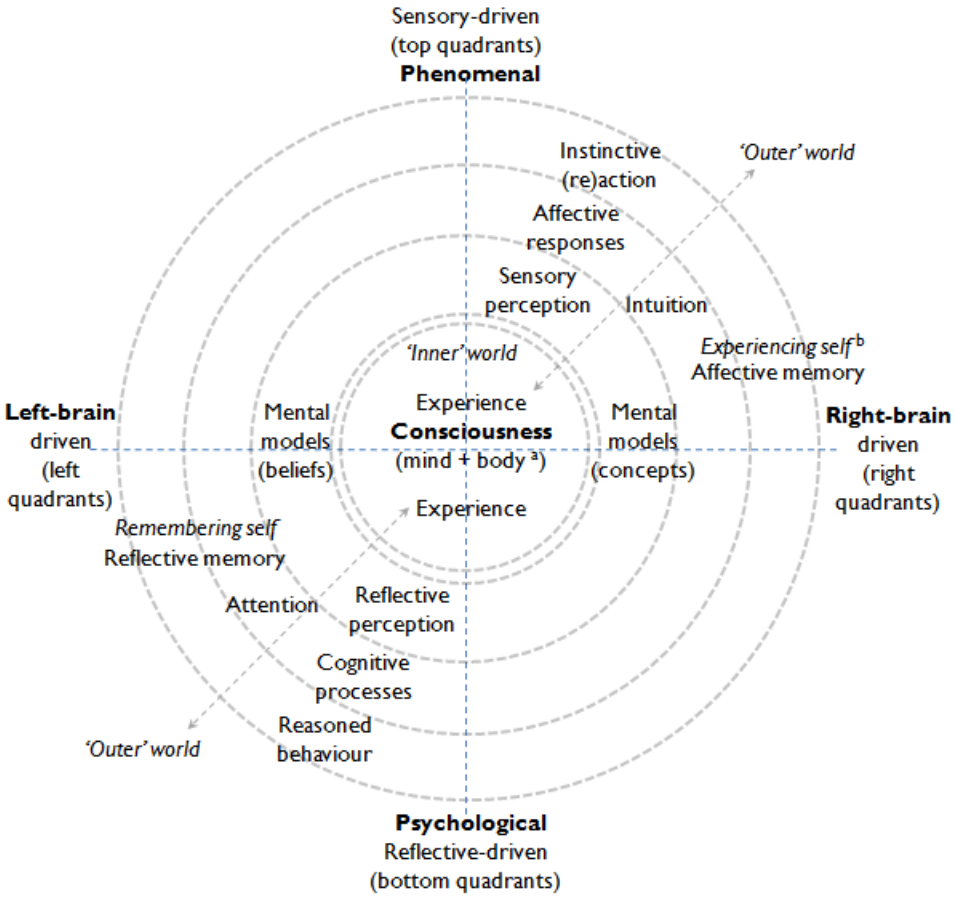


Figure 34: Conceptual representation of key functions comprising human consciousness

[a] Research shows that the heart, along with the brain, nervous and hormonal systems, generates emotional experience (McCraty & Childre 2004). Depending on definition and where boundaries are drawn, this suggests that consciousness could extend beyond the physical brain and, further, as part of the unbroken totality of movement conceived by Bohm (1980). Such understandings could also be linked with notions of an individual and collective unconscious (Jung 1959).

[b] Kahneman (2010) makes the distinction between the *remembering self* and the *experiencing self*.

Figure 34 conceptualizes key faculties of human consciousness as relevant to understandings of CWN. Primarily, it makes the important distinction between the two ways in which humans experience, perceive and act (e.g. 'connect'): 1. *Phenomenal* - through immediate sensory perception and affective response (*feeling*); and 2. *Psychological* - through reflective perception and cognitive processing (*thinking*). Beginning with consciousness (and the experience comprising it) at the centre (i.e. the 'inner' world), its *intentionality* moves it through various porous 'fields' from: sensory and reflective perception (filtered by mental models) to reasoned behaviour and instinctive action as it manifests in the 'outer' world. Whilst all represented fields might be labelled *psychological* constructs; it seems prudent to differentiate the *phenomenal* which emphasizes the sensorial and affective dimensions of perception. Due to incomplete and evolving understandings of consciousness, Figure 34 does not claim to represent a definitive 'truth' nor can these components be easily compartmentalized: it is just one transient model aimed at depicting a highly complex system with fluid boundaries.

9.4 The seven phases of heuristic research

The following text is extracted verbatim from Hiles (2008: 390-391):

In practice, HI [heuristic inquiry] entails creating a story that captures the qualities, meanings and essence of a human experience. The process begins with a question or problem to which the researcher seeks an answer. This question or problem, whether explicitly or implicitly, will always reflect a personal concern of the researcher with respect to understanding them self, and the human world in which they live. Moustakas's heuristic approach offers a structured sequence involving seven phases of inquiry.

1. *Initial Engagement.* Research begins with the discovery of an intense and passionate interest or concern with respect to important social and universal meanings that have personal implications. Initial engagement involves self-dialogue and an inner search helping to clarify the chosen topic and the research question. Turning inward taps into tacit awareness and knowledge, and requires disciplined commitment in order to discern the underlying meanings and clarify the context.

2. *Immersion.* Following the discovery and clarification of the question, the researcher immerses in anything and everything connected with the question. This involves intense exploration, following trails of data, self-dialogue, self-searching, seeking out co-researchers with similar concerns and experiences, and facilitating the tacit dimension of knowing. It is a phase that might seem quite boundless.

3. *Incubation.* This is period of consolidation. Focus is relaxed, such that emerging ideas are allowed to take root. It may be important to take "time out" in order to create a space for ideas to germinate, or it may involve further more-focused work with co-researchers.

4. *Illumination*. This occurs naturally and spontaneously out of the relaxed and tacit state of the previous phase. There is meeting of conscious and unconscious aspects of the phenomenon and the beginnings of a synthesis of fragmented knowledge emerges. There is insight, and emotional connection is made. The universal significance of the phenomenon is realized. A completely new discovery is made.

5. *Explication*. This requires a further period of indwelling and focusing in order to deepen, clarify and refine the new discovery, to gain a more complete understanding of the phenomenon. This is a more detailed process, involving continuous self-exploration and awareness. The researcher explicates the major components of the phenomenon in readiness for the final phase of integration.

6. *Creative Synthesis*. This is achieved through mastery of the data and inspiration from the tacit and intuitive dimensions. The focus is upon integration and synthesis, and the mode of its expression as a fully realized picture of the discovery. The researcher may explore any creative means that feels appropriate - for example, art, poetry, music, metaphor, and so on as well as description and narrative - in order to convey the purest essence of the phenomenon to the world.

7. *Validation of the Heuristic Research*. Moustakas regards the question of validity as one of meaning. The heuristic researcher returns again and again to the data to check that the depiction of the experience is comprehensive, vivid and accurate. This is a judgment that in the first instance can only be made by the primary researcher. Validation is further enhanced through co- researcher validation. Nevertheless, a final validation must be left to how the research is received, through publication, presentation, or perhaps performance. Indeed, it is in sharing the creative synthesis with others that the validity of heuristic work is established.

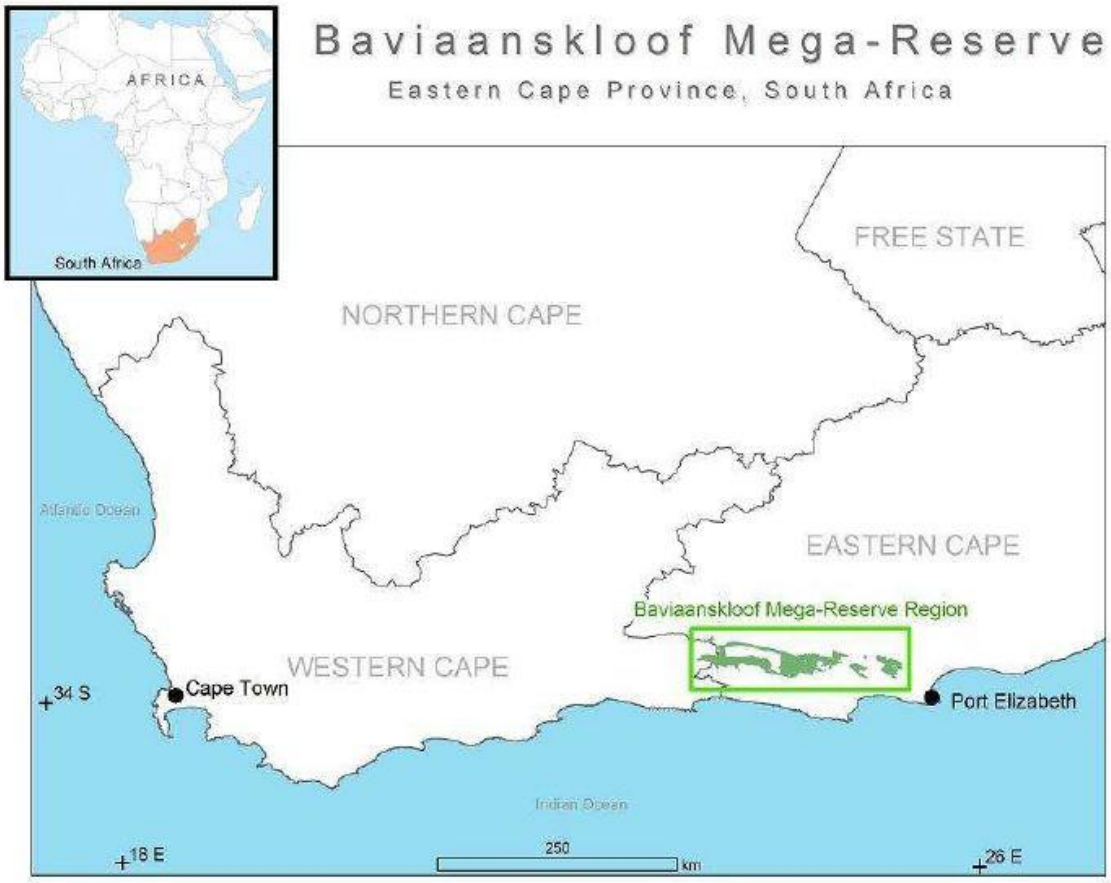
9.5 Research planning

Key timeframes for respective elements of the research process (i.e. literature reviews, field research, administrative milestones are outlined below (Table 46). *Italicised text:* bureaucratic and administrative milestones

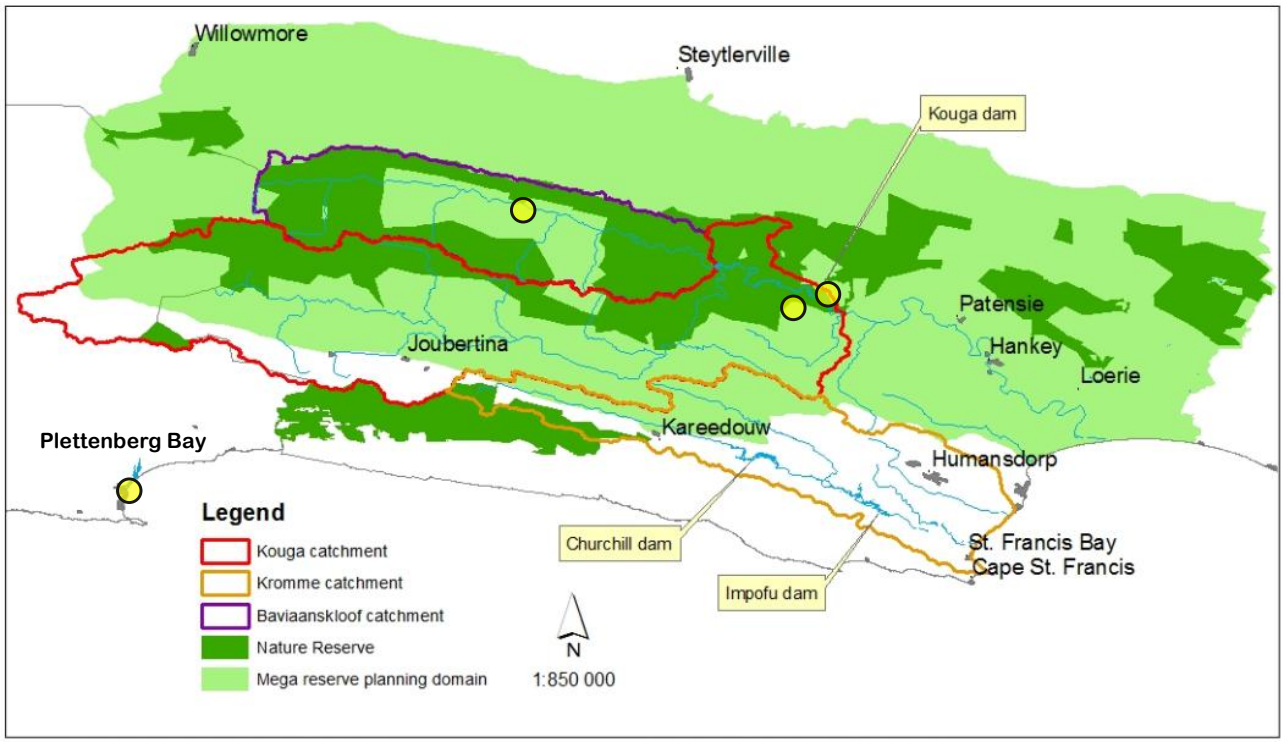
Table 46: Gantt chart (timeline) of research process

Quarters 2009-2012 Key Research Activities	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2001	Q4 2011	Q1 2012	Q2 2012
CIB Bursary / Proposal Approval														
TsamaHUB Proposal Approval														
Departmental Proposal Approval														
Faculty Proposal Approval														
Literature Review														
Pilot / Scoping Studies														
Field Studies Course (WS 1 - SA)														
Guide Training Course (SOTW 1)														
Guide Training Course (SOTW 2)														
Wilderness Trail (BMR 1)														
Ethics Clearance (1)														
Online Questionnaire Administered														
Wilderness Trail (WLS – Kalahari NP)														
Invasive Species Removal (FOBWA - BMR)														
Nature Awareness Group (Trail) (BMR 1)														
Field Studies Course (WS 2 - SA)														
Nature Awareness Group (Camp) (BMR 2)														
Ethics Clearance (2)														
In-depth Interviews (Initial)														
Nature Awareness Group (Trail & Workshop) (BMR 3)														
Public Questionnaires														
In-depth Interviews (Follow-up)														
Field Studies Course (WS 3 - SA)														
Field Studies Course (WS 4 -AUS)														

9.6 Research bases / areas in the Baviaanskloof Mega-Reserve



Map 1: Baviaanskloof Mega-Reserve region (Source: © Wilderness Foundation in Crane 2009)
* Only the protected areas are pictured / shaded in the region; the actual BMR planning domain is shown in Map 2.



Map2: Research bases for in the BMR (for writing and field activities) (Source: PRESENCE Network, 2012)
Key: Nodes = yellow dots ◯ *from right to left:* PRESENCE Learning Village; TerraPi; Sewefontein; and Plettenberg Bay

The *PRESENCE Learning Village* is home to not-for-profit organization Living Lands and Government-funded Working for Water teams who use the on-site horticultural nursery to cultivate native species for land rehabilitation. Since 2007, the facility has also hosted a stream of students undertaking higher education research / internships in fulfilment of their studies and, in doing so, providing valuable contributions to the *PRESENCE Learning Network*, a multi-stakeholder initiative designed to support landscape restoration in the region. With respect to my research, this facility was beneficial in providing opportunities to pilot test questionnaires and field-based activities with the visiting tertiary students and resident staff.

TerraPi's land-uses included wild game farming, small-scale eco-tourism and permaculture, and at one time received volunteers as part of the worldwide workers on organic farms (WWOOF). Youth environmental education programs were sometimes hosted and offered experiential learning. TerraPi had large tracts of land heavily infested with black wattle (*Acacia mearnsii*) and, because of its importance as a water catchment and positioning adjacent to the Baviaanskloof Wilderness Area, the area had received significant investment (for research, clearing, rehabilitation and monitoring) through joint initiatives between WWF-SA and Working for Water. However, in mid-2010, TerraPi underwent a prolonged change of management and most of these activities ceased. Some small-scale black wattle removal continued as a means of providing some economic opportunity for farm labourers. Toward my departure in late 2011, the area came under new management, the farm given a new name and the operational focus shifted.

9.7 Ethics clearance and consent forms

9.7.1 Ethics clearance: online and public questionnaire

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jou kennisvennoot • your knowledge partner

8 June 2010

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7600

Mr MJ Zylstra

LETTER OF APPROVAL RE APPLICATION FOR ETHICAL CLEARANCE

With regards to your application, I would like to inform you that the project, *Perceptions of meaningful nature experiences: Implications for Invasive Species Management and Education for Sustainability,* on condition that:

1. The researcher remain within the procedures and protocols indicated in the proposal;
2. The researcher stay within the boundaries of applicable national legislation, institutional guidelines, and applicable standards of scientific rigor that are followed within this field of study;
3. Any substantive changes to this research project should be brought to the attention of the Ethics Committee with a view to obtain ethical clearance for it; and
4. The researcher will implement the foregoing suggestions to lower the ethical risk associated with the research.

We wish you success with your research activities.

Best regards

Mr SF Engelbrecht
Secretary: Research Ethics Committee: Human Research (Non Health)

Afdeling Navorsingontwikkeling • Division of Research Development
Privaat Sak/Private Bag X1 • Matieland 7602 • Suid-Afrika/South Africa
Tel: +27 21 808 4985 • Faks/Fax: +27 21 808 4537

9.7.2 Ethics clearance: in-depth interviews

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jou kennisvennoot • your knowledge partner

2 June 2011

Tel.: 021 - 808-9183
Enquiries: Sidney Engelbrecht
Email: sidney@sun.ac.za

Reference No. 499/2011

Mr M Zylstra
Department of Conservation Ecology & Entomology
University of Stellenbosch
STELLENBOSCH
7602

Mr M Zylstra

LETTER OF ETHICS CLEARANCE

With regards to your application, I would like to inform you that the project, *Meaningful Nature Experiences: implications for invasive species management and education for sustainability,* has been approved on condition that:

1. The researcher/s remain within the procedures and protocols indicated in the proposal;
2. The researcher/s stay within the boundaries of applicable national legislation, institutional guidelines, and applicable standards of scientific rigor that are followed within this field of study and that
3. Any substantive changes to this research project should be brought to the attention of the Ethics Committee with a view to obtain ethical clearance for it.

We wish you success with your research activities.

DIE UNIVERSITEIT VAN STELLENBOSCH
2 JULY 2011
THE UNIVERSITY OF STELLENBOSCH

Best regards

MR SF ENGELBRECHT
Secretary: Research Ethics Committee: Human Research (Humanoria)

9.7.3 Online questionnaire consent and privacy policy

Privacy Agreement with eyes4earth.org [see: http://eyes4earth.org/contact/privacy/]

Your privacy is important to us. We respect any wishes you may have for confidentiality, anonymity and responsible use of information supplied.

We value your willingness to participate and share your experiences and observations. The information you submit and include on the various GoogleMaps is of course in the public domain and can be viewed by any visitor to the eyes4earth site. Naturally, we cannot accept responsibility for how this public information is used. But we'll make every effort to ensure that usage of the site is moderated and adheres to a highly acceptable code of conduct.

Should you wish to share/submit observations and experiences with us but without having them displayed online then you can simply contact: matt@eyes4earth.org for further information.

The eyes4earth website also includes an option to a complete a more detailed survey about meaningful nature experiences. This information is for research purposes and the respondent's personal identity is treated with strict confidentiality. Should you leave your email address in the survey, we may contact you to clarify specific information (about your experience) with you or seek your prior permission to use selected information in a certain context.

We use secure webhosting accounts and other security measures to protect our database and any information provided by members of our online community.

All email updates sent to subscribers come with the option to unsubscribe from the eyes4earth website at any time.

Your personal details will never be shared or disclosed to third parties for any reason.
Some information is used to improve the functionality of this site but this information is non-specific and does not include any personal data that could be used to identify you as a subscriber.

We trust this reassures you. Any feedback or questions is welcome to be mailed to: info@eyes4earth.org

Privacy Policy for the eyes4earth survey

This online eyes4earth survey seeks to understand:

1. If and how meaningful nature experiences may influence people's attitudes and behaviour toward the environment and their 'connectedness' with it;
2. How landscapes and environmental pressures (e.g. exotic species) may influence such experiences;
3. What relevance these experiences may have for nature education and related conservation strategies.

Please be assured that any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of a password protected database whereby only myself,

as prime researcher, will have access. Your stories and information will be used to support research and may be publicly published (using an 'alias' of your choice) to enhance awareness/outreach activities but will be not be identifiably connected to you individually unless you have given permission to have your name associated with information.

This survey is anonymous. The record kept of your survey responses does not contain any identifying information about you unless a specific question in the survey has asked for this. If you have responded to a survey that used an identifying token to allow you to access the survey, you can rest assured that the identifying token is not kept with your responses. It is managed in a separate database, and will only be updated to indicate that you have (or haven't) completed this survey. There is no way of matching identification tokens with survey responses in this survey.

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw your consent at any time and discontinue participation without penalty. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. You are not waiving any legal claims, rights or remedies because of your participation in this research study.

If you have any questions or concerns about the research, please feel free to contact: Matthew Zylstra, Principal Researcher (matt@eyes4earth.org). If you have questions regarding your rights as a research subject, please contact: Ms Maléne Fouché [mfouche@sun.ac.za; +27 21 808 4622] at the Division for Research Development, Stellenbosch University, South Africa.

All the best,

Matthew Zylstra
Doctoral Researcher, Conservation Ecology & Entomology, Stellenbosch University

9.7.4 Public questionnaire consent form

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

CONSENT TO PARTICIPATE IN RESEARCH

Meaningful Nature Experiences & Profound Encounters with Wildlife

You are being asked to participate in a research study being led by Matthew Zylstra from the Department of Conservation Ecology & Entomology at Stellenbosch University. The results will contribute to his PhD dissertation, associated publications as well as the public outreach internet portal: http://eyes4earth.org.

1. **Procedure**

If you volunteer to participate in this study, we ask you kindly fill in the following questionnaire marking your level of agreement to the statements listed on the form or asked to you. Please respond to the interview questions as openly and honestly as you can. The questionnaire will take approximately 7 minutes to complete. Feel free to end the interview at any time.

2. **Potential risks & discomforts**

In case your recall of your meaningful nature experiences touches on an emotionally sensitive time in your life, please inform the interviewer immediately should you need to withdraw from the interview or seek support counsel.

3. **Potential benefits to society**

Your participation in this study is helping us find ways to make conservation more relevant to society and improving education and awareness for sustainability both in South Africa and overseas.

4. **Confidentiality**

You are not obliged to share personal information unless you chose to. Any information that is obtained in connection with this study and that can be identified with you will remain strictly confidential and will be disclosed only with your permission or as required by law. **Please let us know**: 1. If you are willing to have your stories shared publicly (e.g. online); and if yes, 2. How to make this information public (e.g. anonymous (an 'alias') or with your real name).

If you have any questions or concerns about the research, please feel free to contact: Matthew J. Zylstra – Principal Investigator, Tel: 083 482 8033 matt@earthcollective.net. Visit http://eyes4earth.org to learn more about this research, results and to view the complete privacy policy.

You may withdraw your consent at any time and discontinue participation without penalty.

The information above is clear to me, the participant, and I understood it. I was given the opportunity to freely ask questions and these were answered to my satisfaction. I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

_____ _____

Signature of Participant **Date**

Official Use Only / To be completed by the Interviewer

I declare that I explained the information given in this document to the participant and he/she was encouraged and given time to ask me any questions.

_____ _____

Signature of Interviewer **Date**

9.7.5 In-depth interview consent form

UNIVERSITEIT•STELLENBOSCH•UNIVERSITY
jou kennisvennoot • your knowledge partner

CONSENT TO PARTICIPATE IN RESEARCH

Meaningful Nature Experiences & Profound Encounters with Wildlife

You are being asked to participate in a research study conducted by Matthew Zylstra from the Department of Conservation Ecology & Entomology at Stellenbosch University. The results will contribute to his PhD dissertation and associated research papers as well as the public outreach internet portal: eyes4earth.org. You were selected as a possible participant in this study because you have either personally had what could be termed a 'meaningful nature experience', have knowledge on this topic, or are in a position to advise on how we can improve (experiential) environmental education programmes and strategies aimed at lifelong learning for sustainability.

PURPOSE OF THE STUDY

The research primarily seeks to understand:

1. What is the current cross-cultural (local & global) evidence for meaningful / profound / synchronistic experiences with nature and wildlife? What is their influence on an individual's 'connectedness' to nature?
2. What is the influence of ecological change (with a focus on alien invasive species) on the integrity and richness of meaningful nature experiences?
3. What insights from the above should be integrated into strategies / programmes aimed at:

a) environmental education / learning for sustainability (e.g. for young adults, students)

b) biodiversity management (e.g. invasive species control and approaches)

c) public awareness (e.g. social media/marketing)

5. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:
Please relax!

1. Kindly fill in the questionnaire marking your level of agreement to the statements listed on the form.

For the face-to-face interview:

2. Please take some moments to recall your most meaningful nature experience(s) in as much detail as possible…and how they may have shaped who you are today.
3. Please respond to the interview questions as openly and honestly as you can.

The questionnaire will take approximately five (5) minutes to complete. The more in-depth interview is likely to range from 60-90 minutes. Feel free to end the interview at any time.

6. POTENTIAL RISKS AND DISCOMFORTS

You may find that the recall of your meaningful nature experiences touches on an emotionally sensitive time in your life. You are not obliged to share such personal information. However, any such information shared will be treated with the utmost sensitively and confidentiality without judgment and, upon your request, can be withheld (or 'off-the-record') for the purposes of the study.

In the unlikely event that questions in this interview unintentionally touch upon an emotionally distressing event in your life, you will, in addition to my own efforts to console, be encouraged to immediately seek support counseling from family, friends or a professional in which you can confide and so as to receive any required assistance. If you do not have such options immediately available to you, I will take responsibility for identifying an independent and trained support counsel in your area. I will follow-up with you to ensure that you are satisfied that support counsel has been provided.

7. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

It is hoped that your participation in this study may enhance the information and evidence base on this topic and contribute to developing meaningful scientific ways of linking meaningful nature experiences to progressive lifelong education so as to ensure sustainability in both South Africa and overseas.

8. PAYMENT FOR PARTICIPATION

No payment is scheduled. However, should you feel in your involvement in this study has caused undue personal expense, we can discuss how such costs might be reimbursed.

9. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of a password protected laptop, a non-identifiable coding system and hardcopies are kept in a non-disclosed secure location.

Please note that making your story/ies public on eyes4earth.org or through the final PhD dissertation is likely to greatly enhance public awareness or lend scientific support to the analysis.

You will be asked: 1. If you are willing to have your stories shared publicly (e.g. in a scientific journal or on the Internet (eyes4earth.org, YouTube); and 2. How to make this information public (e.g. confidentially, e.g. with use of an 'alias', or with your real name).

The audio-taping of your interview is to be used for:

1. The researcher's benefit in being able to devote full attention to you during the interview and allowing for detailed analysis and reflection of the conversation at a later date;
2. Public education and awareness activities where possible and when permitted;
3. As a basis for artistic research outputs, e.g. music tracks, mini-documentaries.

As a participant, you have the right to request the removal or erasure of written, audio or video material at any time.

10. PARTICIPATION AND WITHDRAWAL

You can choose whether to participate in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not wish to answer and still remain in the study. The investigator may withdraw you from this research if unforseen circumstances arise which warrant doing so.

11. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:
Matthew J. Zylstra – Principal Investigator, Tel: 083 482 8033 matt@earthcollective.net
Dr. Andrew T. Knight – Primary Supervisor, Tel: 021 808 9111 tawnyfrogmouth@gmail.com

12. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me, the participant, by Matthew Zylstra in *Afrikaans/English* and I am in command of this language, or it was satisfactorily translated to me. I was given the opportunity to freely ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

_____
Name of Subject/Participant

_____
Name of Legal Representative (if applicable)

_____ _____
Signature of Subject/Participant or Legal Representative **Date**

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the subject/participant]* and/or [his/her] representative _____ [*name of the representative]. [H*e/she] was actively encouraged and given ample time to ask me any questions. This conversation was conducted in [*Afrikaans/*English/*Xhosa/*Other*] and [*no translator was used/this conversation was translated into* _____ by _____].

_____ _____
Signature of Investigator **Date**

9.8 Questionnaires

9.8.1 Connectedness to Nature Scale (CNS) (Mayer & Frantz 2004)

Please answer each of these questions in terms of the way you generally fell. There are no right or wrong answers. Using the following scale, in the space provided next to each question simply state as honestly and candidly as you can what you are presently experiencing.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

_____1. I often feel a sense of oneness with the natural world around me.

_____2. I think of the natural world as a community to which I belong.

_____3. I recognize and appreciate the intelligence of other living organisms.

_____4. I often feel disconnected from nature.

_____5. When I think of my life, I imagine myself to be part of a larger cyclical process of living.

_____6. I often feel a kinship with animals and plants.

_____7. I feel as though I belong to the Earth as equally as it belongs to me.

_____8. I have a deep understanding of how my actions affect the natural world.

_____9. I often feel part of the web of life.

_____10. I feel that all inhabitants of Earth, human, and nonhuman, share a common 'life force'.

_____11. Like a tree can be part of a forest, I feel embedded within the broader natural world.

_____12. When I think of my place on Earth, I consider myself to be a top member of a hierarchy that exists in nature.

_____13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.

_____14. My personal welfare is independent of the welfare of the natural world.

9.8.2 Initial online questionnaire

The following version was hosted online at: **http://eyes4earth.org/survey/index.php?sid=29422&lang=en** between April 2010 – May 2011 [NB: this survey URL may no longer be available after 2014]

Meaningful experiences with nature

Thank you for choosing to complete this survey about meanginful nature experiences and profound encounters with wildlife. This survey asks about your profound experiences with nature. Specifically, it focuses on 'awakening' moments, peak encounters and 'meaningful coincidences' with wildlife (e.g. birds, insects, reptiles, fish, mammals, plants...).

This survey will take you between 15-30 minutes to complete. The duration will vary depending on the level of detail of some of your answers...and naturally we appreciate a bit of detail! Most questions give you the option to choose from multiple answers which speeds-up the survey. But please do take the time to answer the written questions - as that is where we can learn the most.

The information from this survey is being used to support PhD research on meaningful nature experiences currently being undertaken in South Africa through Stellenbosch University and funded by the Centre for Invasion Biology and supported by the TsamaHUB. eyes4earth is an initiative of the EarthCollective network. Though the results, we aim to inform public awareness strategies, conservation management and experiential nature education strategies.

Please click here for more inforation on this survey's privacy policy. [see Appendix 9.7.3]

If you have any questions about the research, please feel free to contact: Matthew Zylstra, Principal Researcher (info@eyes4earth.org). Please proceed and enjoy the survey!

All the best,
Matt

PS: There are 36 questions in this survey but you won't need to answer all of them.

Welcome Message
Thank you for choosing to complete this survey about meaningful nature experiences and profound encounters with wildlife. This survey should take you between 15-30 minutes to complete.

This survey is aimed at people who consider that they have had a highly meaningful experience in nature or a profound encounter with wildlife which they remember vividly.

Most questions are multiple choice or allow you to choose from mutliple answers. But please do take the time to answer the written questions - as that's where we can learn the most.

These responses are supporting research carried out on meaningful nature experience, influence of environmental pressures and implications for education. This is being done through Stellenbosch University, TsamaHUB and funded by the Centre for Invasion Biology (all South African organisations). eyes4earth is an EarthCollective initiative.

Please refer to the privacy policy on the eyes4earth site. But , in the meantime, all answers provided here are confidential unless you indicate/request otherwise.

Italicsized font below a question provides additional guidance to help in answering the respective question.

PART 1: Nature of the Experience

This first section asks you about your memorable and meaningful nature experiences.

A 'meaningful nature experience' can include what people call 'peak' 'flow', 'synchronistic', 'profound', 'coincidental' 'awakening', 'serendipidity', 'exceptional', 'divine' , 'mystical' or 'a-ha' experiences. In nature, these may give a person a momentary or prolonged feeling of 'interconnectedness' with themselves and the environment.

Other characteristics which might be associated with such experiences include: 'heightened awareness'; 'intensified perception'; feelings of 'unity' or 'oneness'; 'collapsing boundaries' between oneself and nature'; loss or absence of space and/or time, 'harmony', 'awe', 'aliveness' and/or a sense of inner wellbeing.

It may also involve the coincidental or symbolic appearance of natural phenomena. It may be that you experienced a deep connection with a (wild) animal in some special kind of way. **But ultimately it can be any experience with nature (real or symbolic) which has had lasting personal meaning for you**. Maybe the event provided a message which sparked an 'inner' understanding, 'knowing' or transformation in you.

1 Have you ever had any type of meaningful experience involving nature or the environment, that was not specifically with an individual animal (e.g. landscapes, sun/sky formations, trees, ocean)?

Please choose **only one** of the following:

- ◯ Never
- ◯ Once, i.e in your life so far
- ◯ Rarely, i.e. once every few years or less
- ◯ Occasionally, i.e. a couple of times a year
- ◯ Regularly, i.e. a few times a month or more
- ◯ Other

'Meaningful' can be any memorable, profound, peak, symbolic, mystical or any 'awakening' type of experience.

2 If yes, please describe one of your most memorable experiences (not involving animals/wildlife) below:

Please write your answer here:

3 Have you had a meaningful experience or profound encounter with a wild animal (i.e. mammal (land or sea), insect, bird or reptile...)?

Please choose **only one** of the following:

- ◯ Never
- ◯ Once, i.e in your life so far
- ◯ Rarely, i.e. once every few years or less
- ◯ Occasionally, i.e. a couple of times a year
- ◯ Regularly, i.e. a few times a month or more
- ◯ Other

'Meaningful experience' = e.g. meaningful coincidence, profound, peak, 'mystical', awakening or 'a-ha' experience. The encounter can also be in a symbolic form, i.e. the appearance of an animal in a dream, art or other representation.

4 If you have had such an experience, please recall your most meaningful or profound encounter with a wild animal in detail. Please share the story below and include the date and location of the encounter, as accurately as you can remember it.

[This question could only be answered if the following conditions were met: *° Answer was NOT 'Never' at Question 1 (Q1.1 Have you ever had any type of meaningful experience involving nature or the environment, that was not specifically with an individual animal (e.g. landscapes, sun/sky formations, trees, ocean)?) and Answer was NOT 'Never' at Question '3 (Have you had a meaningful experience or profound encounter with a wild animal (i.e. mammal (land or sea), insect, bird or reptile...)?)]*

Please write your answer here:

Please try to express how you felt during this experience/encounter. Take your time, relax and try to remember that moment. When you have recalled it, please describe it in as much detail as you're willing share. In what ways was this experience personally meaningful to you? Did the encounter come at a significant moment in your life? Did the experience somehow relate with or reflect your thoughts and emotions at that time? The question is open for your interpretation but it could be types of emotions, feelings, sensations, thoughts, ideas, insights, observations, sounds etc etc.

5 What sort of feelings and emotions best characterized this experience of yours? Think about the things you felt during or immediately after the experience. Can you recall feeling and of the things listed below during or after your meaningful experience with nature?

Please choose **all** that apply:

- ☐ Aliveness / Excitement / Radiance / Joy
- ☐ Harmony / Peace / Perfection
- ☐ Anxiety / Nervousness
- ☐ Tiredness / Exhaustion / Drained
- ☐ Interconnectedness / Oneness / Sense of Kinship
- ☐ Confusion / Overwhelming
- ☐ Reciprocal Communication (with the animal)
- ☐ Fear / Vulnerability / Adrenalin
- ☐ Sense of the Divine /God / Creator / Life Force / Spirit
- ☐ Presence / Being in the Moment / No sense of time
- ☐ Meaningful Message / Insight / Clarify of Vision
- ☐ Manifestation of Thoughts / Intent
- ☐ Disappointment / Frustration
- ☐ Heightened Awareness / Intensification of Perception
- ☐ Other:

Simply click which sensations you felt or can identify with based on your profound experience ('face-to-face' or symbolic) with nature.

PART 2: Where did it happen? ~ Conditions & Context

This section will ask 3 questions about the kind of environment where your most meaningful experience happened.

6 In which country did your most memorable meaningful experience with wildlife take place? *
Only answer this question if the following conditions are met:

*[**This question could only be answered if the following conditions were met:** Answer was NOT 'Never' at Question '3 (Have you had a meaningful experience or profound encounter with a wild animal (i.e. mammal (land or sea), insect, bird or reptile...)?)]*

Please choose **only one** of the following:

[drop down box with list of countries]

Choose one of the following answers in the scroll-down box. Scroll to choose the country where the meaningful experience you wrote about on the previous page (in Part 1 of this survey) occurred. Wildlife = insects, birds, reptiles, land/sea mammals.

7 How would you describe the area where this experience occurred? Choose one of the following answers which best describes the area. If you need to choose more than one then please clarify that in 'Other'.
Only answer this question if the following conditions are met:

*[**This question could only be answered if the following conditions were met:** Answer was NOT 'Never' at Question '3 (Have you had a meaningful experience or profound encounter with a wild animal (i.e. mammal (land or sea), insect, bird or reptile...)?)]*

Please choose **only one** of the following:
- ◯ Agricultural / Farmland
- ◯ Arctic / Tundra / Polar
- ◯ Backyard / Parkland / Suburban 'Green Space'
- ◯ City / Urban / Built-up Area
- ◯ Desert / Drylands
- ◯ Grasslands / Savannah
- ◯ Mangroves / Estuary / Coastal / Beach
- ◯ Mountains / Highlands
- ◯ Ocean / Marine / Coral Reef
- ◯ Subterranean / Caves / Undergound
- ◯ Temperate Forest / Boreal Forest (cooler climates)
- ◯ Tropical Forest / Sub-tropical Forest / Jungle
- ◯ Wetlands / Swamp / River / Stream
- ◯ Woodlands / Bushland / Shrub / Thicket
- ◯ Other

Describe the type of geographical landscape / ecosystem where you had the meaningful experience you recalled in the previous questions.

8 How would you describe the type of area (land-tenure) where this experienced occurred? *

***[This question could only be answered if the following conditions were met:** ° Answer was NOT 'Never' at question '3 [MNE02]' (Have you had a meaningful experience or profound encounter with a wild animal (i.e. mammal (land or sea), insect, bird or reptile...)?)]*

Please choose **only one** of the following:
- ◯ National or Provincial Park (Land)
- ◯ Marine Protected Area (Coast/Sea areas where activities, e.g. fishing, are restricted)
- ◯ Private Land (e.g. Agricultural farm, Game Reserve)
- ◯ Communal Land ('Commonages' usually used for shared farming activities)
- ◯ Indigenous Protected Area (Land set aside for traditional peoples & cultural uses)
- ◯ Commons' (Areas open for public access, e.g. usually beach, sea, ocean
- ◯ Urban Park (Municipal land or 'green space' in a town/city)
- ◯ Built Environment (e.g. Household backyard, streets, indoors)
- ◯ Other

Land tenure refers to the type of use, system of ownership and/or legal arrangements which govern a piece of land.

PART 3: Influences on the Experience

These 5 questions will ask about what factors did - or could - influence your meaningful nature experience and/or profound encounter with wildlife.

9 What do you think causes a meaningful nature experience with wildlife to happen?

Please write your answer here:

What factors, if anything, brings a meaningful (peak, awakening, sychronistic, coincidental, flow, symbolic, profound) experience into being?

10 *Please state your level of agreement with the following statement:*
My meaningful nature experience(s) (with wildlife) was positively influenced (e.g. enhanced) by having another person (e.g. a nature guide, teacher, therapist, good friend, family member, shaman, traditional healer) showing me/giving me information before or during the event.

Please choose **only one** of the following:

- ○ Strongly Disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly Agree
- ○ I was alone

If you were alone at the time of your experience, mark the answer 'I was alone'.

11 For each factor in the table below, think of your meaningful nature experience and rank to what extent this factor could have influenced the quality of your experience (i.e. wildlife encounter)

Rank each factor on a scale of 1 to 5 where:
1 = negative influence on the experience;
5 = positive influence on the experience; and
3 = neutral / no effect on the experience

Please choose the appropriate response for each item:

	1	2	3	4	5
Large variety of native wildlife (flora/plants & fauna/animals) in the area	○	○	○	○	○
Large presence of agriculture, crops and/or farm animals grazing in area	○	○	○	○	○
Healthy visually attractive landscape (e.g. ecologically 'pristine', 'intact')	○	○	○	○	○
Unhealthy and/or ecologically degraded landscape (e.g. de-forested)	○	○	○	○	○
Large presence of non-native & exotic species (e.g. plants, trees or animals not originally from the area)	○	○	○	○	○
Obvious presence of other people / development in the area	○	○	○	○	○
Evidence of climate change impacts in the area	○	○	○	○	○

12 Which environmental pressures listed below do you think will most influence your (or your children's) potential to have meaningful nature experiences and profound wildlife encounters in the future?

Please rank the following 'environmental pressures' in order from most threatening to least threatening (in terms of their potential to influence chances of a meaningful nature experience)...

Please number each box in order of preference from 1 to 10:

Climate change & erratic weather patterns
Loss of biodiversity / wildlife / native habitat
Pollution / environmental degradation / desertification
Overfishing & destructive fishing practices
Non-native plant and animals (i.e. exotic/alien invasive species)
Urban development and expansion
Water scarcity
Loss of wilderness areas
Overpopulation
I don't see any of these as being a real threat to my future experiences

13. If your natural environment had a large (dominating) presence of exotic/alien/non-native species (i.e. plants or animals originally from another region/country which have been introduced into your area), how do you think this might affect your chances of having a meaningful nature experience or profound wildlife encounter?

Please write your answer here:

Would it improve or decrease the chances, the quality and the richness of the experience? Do you think that it would or would not make a noticeable difference to your current or future experiences? Why?

PART 4: Changes of Perception

These questions will ask if, and how, your perceptions or behaviour has changed since your meaningful nature experience.

14 The first truly meaningful nature experience that I can remember happening was when I was between the ages of:

Please choose **only one** of the following:

- ◯ 0-6 years
- ◯ 7-14 years
- ◯ 15-21 years
- ◯ 22-29 years
- ◯ 30-35 years
- ◯ 36-44 years
- ◯ 45-55 years
- ◯ 56-65 years
- ◯ 66-77 years
- ◯ Over 77

15 My meaningful nature experiences have heavily influenced, changed or transformed my outlook on life.

Please choose **only one** of the following:
- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

16 The meaningful nature encounters which I have experienced with wildlife are largely responsible for shaping how I now view nature and its biodiversity...

Please choose **only one** of the following:
- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other

17 The profound and meaningful nature encounters I have experienced in my life have had little or no influence on my current behaviour and actions toward nature and the environment. *

Please choose **only one** of the following:
- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other

18 Feel free to tell us more about the ways you think your meaningful experiences may have changed you...

19 Please provide responses to each of these statements in terms of the way you generally feel. There are no right or wrong answers. Using the following scale, 'click' in the column space provided next to each question. Simply state as honestly and openly as you can about what you are presently experiencing in your life.

1 = Strong Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Please choose the appropriate response for each item:

	1	2	3	4	5
1. I often feel a sense of 'oneness' with the natural world around me.	◯	◯	◯	◯	◯
2. I think of the natural world as a community to which I belong.	◯	◯	◯	◯	◯
3. I recognize and appreciate the intelligence of other living organisms.	◯	◯	◯	◯	◯
4. I often feel disconnected from nature.	◯	◯	◯	◯	◯

	1	2	3	4	5
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living	○	○	○	○	○
6. I often feel a kinship with animals and plants (i.e. feeling a sense of family)	○	○	○	○	○
7. I feel as though I belong to the earth as equally as it belongs to me.	○	○	○	○	○
8. I have a deep understanding of how my actions affect the natural world.	○	○	○	○	○
9. I often feel part of the web of life.	○	○	○	○	○
10. I feel that all beings on earth, human & nonhuman, share a common 'life force'.	○	○	○	○	○
11. Like a tree can be part of a forest, I feel a part within the broader natural world.	○	○	○	○	○
12. When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature.	○	○	○	○	○
13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.	○	○	○	○	○
14. My personal welfare is independent of the welfare of the natural world.	○	○	○	○	○
15. I often experience times when I get a kind of personal 'message' from nature.	○	○	○	○	○
16. I often feel I have the potential to communicate with animals and plants.	○	○	○	○	○
17. I often experience coincidental moments when something that I am thinking is suddenly linked to/ reflected / mirrored in the natural environment around me.	○	○	○	○	○
18. I often 'give thanks' or feel gratitude for the things/benefits nature provides me.	○	○	○	○	○
19. I often feel remorse or regret when I, directly or indirectly, intentionally or unintentionally, take the life of any living creature.	○	○	○	○	○
20. I feel nature is there to be physically controlled and dominated by humans.	○	○	○	○	○
21. I feel nature provides me with inspiration, harmony, peace and joy.	○	○	○	○	○
22. I feel nature is there to be utilized by humans – so we can benefit from its practical/material uses for our physical sustenance and security.	○	○	○	○	○

The statements above are based on earlier work by:
Statements 1-14: Mayer & Frantz (2004; 2009);
Statements 15-22: Zylstra

PART 5: How to Educate

This last section asks questions about if or how education shuold be adapted to integrate lessons learned from meaningful nature experiences.

20 Our modern education system adequately prepares us to understand and learn from meaningful nature experiences (such as profound encounters with wildlife)

Please choose **only one** of the following:

- ○ Strongly Disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly Agree
- ○ Other

21 There is significant benefit for society in educating / promoting an understanding of meaningful nature experiences and profound encounters with wildlife.

Please choose **only one** of the following:

- ○ Strongly Disagree

- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree
- ◯ Other

22 People (including youth/children) can be trained or educated to have meaningful nature experiences and profound encounters with wildlife.

Please choose **only one** of the following:

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree
- ◯ Other

23 What specifically should be taught in schools or in environmental education courses in order to give us a better chance of having such an experience or meaningful encounter with animals?

24 What should conservation organisations, scientists or government agencies do to ensure that people continue to have opportunities for meaningful encounters with animals into the future?

25 Meaningful nature experiences and profound encounter with wildlife provide convincing arguments about the need for society to conserve our global environment.

Please choose **only one** of the following:

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree

PART 6: Demographic Information

Ok, the end of the survey is in sight. Just a few quick questions to better understand your background.

26 What is your gender?

Please choose **only one** of the following:

- ◯ Female
- ◯ Male

27 What is your age bracket?

Please choose **only one** of the following:

- ◯ Under 10 years
- ◯ 11 - 18 years
- ◯ 19 - 25 years
- ◯ 26 - 35 years
- ◯ 36 – 45 years
- ◯ 46 – 60 years

◯ 61 – 75 years
◯ Over 75 years

28 In which country do you currently live at the moment? *

Please choose **only one** of the following:

29 In which country did you spend the most time as a child/youth (i.e. between 0 - 14 years of age)? *

[drop-down box listing all countries]

30 How much time do you set aside to make contact with nature (or 'green space') per week?

Please choose **only one** of the following:
◯ Less than 2 hours
◯ 2 – 5 hours
◯ 6 – 10 hours
◯ 11 – 15 hours
◯ 16 – 25 hours
◯ More than 25 hours
◯ Other

How often do you get outdoors and into nature?

31 I had regular contact with nature and the outdoors when growing up as a child (between 0-14 years)

Please choose **only one** of the following:
◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree
◯ Other

32 In order for us to give the responses in this survey a more personal (but still anonymous) touch, please enter an anonymous alias, "identifier" or "username", e.g. your initials, or first name or anything else.

Please write your answer here:

33 I am willing to be contacted to provide further information about my experiences.

Please choose **only one** of the following:
◯ Yes
◯ No

If you would like to share other meaningful or coincidental nature experiences you have had, we'd encourage you to complete the survey again and/or enter the story on the GoogleMaps at eyes4earth.org...or email info@eyes4earth.org.
Thanks!

34 If you are willing to be contacted, please enter your email address below:

Please write your answer here:

PART 7: About this survey
Two final questions asking your feedback on this survey so we can improve it in the future.

35 How did you find completing this survey?

Please choose **only one** of the following:
◯ Too long (it took me more than 30 minutes to complete)
◯ Too short (I'd like to talk about this kind of stuff for longer)
◯ Just right (A good survey. Nothing really needs changing)
◯ Other

36 How did you find answering the questions?

Please choose **only one** of the following:
◯ Questions usually made sense and were easy to understand and answer
◯ Questions didn't always makes sense and some could have been better worded
◯ Not sure
◯ Other

Many thanks for taking the time to share your insights and experiences. Your cooperation is highly appreciated.

Please be assured that the information your provide will be treated confidentially unless you have given permission for your story to be put online under an 'alias' name of your choice. We are using this information to gain a better understanding into how people perceive meaningful experiences in nature, what global evidence is available, and how related education strategies may assist in reconnecting people with nature (biodiversity).

Ongoing outcomes and insights from the research will be posted on eyes4earth.org .

Thanks again.

Submit your survey.

Thank you for completing this survey.

9.8.3 Revised online questionnaire

Experiences of Synchronicity with/in Nature

Thank you for choosing to complete this survey about synchronistic nature experiences and meaningful encounters with wildlife.

This survey asks about your really meaningful experiences with nature. Specifically, it focuses on experiences of synchronicity or 'meaningful coincidences' with wildlife (e.g. birds, insects, reptiles, fish, mammals, plants or land and seascapes in general...).

This survey will take you approximately 15 minutes to complete. The duration will vary depending on the level of detail of some of your answers. Most questions give you the option to choose from multiple answers which speeds-up the survey. But please do take the time to answer the written questions - as that is where we can learn the most. ***Als u wilt, bent u welkom in het Nederlands te reageren***

The information from this survey is being used to support PhD research on meaningful nature experiences currently being undertaken in South Africa through Stellenbosch University, funded by the Centre for Invasion Biology and supported by the TsamaHUB. eyes4earth.org is an initiative of the EarthCollective network. Though the results, we aim to inform public awareness strategies, conservation practice and sustainability/environmental education programmes.

Please click here for more information on this survey's privacy policy.

If you have any questions about the research, please feel free to contact: Matthew Zylstra, Principal Researcher (info@eyes4earth.org). Please proceed and enjoy the survey!

All the best,
Matt

There are 30 questions in this survey
Italicsized font below a question provides additional guidance to help in answering the respective question.

PART 1: Nature of the Experience

This first section asks you about your most memorable and meaningful experiences of synchronicity in nature.

1 What is your personal understanding of the concept of 'synchronicity'?
Please write your answer here:

How would you define 'synchronicity'?

2 Have you ever had a synchronistic experience involving nature or the environment, that was not specifically with an individual animal (e.g. landscapes, sun/sky formations, plants/trees, ocean)?

Please choose only one of the following:
◯ Never
◯ Once, i.e in your life so far
◯ Rarely, i.e. once every few years or less
◯ Occasionally, i.e. a couple of times a year
◯ Regularly, i.e. a few times a month or more
◯ Other

3 Have you had a synchronistic encounter with a wild animal?
(i.e. mammal (land or sea), insect, bird or reptile...).

Please choose only one of the following:
◯ Never
◯ Once, i.e. in my life so far

◯ Rarely, i.e. once every few years or less
◯ Occasionally, i.e. a couple of times a year
◯ Regularly, i.e. a few times a month or more
◯ Other

An example of such an encounter is like what Joseph Jaworski describes in his book "Synchronicity" with the back-flipping ermine while backpacking in the Grand Teton Mountains. However, it does not matter if you feel your own encounter(s) is/are not as 'spectacular' or is completely different. What is important is that it was personally meaningful for you.

4 Please write about your most meaningful synchronistic encounter with nature (e.g. plant, animal) in detail. Share your story below and include brief answers to:
-What was the approximate date and location?
-How old were you at the time?
-What was the context of your synchronistic experience?
-How did it make you feel?

Als u wilt, bent u welkom in het Nederlands te reageren/schrijven:
Please write your answer here:

Take your time, relax and try to remember that moment as you lived through it - your state of mind, mood, emotions, sensations. When you have recalled it, please describe the events in as much detail as you're willing to share. But just tell your experience like it was - there is no need to try and unnecessarily beautify it with flowery language!

5 What was it specifically about this synchronistic nature experience which had a lasting effect on you? Why was the experience meaningful?

Please write your answer here:

PART 2: Influences on the Experience

These questions will ask about what factors could influence your experiences of synchronicity in nature and/or meaningful encounters with wildlife

6 Please choose one of the following statements which most applies to you.

Please choose only one of the following:
◯ I feel I can proactively seek out synchronicity and make it happen in my life
◯ I feel I can do (daily) practices which create the optimal conditions for synchronicity in my life
◯ I feel I have no control over when synchronicity occurs in my life – I just let it happen
◯ Other

7 What, if anything, increases the chances of you experiencing synchronicity in/with nature?
Please write your answer here:

Or does something 'cause' them to happen more frequently?

8 Please state your level of agreement with the following statement:
My experiences of synchronicity in nature have been positively influenced (e.g. enhanced) by having another person present (e.g. a nature/tourist/wilderness guide, teacher, therapist, good friend, family member, shaman, traditional healer showing me/giving me information before or during the event).

Please choose only one of the following:
◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree

◯ Other

9 Rate to what extent each of the situations below could influence the quality of a synchronistic nature experience (e.g. a wildlife encounter). Give a rating for each factor on a scale of 1 to 5 where:
1 = negative influence on the experience;
5 = positive influence on the experience; and
3 = neutral / no effect on the experience

Please choose the appropriate response for each item:

	1	2	3	4	5
Large presence of alien and exotic species (e.g. non-native plants, trees or animals not originally from the area)	◯	◯	◯	◯	◯
Large presence of agriculture, crops and/or farm animals grazing in area	◯	◯	◯	◯	◯
Large variety of native wildlife (lots of flora/plants & fauna/animals) in the area	◯	◯	◯	◯	◯
Large area of 'wilderness' (e.g. remote, uninhabited and ecologically healthy landscape)	◯	◯	◯	◯	◯

10 If your natural environment had a large (dominating) presence of exotic/alien/non-native species (i.e. plants or animals originally from another region/country which have been introduced into your area), how do you think this might affect your chances of experiencing synchronicity in nature?

Please write your answer here:

Would it improve or decrease the chances, the quality and the richness of the experience now or in the future?

PART 3: Changes of Perception

These questions will ask if, and how, your perceptions or behaviour has changed since your experiences of synchronicity in nature.

11 The first truly synchronistic nature experience that I can remember happening was when I was between the ages of:

Please choose only one of the following:
◯ 0-6 years
◯ 7-14 years
◯ 15-21 years
◯ 22-29 years
◯ 30-35 years
◯ 36-44 years
◯ 45-55 years
◯ 56-65 years
◯ 66-77 years
◯ Over 77

12 My synchronistic nature experiences have heavily influenced, changed or transformed my outlook on life.

Please choose only one of the following:
◯ Strongly Agree
◯ Agree
◯ Neutral
◯ Disagree
◯ Strongly Disagree
◯ Other

13 The synchronicity and meaningful wildlife encounters I have experienced in my life have had little or no influence on my current behaviour and actions toward nature and the environment.

Please choose only one of the following:
- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other

14 Please feel free to tell more about the ways you think your synchronistic nature experiences may have changed you (or your perceptions and behaviour). What role do these experiences play in your current life?
Please write your answer here:

15 Please provide responses to each of these statements in terms of the way you generally feel. There are no right or wrong answers. Using the following scale, 'click' in the column space provided next to each question. Simply state as honestly and openly as you can about what you are presently experiencing in your life.

1 = Strong Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Please choose the appropriate response for each item:

	1	2	3	4	5
1. I often feel a sense of 'oneness' with the natural world around me.	◯	◯	◯	◯	◯
2. I think of the natural world as a community to which I belong.	◯	◯	◯	◯	◯
3. I recognize and appreciate the intelligence of other living organisms.	◯	◯	◯	◯	◯
4. I often feel disconnected from nature.	◯	◯	◯	◯	◯
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living	◯	◯	◯	◯	◯
6. I often feel a kinship with animals and plants (i.e. feeling a sense of family)	◯	◯	◯	◯	◯
7. I feel as though I belong to the earth as equally as it belongs to me.	◯	◯	◯	◯	◯
8. I have a deep understanding of how my actions affect the natural world.	◯	◯	◯	◯	◯
9. I often feel part of the web of life.	◯	◯	◯	◯	◯
10. I feel that all beings on earth, human & nonhuman, share a common 'life force'.	◯	◯	◯	◯	◯
11. Like a tree can be part of a forest, I feel a part within the broader natural world.	◯	◯	◯	◯	◯
12. When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature.	◯	◯	◯	◯	◯
13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.	◯	◯	◯	◯	◯
14. My personal welfare is independent of the welfare of the natural world.	◯	◯	◯	◯	◯
15. I often experience times when I get a kind of personal 'message' from nature.	◯	◯	◯	◯	◯
16. I often feel I have the potential to communicate with animals and plants.	◯	◯	◯	◯	◯
17. I often experience coincidental moments when something that I am thinking is suddenly linked to/ reflected / mirrored in the natural environment around me.	◯	◯	◯	◯	◯
18. I often 'give thanks' or feel gratitude for the things/benefits nature provides me.	◯	◯	◯	◯	◯
19. I often feel remorse or regret when I, directly or indirectly, intentionally or unintentionally, take the life of any living creature.	◯	◯	◯	◯	◯
20. I feel nature is there to be physically controlled and dominated by humans.	◯	◯	◯	◯	◯

The statements above are based on earlier work by:
Statements 1-14: Mayer & Frantz (2004; 2009);
Statements 15-20: Zylstra

PART 4: How to Educate
This last section asks questions about how insights from synchronistic nature experiences can better inform education.

16 Our modern education system adequately prepares us to understand and learn from synchronicity with/in nature (e.g. such as meaningful experiences with wildlife).

Please choose only one of the following:
◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree
◯ Other

17 There is significant benefit for society in educating / promoting an understanding of synchronistic experiences in and with nature.

Please choose only one of the following:
◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree
◯ Other

18 What specifically should be taught in schools or universities in order to give people a better chance of experiencing and understanding synchronicity in/with nature?

Please write your answer here:

19 Synchronistic nature experiences and meaningful encounters with wildlife provide convincing arguments about the need for society to conserve our global environment.

Please choose only one of the following:
◯ Strongly Agree
◯ Agree
◯ Neutral
◯ Disagree
◯ Strongly Disagree
◯ Other

PART 5: Demographic Information
Ok, the end of the survey is almost here. Just a few quick questions to better understand your background.

20 What is your gender?

Please choose only one of the following:
◯ Female
◯ Male

21 What is your age bracket?

Please choose only one of the following:
◯ Under 10 years

- ◯ 11 - 18 years
- ◯ 19 - 25 years
- ◯ 26 - 35 years
- ◯ 36 – 45 years
- ◯ 46 – 60 years
- ◯ 61 – 75 years
- ◯ Over 75 years

22 In which country do you currently live at the moment?

[drop-down box with list of all countries]

23 What is your usual life occupation (e.g. job, career, vocation, work activity)?

Please write your answer here:

24 In which country did you spend the most time as a child/youth (i.e. between 0 - 14 years of age)? Please choose only one of the following:

[drop-down box with list of all countries]

25 How much time do you set aside to make contact with nature (or 'green space') per week? Please choose only one of the following:

- ◯ Less than 2 hours
- ◯ 2 – 5 hours
- ◯ 6 – 10 hours
- ◯ 11 – 15 hours
- ◯ 16 – 25 hours
- ◯ More than 25 hours
- ◯ Other

How often do you get outdoors and into nature?

26 I had regular contact with nature and the outdoors when growing up as a child (between 0-14 years)
Please choose only one of the following:

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree

27 I regularly and actively engage in some kind of awakening / spiritual / religious practice. (e.g. church services, temple visits, prayer, ancestral/spirit rituals, yoga, meditation, visualization, relaxation and breathing exercises, sensory awareness practices, use of consciousness altering substances, extreme sports, ceremonial song/music/dance etc…)

Please choose only one of the following:

- ◯ Strongly Disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly Agree
- ◯ Other

28 If you answered "Agree" or "Strongly Agree" to the previous question, please specify below the activity(ies) or practices you engage in regularly:

Please write your answer here:

29 In order for us to give the responses in this survey a more personal (but still anonymous) touch, please enter an anonymous alias, "identifier" or "username", e.g. your initials, or first name or anything else.

Please write your answer here:

30 If you are willing to be contacted about your responses, please enter your email address below:

Please write your answer here:

If you would like to share other synchronistic nature experiences you have had, we encourage you to email them to: info@eyes4earth.org. Thanks!

Many thanks for taking the time to share your insights and experiences. Your cooperation is highly appreciated.

Please be assured that the information your provide will be treated confidentially unless you have given permission for your story to be put online under an 'alias' or username of your choice. We are using this information to gain a better understanding into how people perceive synchronicity in nature, what is the context, and how related education strategies may assist in reconnecting people with nature (biodiversity).

Ongoing outcomes and insights from the research will be posted on eyes4earth.org .

Thanks again.

Submit your survey.

Thank you for completing this survey.

9.8.4 Public questionnaire

Survey: Have you ever had a meaningful nature experience?

A 'meaningful nature experience' can include what people call: 'peak', 'synchronicity', 'flow', 'profound', 'uncanny' 'awakening', 'serendipitous', 'religious', 'divine' , 'epiphany' 'omen-like', 'mystical' or 'a-ha' experiences. In nature, these may give a person a momentary or prolonged feeling of 'interconnectedness' with themselves and the environment. It usually draws on one's emotions – and could be joyful or distressing. It may also involve the coincidental or symbolic appearance of natural phenomena. It may be that you experienced a deep connection with a(n) (wild) animal in some special kind of way. **Ultimately it can be any experience with nature/wildlife (real or symbolic) which has had lasting meaning or was personally transformative for you in some way.** .

Q1. Have you ever had a meaningful nature experience involving nature or the environment, that was not specifically with an individual animal (e.g. landscapes, sun/sky formations, plants/trees, ocean)?

Please choose **only one** of the following:

- ◯ Never
- ◯ Once, i.e. in my life so far
- ◯ Rarely, i.e. once every few years or less
- ◯ Occasionally, i.e. a couple of times a year
- ◯ Regularly, i.e. a few times a month or more
- ◯ Other : please specify……..

Q2. Have you had a meaningful experience or profound encounter with a wild animal?
(i.e. mammal (land or sea), insect, bird or reptile...). Please choose **only one** of the following:

- ◯ Never
- ◯ Once, i.e. in my life so far
- ◯ Rarely, i.e. once every few years or less
- ◯ Occasionally, i.e. a couple of times a year
- ◯ Regularly, i.e. a few times a month or more
- ◯ Other : please specify……..

Q3. Rate to what extent each of the situations below could influence the quality of a meaningful nature experience (e.g. a wildlife encounter)

Give a rating for each factor on a scale of 1 to 5 where:
1 = negative influence on the experience; **5 = positive** influence on the experience; and **3 = no effect**

Please tick the appropriate response for each item: (-) ◯ **+**

	1	**2**	**3**	**4**	**5**
3a) Large presence of alien and exotic species (e.g. non-native plants, trees or animals not originally from the area)	◯	◯	◯	◯	◯
3b) Large presence of agriculture, crops and/or farm animals grazing in area	◯	◯	◯	◯	◯
3c) Large variety of native wildlife (flora/plants & fauna/animals) in the area	◯	◯	◯	◯	◯

Briefly state why you answered 3a) the way you did:

……

Q4. Please answer each of these questions in terms of the way you generally feel.
There are no right or wrong answers. Using the following scale, place a tick (√) in the column space provided next to each question. Simply state as honestly and openly as you can about what you are presently experiencing in your life. Your responses are confidential and will not be judged in any way...!

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
EXAMPLE: I often go hiking with my friends on weekends			√		
1. I often feel a sense of 'oneness' with the natural world around me.					
2. I think of the natural world as a community to which I belong.					
3. I recognize and appreciate the intelligence of other living organisms.					
4. I often feel disconnected from nature.					
5. When I think of my life, I imagine myself to be part of a larger cyclical process of living					
6. I often feel a kinship with animals and plants (i.e. feeling a sense of family)					
7. I feel as though I belong to the earth as equally as it belongs to me.					
8. I have a deep understanding of how my actions affect the natural world.					
9. I often feel part of the web of life.					
10. I feel that all beings on earth, human & nonhuman, share a common 'life force'.					
11. Like a tree can be part of a forest, I feel a part within the broader natural world.					
12. When I think of my place on earth, I consider myself to be a top member of a hierarchy that exists in nature.					
13. I often feel like I am only a small part of the natural world around me, and that I am no more important than the grass on the ground or the birds in the trees.					
14. My personal welfare is independent of the welfare of the natural world.					
15. I often experience coincidental moments when something that I am thinking is suddenly linked to/ reflected / mirrored in the natural environment around me.					

Q5. What is your gender?

◯ Female
◯ Male

Q6. What is your nationality and country of residence?

……..

Q7. What is your age bracket?

◯ Under 10 years
◯ 11 - 18 years
◯ 19 - 25 years
◯ 26 - 35 years
◯ 36 – 45 years
◯ 46 – 60 years
◯ 61 – 75 years
◯ Over 75 years

Q8. I had regular contact with nature and the outdoors when growing up as a child (between ages 0-14)

◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree

Q9. What is your usual life occupation (job, career, vocation, activity)?

……...…

Q10. I regularly and actively engage in some kind of personal awakening / spiritual / religious practice.
(e.g. church/temple visits, prayer, ancestral rituals, yoga, meditation, breathing exercises, sensory awareness practices, extreme sports, martial arts, consciousness altering substance use, ceremonial song/music/dance…)

◯ Strongly Disagree
◯ Disagree
◯ Neutral
◯ Agree
◯ Strongly Agree

If YES (i.e. 'Agree' or 'Strongly Agree'), please state what activity(ies) specifically:

Thanks very much for your help! Feel free to write any other feedback or comments below ….

9.9 Invitations to participate in the research

This section includes the text used in emails inviting participation in the research as well as a copy of the poster which was affixed in various public places.

9.9.1 Email text sent to the Fynbos Forum mailing list

Sent: Wednesday, March 02, 2011 11:21 AM
Subject: FF: Meaningful Experiences with Nature: Survey & Research

We are looking for evidence of people's 'meaningful nature experiences'* or profound encounters with wildlife. This is being done as part of transdisciplinary PhD research aimed at understanding how insights from such experiences may better inform biodiversity conservation and education for sustainability.

We would be grateful if you can help us out and complete the online survey here:http://eyes4earth.org/survey/index.php?sid=59934&lang=en

"Should I take the survey?"
If at least **one** of the following apply to you then please go for it and take the survey:

- You have had what you consider to be (a) meaningful* experience(s) with nature and/or a profound encounter with wildlife (plant, animal, insect, bird, reptile, marine life....) anywhere on the globe. *(Memorable nature-based stories from the Baviaanskloof Mega-Reserve region, South Africa are particularly welcome);*

- You have opinions on how environmental change (with a primary focus on exotic/alien invasive species) may affect one's current and future meaningful experiences of nature/biodiversity;

- You have opinions on how insights from meaningful experiences with nature may improve strategies for environmental education, conservation management and broader public awareness aligned with sustainability.

Feel free to email Matt info@eyes4earth.org with any other questions or feedback.

***Meaningful** may include: 'awakening'; 'peak'; 'flow'; 'synchronistic'; 'exceptional' ; 'symbolic'; 'serendipitous'; 'significant' ; 'mystical'; 'oneness'; 'religious'; 'divine', 'revelation' , 'a-ha' or 'significant life' experiences or any event in or with nature which you consider to have been catalytic or transformative for you in some way.*
Thanks in advance for your time, support and willingness to assist.

Warm regards,

Matthew Zylstra

Researcher: Nature Experience & Education
Transdisciplinary Doctoral Programme in Sustainability
Department of Conservation Ecology & Entomology (with the Department of Education)
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Private Bag X1, Matieland 7602, Western Cape, South Africa
T: +27 (0)42 288 0724 | E: matt@earthcollective.net
http://consent.sun.ac.za | http://sun.ac.za/cib | http://tsama.org.za
http://eyes4earth.org | http://earthcollective.net | http://livinglandscapes.co.za

9.9.2 Invitation posted on the Fostering Sustainable Behavior listserv / forum

Meaningful Nature Experiences: A Catalyst for Fostering Sustainable Behaviour?

March 04, at 01:40 AM posted by Matthew Zylstra No Comments

Hi all,
As people on this Listerv know, there are many factors that influence an individual's orientation and attitudes toward sustainability.

We're currently looking for evidence to determine the role of 'meaningful nature experiences'* (e.g. profound encounter with wildlife) in catalyzing/fostering sustainable behaviour... and, maybe more importantly, a reconnection to nature. This is being done as part of transdisciplinary PhD research aimed at understanding how insights from such experiences may inform education for sustainability and the design of 'interventions'.

We would be grateful if you - or anyone you may know of - can help us out and complete the online survey by going to this URL:

http://eyes4earth.org/survey/index.php?sid=59934&lang=en

Should I take the survey?

If at least one of the following apply to you then please go for it and take the survey:

- You have had what you consider to be (a) meaningful* experience(s) with nature and/or a profound encounter with wildlife (plant, animal, insect, bird, reptile, marine life....) anywhere on the globe;

- You have opinions on how environmental change (with a primary focus on exotic/alien invasive species) may affect ones current and future meaningful experiences of nature/biodiversity;

- You have opinions on how insights from meaningful experiences with nature may improve strategies for environmental education, conservation management and broader public awareness aligned with sustainability.

If you are unable to take the survey but would still like to share your views please feel to do so here on the FSB thread or by emailing: Matt [info@eyes4earth.org] with any other questions or feedback.

*NOTE - 'Meaningful' may include: awakening; peak; flow; synchronistic; 'exceptional' ; symbolic; serendipitous; 'significant' ; mystical; oneness; religious; divine, revelation , a-ha or 'significant life' experiences or any event in or with nature which you consider to have been catalytic or transformative for an individual in some way.

Thanks in advance for your time, support and willingness to assist.

Warm regards,

Matthew Zylstra

9.9.3 Poster advertisement

A copy of the poster used in public places such as supermarkets, universities foyers and backpackers.

Figure 35: Promotional poster inviting public participation in the research

9.9.4 Advertisement in Simply Green magazine

An advertisement taken out in the nationally (South African) distributed Simply Green magazine.

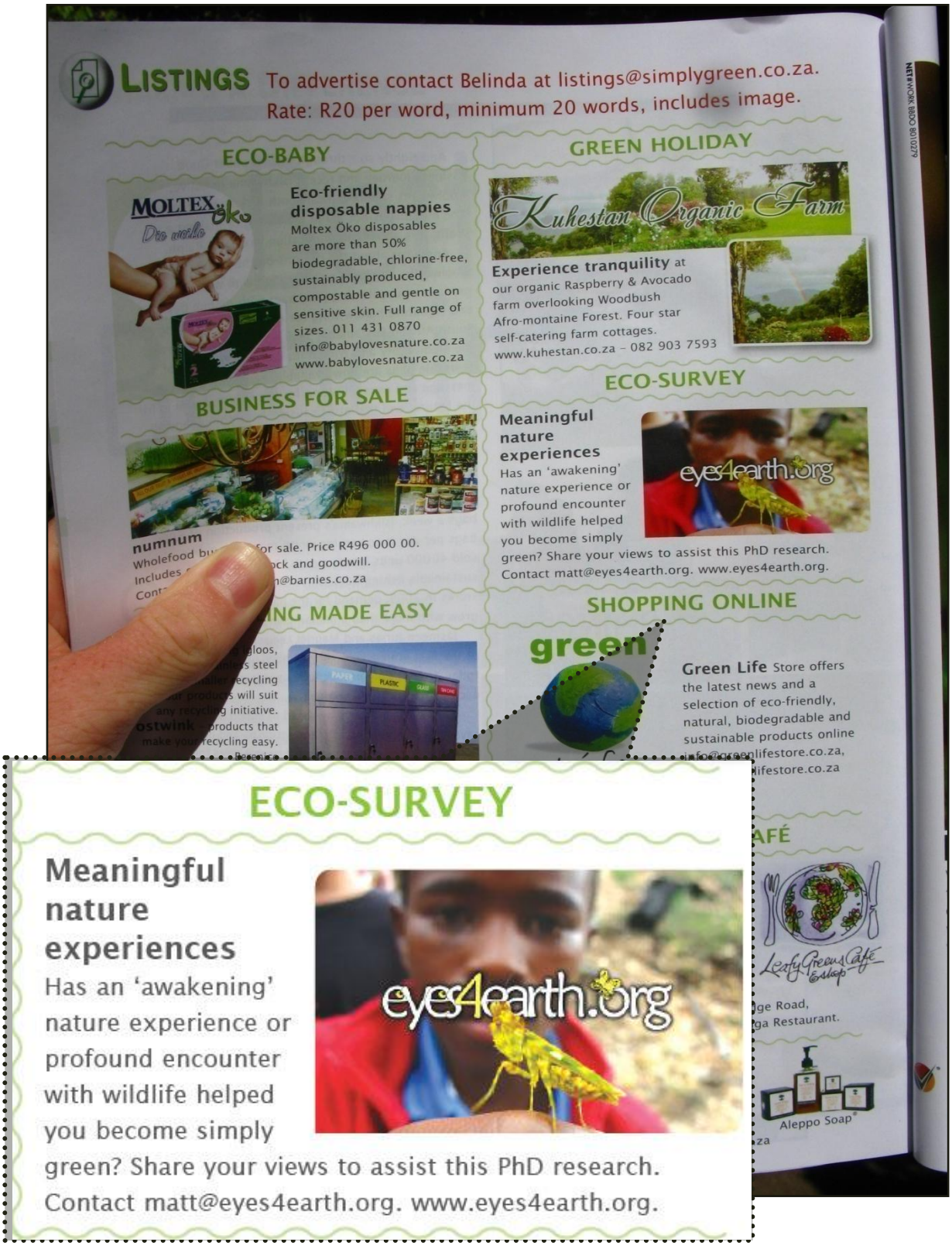

Figure 36: Advertisement in Simply Green magazine (Issue 1, 2011: 96)

9.9.5 Web-based advertisement on 'Going Green'

Switching/animated advertisement banner placed on the web-portal 'goinggreen.co.za' during July 2011. (Note that 'goinggreen.co.za' is no longer functioning as a web-portal) (Figure 37)

Figure 37: Web advertisement banner placed on goinggreen.co.za

9.9.6 Awareness-raising bookmarks

One of the three themed bookmarks used between 2009 – mid-2011 and distributed at tourism venues, universities and given to some interviewees and questionnaire respondents post-interview (Figure 38).

Figure 38: Promotional bookmark advertising the eyes4earth.org outreach initiative

9.10 Field research opportunism

The following section identifies key field research opportunities arising during the course of this research and which allowed for in-situ participation and observation of meaningful nature experiences (MNEs).

***September 2009*:** An unexpected opportunity to become an educator / facilitator / instructor Wildlands Studies (WS): a six-week field program aimed at giving North American undergraduate students hands-on experience in the research and practice of conservation ecology, wildlife management and sustainability. The human dimensions (i.e. cultural and socio-economic factors) of conservation feature prominently. After initial hesitation to become involved given the commitment required in time, energy and preparation, it soon became apparent that the program could provide a valuable platform for action research, where it would be possible to observe and learn from MNEs as they unfolded as part of a pedagogical endeavour. It would also provide a testing-ground for emerging research, e.g. how CWN activities might support EfS.

***December 2009 and March 2010*:** Attended two separate multi-day *Spirit of the Wild* guide / educator training courses at Bergplaas Nature Reserve[184]. Alongside participating in the course, I informally spoke with participants about their experiences, pilot-tested interview questions and observed participants' reactions and interpretations of their MNEs. Key MNEs also surfaced for me during both visits.

March 2010: Accompanied one of South Africa's most experienced wilderness guides for two nights camping in the Baviaanskloof. This occasion provided the perfect setting for understanding - by being largely introduced to - the experiential and psychological dynamics of meaningful wilderness experience by someone with extensive theoretical and practical knowledge of the topic.

June 2010: Accompanied a small group of part-time guides from the Wilderness Leadership School (WLS) on a trip into the Kalahari National Park. Specifically, the occasion involved three nights on land now tenured to the Khomani San. Our trail was led by two Khomani San guides and was rich with profound experiences and learning for all participants. Fellow participants willingly co-operated with my final pilot study prefacing the formal research endeavours (i.e. questionnaires and in-depth interviews) to follow.

***August 2010*:** Attended a weekend devoted to removing IAS in the Baviaanskloof Nature Reserve, as facilitated by FOBWA. I spoke with volunteers in attendance about their MNEs, their perceptions of IAS, the impact IAS on their MNEs and their motivations for voluntarily engaging in such activities.

***September 2010*:** Co-organized and attended two days of a week-long wilderness trail in the Baviaanskloof (Kouga catchment) designed for Coloured adults (approx. age 18-25) resident to the Baviaanskloof Mega-Reserve. The event afforded observation of a number MNEs as they happened, such as adverse reactions

[184] For more information, see: http://www.bergplaas.com/spirit-of-the-wild.html

when walking through an old growth stand of the invasive black wattle (*A. mearnsii*). This event was also valuable in be able to witness the changes in participants' demeanour and outlook before and after the event and to discuss that process with them. A particularly notable outcome was participants' desire to initiate the *Baviaanskloof Nature Awareness Group*, which subsequently became the focus of attention (from the transdisciplinary perspective of societal engagement and outreach) throughout the research.

September – November 2010: Appointed lead facilitator of the WS-South Africa program. The diverse experiential activities included in the syllabus provided fertile ground for MNE, CWN and learning for sustainability. Students were required to keep a field journal to track their learning throughout the program. Whilst the content of these journals was not included as part of this research, they were extremely valuable in helping to identify which activities and experiences were pivotal in changing perceptions and accelerating the students' learning process. A memorable series of days toward the end of the program saw the group have multiple profound encounters with wildlife, each day surpassing the previous. This gave insight into how a deepening connection with place – in terms of a coming into harmony with its 'moods' and character – may be linked with MNEs.

***December 2010*:** A reunion weekend was scheduled with Baviaanskloof Nature Awareness (BNA) Group and involved camping on the outer reaches of farmland owned by the Sewefontein community (Baviaanskloof), and where a number of group members and their families resided. The occasion presented several MNEs, some providing symbolic guidance for the future ambitions of the group (Appendix 9.23.3).

***March 2011*:** This third gathering of the BNA Group was held over a long weekend which included a short wilderness trail (including species identification, mapping and invasive species removal), workshop and practical training, and the opportunity for the group to test new knowledge with the experience of facilitating a morning of environmental education for young schoolchildren.

***October 2011*:** Facilitated four days of the WS program which included presenting interim research results as well as leading experiential activities such as an overnight wilderness trail, CWN exercises, and a guided walk to explore issues surrounding IAS ecology, perceptions, experiences, research and management. A few students and I had MNEs during the wilderness hike and a visit to caves formerly used by the Khoisan.

***March-April 2012*:** Facilitated the inaugural WS Australia program held in far north Queensland. Whilst following a similar trajectory to the South Africa programs, I was now equipped with insights gleaned from over three years of research and applied that knowledge – an early version of *Theory edU* (Chapter 6) to inform and shape the program accordingly. Various approaches and techniques were experimented with, particularly those which coupled CWN with field-based learning (of, e.g. local ecology). As with all activities listed here, participation, observation and personal journaling were key to the research process. MNEs surfaced at various times.

All the above events were valuable in that they allowed an opportunity to combine purposive sampling (where it was based on contexts where the phenomena under investigation had been previously observed) with the random sampling (in the sense that the activities were selected prior to any experiences (meaningful or otherwise) taking place (Morse (2011). Morse (2011) refers to this as *random purposive sampling* and whilst this research did not perform it nearly as extensively or thoroughly as that carried out by Morse (2011) (i.e. there was clearly a measure of convenience sampling involved in choosing these activities), it did adhere to the idea that participants were randomly selected in advance of knowledge of what outcomes would appear and therefore can holds greater credibility than those cases selected and reported after the event, when outcomes are known (Patton 2002 in Morse 2011).

9.11 Emotions and feelings associated with MNE

Respondents to the OQ were invited to report on the types of feelings and emotions which characterized their most memorable MNE. For this question, a predefined set of options was provided and respondents were free to choose as many as they feel applied to their experience. This question was designed to complement the phenomenological analysis (Section 4.3.2.1.2) which also would identify common emotions experienced but instead through a detailed analysis of the respondents' written accounts of their stories.

The most frequently reported emotions were those associated with positive and desirable experiences (Figure 39). Feelings of aliveness, excitement, radiance and joy were reported as being experienced by 82% of respondents. This was followed by feelings of interconnectedness, oneness, sense of kinship (59%); harmony, peace, affection (57%); presence, 'being in the moment', no sense of time (55%); and heightened awareness, intensification of perception (49%). In this sense, MNE appears to be a source of desirable emotions; the kind of which most people would like to experience more of or cultivate in their life, given their recognized associations with well-being (Sections 2.2, 2.3). Secondly, reference to the experience of a sense of oneness or interconnectedness is, as argued elsewhere in this dissertation, deemed to be a necessary prerequisite for overcoming the human-nature perceptual and emotional divide and the cultivating systems thinking which might underpin a mindset geared towards environmentally responsible behaviour (ERB). Thirdly, feelings of harmony and perfection may be a necessary antidote to the unease, frustration, grief and/or anger associated with environmental destruction (Section 2.2). Finally, the sense of 'being in the moment' and experiencing presence, which momentarily releases one from relentless thought, is a state sought after across many Eastern traditions (through, e.g. meditation, martial arts) and which is increasingly recognized in Western science as being of measurable benefit (Williams & Kabat-Zinn 2013).

Respondents' MNEs tended not to elicit emotions generally considered as being negative or undesirable. Anxiety and nervousness was the most reported of these emotions (20%); followed by fear, vulnerability, adrenaline (18%); confusion, feeling overwhelmed (8%); and disappointment and frustration (2%). It is noted that humans have a tendency to positively reinterpret experiences as time passes, whereby the negative or undesirable elements tend to fade more quickly or are edited from one's memory (Van Boven & Gilovich 2003; McRaney 2011). This is vital for serving one's *remembering self* (Box 17; Kahneman 2010).

Three mid-range scoring categories, which were experienced by around approximately a third of respondents, were: meaningful message, insight, clarifying vision (37%); sense of the divine, God, creator, life force, spirit (29%); reciprocal communication (with the animal) (27%) (Figure 39). The emotions associated with the 'Other' category (8%) were specified as follows: "the marvels and majesty of nature", "relief", "magic", and "humbled." Whilst respondents were asked to report on the feelings and emotions that best characterized their *most memorable* MNE, it is noted that there may be a tendency for individuals to synthesize emotions of multiple MNEs when accessing memory (Box 17; McRaney 2011). In any case, the

main purpose for asking respondents to report on their most memorable MNE was to provide a point of reference to aid more specific recall. Therefore, any instances where an individual may have reported on their MNEs *in general* still complement broader research aims for understanding what MNEs are like.

Whilst grouping sets of similar terms cloud insight into which specific emotion was experienced, this approach buffered against an otherwise unwieldy list which may have overwhelmed the respondent. Again, the purpose was to simply elicit a broad typology of emotions, which would serve as a basis for comparing and complementing subsequent phenomenological analysis which provides additional insight into the types of emotions expected to be associated with MNEs.

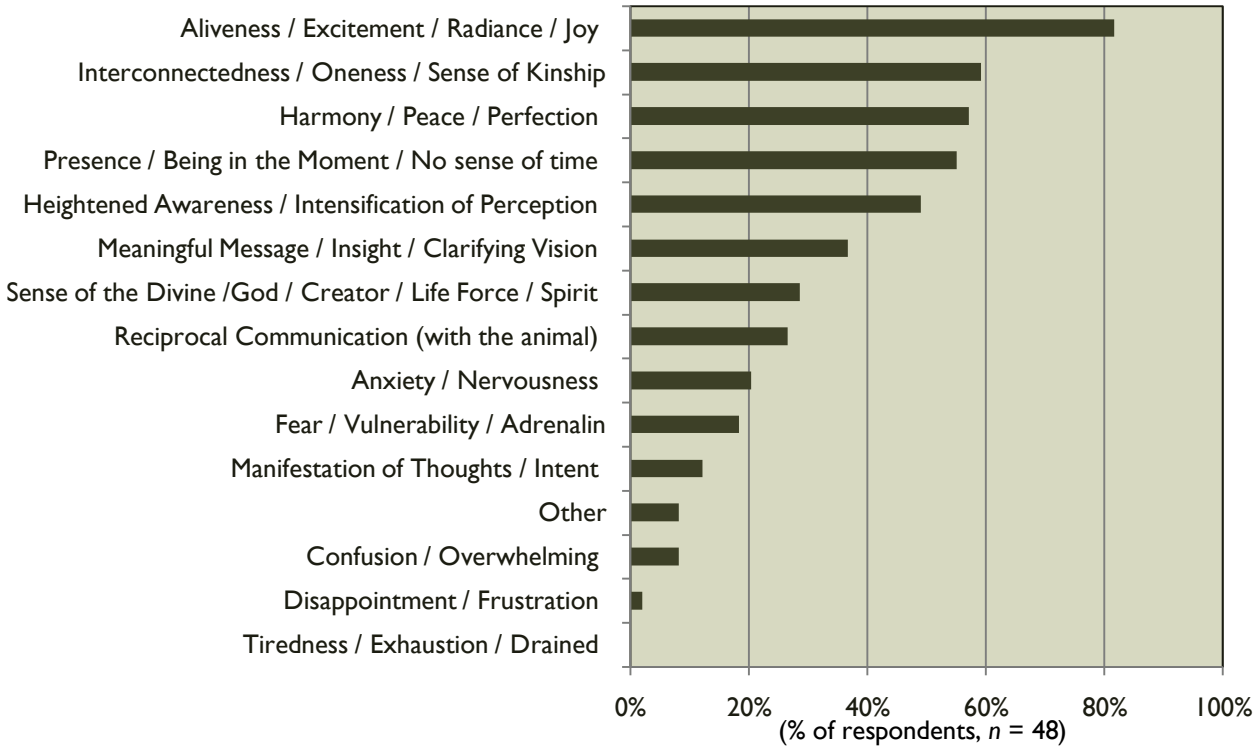

Figure 39: Most commonly reported emotions associated with MNE

In response to the question: *What sort of feelings and emotions best characterized this experience of yours? Think about the things you felt during or immediately after the experience. Can you recall feeling any of the things listed below during or after your meaningful experience with nature?*

9.12 Situational / biophysical context of reported MNEs

9.12.1 Type of ecosystem where reported MNEs occurred

Most MNEs were experienced in ocean and marine environments (19%) followed by woodlands and thicket (15%) (Figure 40). The prevalence of marine environments may align with the observation that novel and unfamiliar environments may provide a nurturing substrate for MNEs (Section 4.5.1.4). Immersion in these types of milieu may also provide individuals with a sense of vulnerability, vastness or isolation.

Somewhat paradoxically, the third equal highest reported location was in suburban areas, such as parks or backyards. This potentially challenges assumptions that MNEs can only be experienced in pristine, intact or 'wild' areas. However, closer investigation would be need in order to compare whether suburban MNEs have comparable characteristics, emotions or are of the same "quality" as, e.g. those in wilder areas - not necessarily in terms of one being 'better' or more desirable than the other, but in terms of understanding if there are specific types of MNE which can or should be further differentiated.

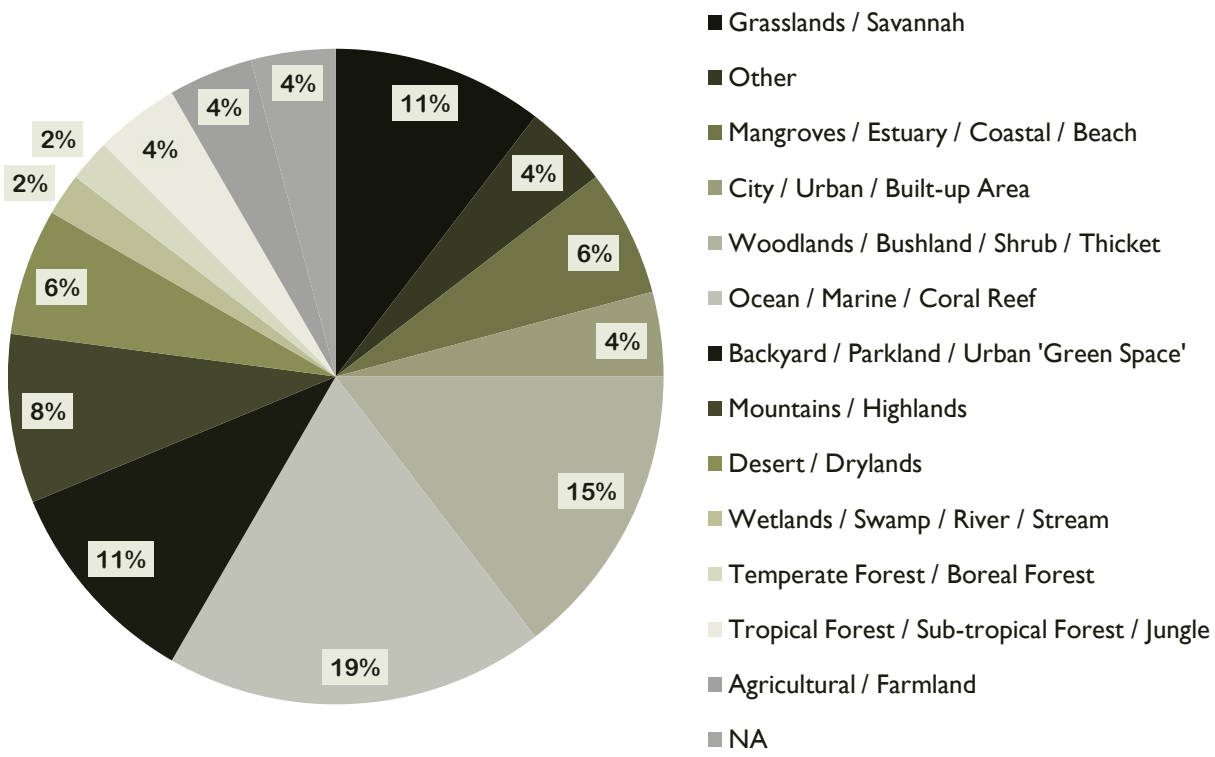

Figure 40: Types of ecosystems where respondents' MNEs occurred

Representing respondents' level of agreement to the statement: *"How would you describe the area where this MNE occurred?"* (*n = 48*). Respondents' selected types of ecosystems from a list provided.

9.12.2 Type of land tenure where reported MNEs occurred

Respondents' most commonly reported their MNEs as occurring in National or provincial Parks (39.1%) (Figure 41). This was followed by private land (17.2%) and areas considered as "the commons", i.e. oceans, beaches (15.6%). Over two-thirds of reported MNEs occurred in areas which had some kind of protected status or access restriction. These results have implications for understanding the importance of such areas in conservation planning (including Parks zonation and degazetting) and education. For both formal learning activities and informal educational ecotourism, these results present both context-specific opportunities and constraints. Are areas which may be more conducive to MNE easily accessible/affordable for education?

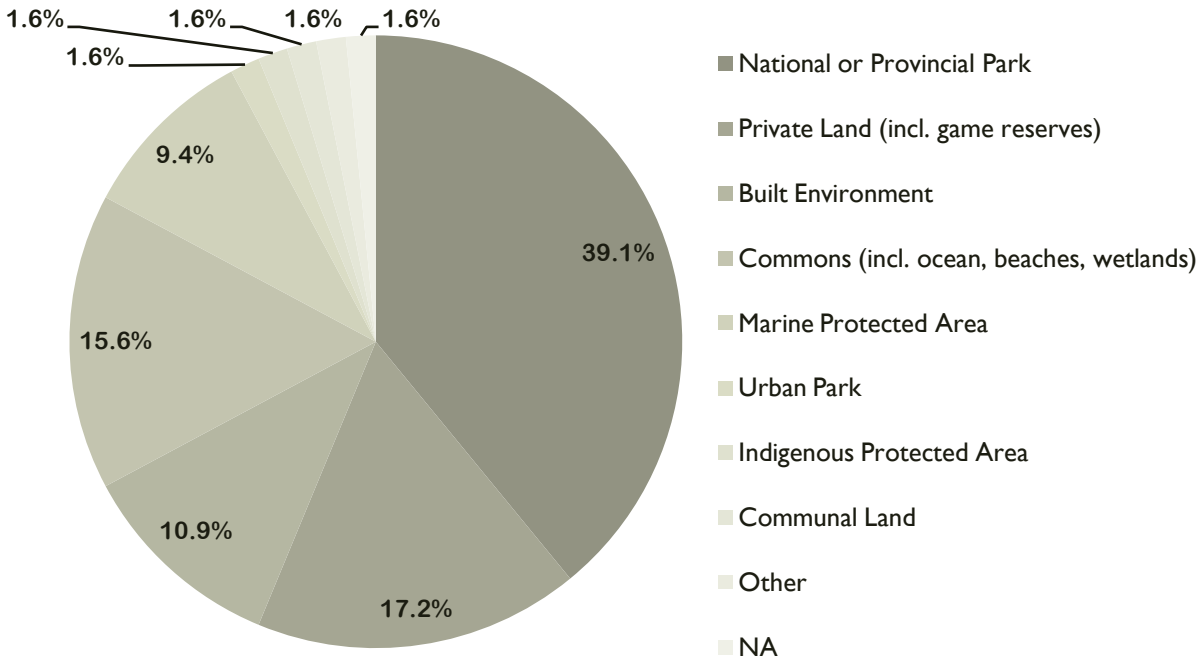

Figure 41: Types of land tenure where respondents' MNEs occurred
Representing respondents' level of agreement to the statement*: "How would you describe the type of area (land-tenure) where this experienced occurred?"* (*n = 64*). Respondents' selected types of ecosystems from a list provided with a help box clarifying that *Land tenure refers to the type of use, system of ownership and/or legal arrangements which govern a piece of land*.

Note that there may have been some uncertainty in respondents' minds as to whether they were in a marine protected area or in "the commons". Similarly, there may have been occasional confusion as to what constitutes a game reserve and what is a considered a national park. It is also noted that "built environment" may have been an erroneous choice of wording given that it does not represent tenure *per se* and also creates overlap with "private land" as well potentially including commercial or publicly owned premises. The intent was however to draw an important and necessary distinction between privately-owned urban and residential areas whereby only the owner and immediate family and friends would have access, and private land which may be more "open" with opportunities for broader public access land, albeit under certain conditions. In this regard, MNEs experienced strictly on privately-owned land, regardless of type, may have been recorded by close to 25% of respondents.

9.13 Synchronicity: definitions, criteria, identification and examples

9.13.1 Definitions

Content analysis of definitions volunteered in the revised OQ (r/OQ) and in-depth interviews revealed common themes of synchronicity as: ***co-occurrence***; ***connection***; ***meaningfulness***; ***confirmation and personal guidance***; ***openness***; ***unexpectedness***; and ***flow***.

9.13.1.1 Co-occurrence

The core criterion of co-occurrence (i.e. perceived paralleling of events) was integral to many respondents' understanding of synchronicity. It was emphasized that the co-occurrence required simultaneity in both time and meaning alongside a prior non-relatedness of events.

> *Experiences and happenings that fall together in the same moment…• That at the same time, or within a short timeframe in the right order, things happen… • A significant similar occurrence in time and meaning, of two (rationally, objectively?) unrelated events. This co-occurrence enhances or strengthens the event and the meaning of it for the one(s) experiencing it. • 2* [Two] *unrelated things happening/coming together at the same time. • Samenloop (van vibraties)* [Translation from Dutch: 'Concurrence (of vibrations)'] •

For a number of respondents the co-occurrence was more implied than explicit. In the following case, the co-occurrence is emphasized with an example:

> *When I have thoughts/plans for instance to start something, someone else has the same thoughts/plans and already developed what I need. It can also be a situation in nature. I am struggling with some issues, something in nature happens and show*[s] *me the answer. •*

A synonym for co-occurrence is 'coincidence' - although its meaning is sometimes confounded. Given that synchronicity is itself largely synonymous with the widely used expression 'meaningful coincidence', it is therefore unsurprising that 'coincidence' was prominent in a number of respondents' definitions.

> *Meaningful coincidence… • …Signs of inner and outside nature that coincide with facts and thoughts in present and future. • Seemingly coincidence that has real meaning when appreciated accordingly. •*

The "seemingly coincidence" is indicative of the amorphous nature of synchronicity. Paradoxically, this phrase conveys ambiguity about whether the event is 'a coincidence' at all.

> *Those events are meant to be (no coincidence) and are like 'signs'. • …we live in a system, where everything/aspect has a relation with another. • …within this system coincidence does not exist and developments have a purpose. •*

9.13.1.2 Connection

If co-occurrence involves the linking of two otherwise related events in timing and meaning, then the natural progression from the co-occurrence is sense of (inter)connection. A number of respondents noted this emerging connectedness, particularly in the context of co-occurrence.

> *To me it is the occurrence of an* [in] *itself insignificant event in nature that because of its timing triggers a higher sense of awareness and sense of connection. • … certain seemingly unrelated events happen which do have a connectivity. •*

By default, having a 'connection' must imply that two separate things are connected; or one is connected to something else. What is being 'connected' is not always made explicit by respondents; however, some make reference to a connection with a 'greater whole' or a more spiritual connection with 'everything'.

> *Feeling interconnected with Nature/the planet earth/the universe. A feeling of being part of a greater whole rather than just being 'an individual person' on the planet. • …manifestatie dat alles verbonden is en spiritueel is* [Translation from Dutch: 'manifestation that everything is connected and spiritual'] •

The connection may also extend to connecting the co-occurring events to personal desires and focuses at that point in their life.

> *The un-expected coincidence in one's life based on wishes and choices …*[that] *one really is connected* [and] *committed too. •*

This statement also reveals more hidden dimensions of directed attention and intentionality (in the sense of that which is at the forefront of one's conscious awareness). Irrespective of the specific nature of the connection, it is through the clarity of such links that elements of personal meaning emerge.

9.13.1.3 Meaningfulness

Meaningfulness is the essential to synchronicity and distinguishes the event from normal coincidence (Jung 1960; Bolen 1979; Peat 1995; Hodgenson 2005; Main 2007). This dimension was identified in most respondents' definitions and is implied throughout a number of the other definitions stated below.

> *These things have a certain coherence and a specific meaning that unfolds for me as an individual. They touch a deeper level of awareness and stay engraved in my consciousness. • Synchronicity is most of all a special thing. It is about events that have a special meaning…• Synchronicity to me is when something that comes into one's life has meaning, that there is a higher power involved in some way. •*

The dimension of a "higher power" is revisited at various points times throughout the analysis of *synchronicity as a MNE*, though it is neither the intention nor scope of this dissertation to unpack the meanings of what this actually 'is'.[185] Notably, reference to a "higher power" is less frequently cited during recall of general MNEs (as elicited through the original OQ) but rather tends to be a dimension which surfaced during some in-depth interviews. Irrespective of how this higher power is conceptualized, or even if it is articulated at all, it is implicit in \responses through the sense of a greater wisdom speaking which somehow urges an individual to give importance to the perceived message and meaning being conveyed.

9.13.1.4 Confirmation and personal guidance

The manifestation of meaningfulness and wisdom may arise in multiple ways. However, in these preliminary definitions - i.e. before respondents recalled their own experiences in detail – emphasis was particularly

[185] For a more complete analysis, see Main (2007): *Revelations of chance: synchronicity as a spiritual experience.*

given to meaning as a form of personal confirmation, and guidance for advancing one's direction in life. Such guidance is felt as coming from a 'different place' than one's own rational mind and, for this reason, gives the information credibility and priority. This also adds to the event's notability.

> *…things happen, which confirm a certain path is ok for you, helping you forward in life. • …and quite often reinforce the feeling that I am doing the right thing or following the right paths. • If you are open to synchronicity and allow to let go, things will happen which were meant to be and "help" you further in life • It is a situation in which you are open to receive and link signals and events around you to your personal life. •*

9.13.1.5 Openness

The previous two statements under the theme of 'confirmation and guidance' also uncover another latent theme of 'openness'. This implicitly recognizes that the phenomena is largely perception-driven and requires a certain openness to be appreciated as such. For such phenomena to be perceived and for related appreciations to evolve, an open mind may be required. Some respondents explicitly recognized this:

> *An open state of mind in which natural coincident* [sic] *or an encounter (with people, animal or nature) can be observed and interpreted as meaningful. •*

This statement also emphasizes earlier themes of 'co-occurrence' and 'meaningfulness'. Openness may be conceived as both an *a-priori* and an *a-posteriori* characteristic of synchronicity.

9.13.1.6 Unexpectedness

The unexpectedness of these meaningful co-occurring events sometimes formed part of respondents' definitions. This unexpectedness may be implied in 'coincidence' but also points to an unlikelihood.

> *The un-expected coincidence in one's life… • Different things happen at an unexpected moment. •*

An in-depth interviewee, in struggling to recall the definition as remembered it, offered an alternative that emphasized the unexpectedness as well as the personal life relevance:

> *Synchronicity is largely where – I'm just trying to think of it now – where … outside influences have sort of an un… - not unintended - but unexpected influence and generally positive influence on your life, I would think. •*

Unexpectedness and surprise is therefore linked with spontaneity of events. The experience of sudden revelation or epiphany was also noted when linking signals arising in one's life and "*Making sense in a flash.*"

9.13.1.7 Flow

An additional theme to emerge from respondents' definitions – particularly those articulated during in-depth interviewees – was the concept of 'flow'. However, this understanding of flow is somewhat distinct from that which has been earlier defined as the 'flow state' associated with meaningful experiences of merging moments of action and awareness through intense concentration and focus of attention (Csikszentmihalyi 1975; Section 2.3.3.3). Whereas this 'flow state' is associated with a certain task at the

forefront of one's attention, respondents used 'flow' with reference to synchronicity to refer to times of purpose and ease in one's life as well as a deeper connected sense of flow with or within the natural world. It is possible that the focus of attention and merging elements of action and awareness (as pertaining to 'flow state') are centred instead on 'life unfoldment' and 'being' instead of a manual task.

> …[synchronicity] *feels to me like, when things start flowing. Um so, then beautiful things happen if you're in the right frame of mind…and you feel great, people can immediately kind of feel that and obviously animals are even more sensitive…so it is about letting your inner personality flow with the elements. …and kind of combine and harvest that power which is everywhere and as you harvest that power you can give it back.*

An in-depth interviewee (who experienced synchronicity (as precognition) moments before engaging in the interview), did not explicitly define an understanding of synchronicity but touched on the concept of 'flow' with the idea of 'surrendering' – and 'connection' with the idea of being "plugged into" spirit.

> *It's funny, you know, we live in these two worlds - these two different worlds - with this veil between us, between the two worlds. And some days it feels like an iron mask and other days it feels like a light breeze. When you are plugged into the other side, not the physical side but this side of spirit, when you have let go and surrendered to all that is around you, and you could be totally in the present and in the moment, you are plugged into this, this understanding that everything, of knowledge and understanding of all that is. And everything comes to you.*

This "everything that comes to you" points to a form of attraction taking place where things come together for one's initial personal benefit. This was explicitly acknowledged by another interviewee:

> *I don't know if I've ever read the definition but my sense would be that things happen when things are right. So I guess it is a bit like having coincidences and when you need something and it turns up. It is that kind of stuff that comes together… it is almost like a magnetism, I suppose. And I think the more open you are to that, the more it happens - whether you attract it or whether you notice it or whether it is a bit of both.*

Synchronicity begins to emerge as an indicator for being in the 'flow' where life unfolds with a sense of apparent ease and uncontrolled purpose. Critically, there is apparent interplay between feelings of flow and experiences of synchronicity: does one precede the other or is one the result of the other? This relationship may also be perceived in its converse form; when the sense of flow - in the form of synchronistic moments - is unapparent or noticeably lacking. An interviewee who spends extensive time walking in wilderness areas commented:

> *…because of the way I walk and the way I engage with those walks, there is in every moment a meaningful coincidence, a synchronicity, and it honestly becomes quite eerie in a sense. And for me when I don't have that then I feel very out of sorts, I feel, you know, hang on here, what am I not doing? What is going on with me? Not what is going on out there, but what is going on with me? That's the best way I can phrase that.*

In analysing these accounts in greater depth - and in drawing on other analysis throughout this dissertation - one comes to a realization that the feeling of flow which is being referred to is highly analogous with 'connectedness'. When respondents speak of being connected, and the indicators which symbolize that state, one notices many similarities with the sense of flow described here. In fact, the only differentiation may be in that *flow is the actual feeling – the direct experience - of being in a connected state of consciousness*, whether that connection is with nature or a greater source of which ultimately may be perceived as being one in the same thing. In Csikszentmihalyi's (1975) definition of 'flow state', we find that 'connectedness' is

also implicit: the focus of consciousness is fully connected with the task at hand, such that 'flow' is obtained. It is possible that the flow which respondents speak of here is nuanced by a connection established less through – or, at least, not only - perceptual attentiveness but more through an emotional resonance which ultimately focuses consciousness, albeit in a less conscious way.

In summary, core themes respondents identified as characteristic to their experiences of synchronicity are: ***co-occurrence***; ***connection***; ***meaningfulness***; ***confirmation*** and ***personal guidance***; ***unexpectedness***; and an embedded sense of feeling in ***flow*** with life. ***Openness*** is closely linked with synchronicity a necessary or resulting state of mind associated. In their application, these themes support the core elements of the operational definition of synchronicity as outlined above (cf. Main 2007).

Box 38: Synchronicity, flow and divine purpose

The following reflection from Anna, an in-depth interviewee, syntheses some of the distinctions identified in this section as well as extending usual understandings of synchronicity in terms of its association with a sense of 'flow'.

> *Certainly the spontaneity, with which these encounters* [i.e. deriving meaning through profound encounters with wildlife] *arise, could be under the umbrella of synchronicity. But I see synchronicity as a very real and valid, live phenomena in my life as well. And that is very different to me adding meaning or finding answers to even my sacred questions through a nature encounter. And I did back in the day - one of my majors in my undergraduate degree was psychology - so I am well acquainted with the whole Jungian view and am also well acquainted with the shamanic view …*
>
> *...but I see them both as very much in the world of the psyche and humans sort of meaning-making still. Synchronicity, however, I see as much more of - for want of a better term - divinely inspired, somehow, or a moment of awareness of, sort of, divinity. And it is almost to me outside of meaning-making and meaning-adding. When synchronicity happens, I don't overly personalize it. I don't personalize it at all and ask. "What meaning does it have for me?" I just kind of give a little bob of the head in acknowledgement to no one in particular - just the universe – that, okay, things are flowing. To me, synchronicity happening is an indicator for flow, being in the flow.*
>
> *And for several years now, I've often told friends how I know that I'm on track in my life and just in the flow and probably doing the right thing at the right time or whatever is not through any evaluation mechanism of my mind, but if there is lots of synchronicities happening every week or even several a day to me, that is just sort of a little marker, a little signpost on the road saying, "Okay, you are probably on the right place at the right time doing the right thing." So, to me, synchronicity is an indicator of being in the flow, which means present and showing up to the best good hopefully... Synchronicity might happen anyway. And then we can make meaning of it or not. But if we follow synchronicities then we follow divine purpose.*

One may argue that viewing synchronicity as an indicator for 'flow' may still fall within the bounds of meaning-making. It retains meaning in the sense that it is taken as a sign for being 'in the flow' and answering an individual's (subconscious) life questions about whether they are living according to 'divine purpose'. However, it is clear that it is a form of meaning-making which is of a different quality to more archetypal, symbolic or metaphorical meanings more often ascribed to synchronicity.

This association of synchronicity with 'flow' in addition – or even in contrast - to being purely one of symbolic meaning-making raises important conceptual questions. Whilst meaningfulness is implied with the synchronistic experiences elicited, it may not necessarily be at the forefront of the interpretation – in terms of constructing direct associations - as some of the Jungian-inspired definitions of synchronicity have inferred. However, we may equally observe that the prevailing definitions tend to focus on a solitary event which, in meeting criteria such as meaningfulness, is deemed to be synchronistic. As an expansion of this definition, we may be urged to conceive 'flow' as being a symbiotic indicator which links repeated or more frequent *series of synchronicities*.

9.13.2 Criteria

Despite the working definitions outlined above, identifying synchronicity within an individual's account can be a precariously subjective process whereby the researcher must continually reflect on whether personal judgements are being suitably suspended in order to prevent interpretations which may not have formed part of the respondent's lived experience. The benchmark used to orientate this process was whether it could be demonstrated that sufficient criteria of synchronicity were perceived to form part of the MNE. Stories submitted to the r/OQ targeting *synchronicity as a MNE* were included by default. Additional stories collated per email, in-depth interviews or via the original OQ were vetted accordingly.

The synchronicity criteria from Main (2007) helps filter, as a pre-selection process, MNE submissions in order to determine whether they should be included in subsequent analyses of *synchronicity as a MNE*. The starting point is that the experience contains paralleling events which contain comparable content, usually between the observer with their subjective inner mental/emotional states and the objective phenomena present in the outer physical world. However, examples of statements coded as significant because they exhibit notable or repeated frequency, though not necessarily between inner and outer states, may also be included. Careful attention was paid to lead-in words or statements which were seen as resonating with the adopted criteria for synchronicity. Significant statements which indicate that the respective criteria of synchronicity may be fulfilled are provided in the following sections.

9.13.2.1 Paralleling events

Paralleling events may be of various types considered worthy of inclusion as synchronistic encounters. The three primary categories are: i) paralleling between inner (mental/emotional) and outer (physical) states; ii) paralleling of outer states only (or at least as far as can be discerned from the story available for analysis); and iii) repeated frequency of events with similar content or themes. The examples of each category below (Table 47) make clear that a given example may include a combination of all three groupings.

Table 47: Examples of paralleling events in potential experiences of synchronicity

Forms of paralleling	*Significant statements*
Inner & outer	*After a bit, I thought there might be sharks around ... As I left…a 2m shark swam passed me. • Whilst meditating on a rock, I was visited by an owl. The owl stayed with me for the entire meditation session. • … butterflies (white) landing on my chest whenever I had an emotional feeling in the forest, has happened three times. • ...closed my eyes, still had thoughts of a snake so took another look at the spot, and there's a little treey* [tree snake] *arched up eyeballing me! • I sat a while gazing outside thinking of his* [the deceased pet bird's] *interesting long life…Then there was a loud crash against the window - I went outside and saw a small wax eye birdie lying totally stunned…• I left my co-worker's place furious and in tears at 2:30 AM…an eagle followed me all night long, going from tree to tree, just watching me… I stopped at my job at 6:00 AM and quit. Then I began walking another 8 hours … and the eagle continued to stay with me. •*

Table 44 cont'd: Examples of paralleling events in potential experiences of synchronicity

Forms of paralleling	*Significant statements*
Outer & outer	*…and that* [significant] *day, we saw four snakes, and everybody had a scorpion in their room. • And that night, after the crocodile thing* [encounter], *we had a fire like we normally would and there in the coals was a perfect crocodile - like it had been sculptured in there. • And on the way up Paul had told me the story where the local farmers had told him that black eagle's attack leopard. But he said, "Ach no, you can't really take these kind of things seriously. This is just sort of folklore…" This was sort of the morning discussion we were having on the drive up …and sure enough that day we were driving up and we saw these two black eagles…and…there on the other side of the valley was a leopard lying on a rock and these two eagles were going for it. • One night, I was stung by a mosquito and my right eye was swollen. I hardly could see through it. Next night I was stung again right in the middle of my 6th chakra - my forehead swollen and both eyes were blocked now. The next night there was a full moon disappearance (lunar eclipse) and at the same time the fire that I was supposed to keep on going, went down. All lights went down and I couldn't see anything anymore. •*
Inner or outer (through repeated occurrence) *(See also Plaskett's accounts in Main 2007)*	*… but I just kept seeing it* [the jackal buzzard], *it was almost as if it was my friend. • And then I had an owl on the telephone pole three nights in a row. And sure enough, the third day he* [my brother] *was gone* [deceased]. *• During the days that followed, I several times had visits of rhino's. • …again, she said to me, "I don't know, it's weird - all these birds are like hanging around, hammering at me." • But I was having these consistently strong experiences with a hummingbird* [where it] *would come and show me where the* [amethyst] *crystals were. • The swallowtail* [butterfly] *has come to my attention several times after that* [at significant times] *• ...there were many many occasions, whereupon in those years…I would leave the camp … be away a couple of weeks … And in all that time that I am away, there is no sign of lions anywhere near the camp and yet within… 24 hours of me being back, they would pitch up…all of a sudden the lions would be there • And then a couple of days later I had the exact thing happen to me again… I was just sitting there crying…*[and] *once again the wind just whirled and it felt like a hug again. •*

Every day for the first fortnight [after my wilderness-based Vision Quest], *I have sightings of eagles in the immediate vicinity of where I live in Cape Town, a black eagle circling above my Kommetjie home and another sweeping in front of me while hiking Chapman's Peak Pass* (Dalglish 2009: 17).

9.13.2.2 No discernible normal cause (acausality)

This criterion is the most difficult to identify, particularly as it edges beyond boundaries of current scientific understanding. For this analysis, the emphasis is less on whether the phenomenon objectively exists or whether conventional causal explanations are available but rather on how respondents' lived experiences are perceived and interpreted. However, in order for a respondents' MNE to be included in this sub-assessment of synchronicity, it must be established as to whether there is no *perceived* 'discernible normal cause', i.e. acausality. In the absence of normal cause, the individual tends to derive greater meaning from the lived experience of the phenomena. An attempt to objectively address this critical criterion, whilst recognizing the many complex variables and implications underpinning 'causality' (Box 39), is needed. The following respondents' significant statements assist initial vetting of perception of 'no discernible cause':

> *Nobody had seen it before and goodness knows how it got into a (seriously) fenced in complex. • I had not yet shot any fish which might have caused the attraction. • …there was no way I could find a way to explain that away. So that is probably why it was so incredibly meaningful, because its repercussions were far-reaching. • Seems like the chances,*

you know, something, ah, weird and wonderful going on…perhaps there is some sort of … it just seems too much of a coincidence somehow, I dunno. • But something happened there with me and [my friend]*…There is a special bond between me and* [my friend] *which developed on that mountain. And I can't explain these things, but there is definitely something there. •*

And there was this male lion - wild lion - and he was completely calm in my presence. And you can't explain that because more than likely he had been mating with her [the previously captive lioness]. *Mating lions is a dangerous situation. And yet he looked completely calm and that night he walked around the camp. •*

Few respondents make explicit mention or reference to discernible cause in their stories. We may assume that this implied given the co-occurring themes such as 'non-ordinary' and 'uniqueness'. However, the realist may also suggest that to infuse meaning from the encounter – and to retain importance in one's memory - people may be inclined to avoid seeking out alternative explanations which may establish more plausible naturalistic causes for the event and thus undermine its significance.

Box 39: Delusion with no discernible normal cause

There is a persistent challenge in determining what constitutes a 'no discernible normal cause' and which can be used to provide an operational guideline for judging what classifies as synchronicity. This presents a challenge for both the research(er) and the respondents who may regard their experiences as being delusions or flights of fancy.

…it is something that is really difficult and hard to talk about because it can't be measured or it can't be related scientifically or so and sometimes you think, "Well, is this just not the easy way out? Is this just a form of escapism?" • And again, the scientist in me would say, "Oh please…" But until you actually experience it... •

Several of the following examples demonstrate two different facets of the causality challenge: firstly, respondents reflective dismissal or re-interpretation of the event given awareness of 'normal causes'; and secondly, some respondents' beliefs that casualty is involved, albeit paranormal or transcendental modes of causation – which currently fall outside of mainstream and accepted scientific discourse.

Example 1: Nicole

…I was interested and reading about star signs … At that time, I was on my way home from work 20h00 in the evening, when I stopped at a stop street and there it was, a crab in the middle of the street, crossing to the other side. There is a duck pond about 50 - 70 meters away but it was still odd. I immediately thought that this was a sign of distress because the crab was in danger of getting driven over and killed by a car. I was getting worried about my sister in England … whose star sign is Cancer! To protect the crab from other cars, I stood there for a while and waited until the crab crossed safely to the other side. Unfortunately I didn't get to phone her that night or shortly after the incident but when I talked to her eventually all seemed fine. I didn't tell her about the incident and I decided that I'm not going to be bothered or look for signs in everyday events - it felt a bit crazy and superstitious.•

The paralleling of the event is clear: the relation between an internal focus on star signs and Nicole's concern for her sister, the external appearance of the crab and the meaningful link with Nicole's sister's star sign Cancer. At the immediate pre-reflective level, the event was perceived by Nicole as meaningful through its notable paralleling. However, the meaning reflectively wanes and appears unfulfilled upon learning that her sister is fine. The event, whilst immediately perceived as rather unlikely, is not sufficiently detailed to be convincing that it fulfils this criterion. Finally, the criteria of 'no discernible normal cause' may be contested; not only because Nicole's presence causally allowed the physical connection of events but also because one may suppose that – as she acknowledged - there is likelihood of encountering the movement of crabs at night around water bodies. Given the clear argument for a discernible normal cause, there are doubts about whether this constitutes synchronicity, even though it was experienced as such in that moment. This example also demonstrates the non-static nature of meaning - and synchronicity itself - as new experiences and information are brought to bear on the event. It further illustrates the tension between synchronicity and meaning-making through states of awareness driven by (over)sensitivity, anxiety or themes which have recently absorbed one's attention (i.e. in Nicole's case, reading about astrological signs).

Example 2: Linda

> *My most frequent encounter is with a "buizerd"* [translation from Dutch: 'buzzard'], *who shows himself at crucial moments :-), signifying for me that I'm on the right track, should trust my vision and overview. I am very aware of these moments since about 6 years ago. I was then going through a difficult phase and felt lots of relief through these encounters. But as a psychologist I also view upon them as slightly delusional (Betrekkingswaan): being this sensitive and perceptive, it is very attractive to see the world around you as sending messages or being all about you.*

Example 3: Elise

> *Sitting looking at the water and listening to the sound - it suddenly started to flow faster and made a louder sound as it flowed over the rocks. It felt like it was my* [recently deceased] *son, telling me something - and a great peacefulness just "moved" into me. We are both "water people" and this made me feel so close to him! When I got up to join the rest of the group, the water flowed normal again. PS: it could have been my imagination, but I do feel there was this "something special" with me!*

The "PS" is representative of a number of respondents' reflective interpretations of the experience. The shy sense of doubt, an uncomfortable semi-embarrassment which depicts the ongoing wrestle between the rational and emotional faculties about whether the experience can be as 'real' as felt at the time. There is an urge to give tacit acknowledgement to the fact that we are aware of our potential vulnerability of falling into a form of perceptual self-delusion or narcissism. This is voiced as justification or lingering doubt over what is 'real' and what is 'self-created' or whether, in fact, theses two modes can even be separated.

These examples also highlight a personal and professional schism in the interpretations of the experience. These three women all hold respectable professions which required tertiary education. While the notable paralleling of events has been considered personally meaningful and helpful in providing guidance in their lives, they similarly discount - or causally attribute - the experiences as being very much a part of human perception, whether it is through 'soul searching', self-importance or creative imagination. The following statements provide examples of how respondents perceive, in their own minds, that an apparent causality exists and to which they subscribe to as their own truth or understanding of reality.

Example 4: Leanne

> *It was very interesting to see how, in the* [nature] *reserve, after meditation, I would be visited by many animals, like the owl and lion, all of which were calm and accepting of me. One day, the group decided to not meditate and see how our nature experience changed that day, if at all. We were charged by two rhino and one herd of buffalo by the end of the day. It really went to show that through meditation, you are projecting a calm, loving energy, which attracted animals in a peaceful way but without meditating, we were almost seen as strangers to the animals, no longer linked to them.*

Example 5: Joy

> *But I think we were consciously kind of putting out good vibes, saying, we respect you, we honour you, we love you, we want to share our respect with you and they* [the birds] *turned up…*

Example 6: Jasmine

> *It* [the experience] *was definitely triggered by many things. The intention was definitely a big part of it. But I have a deep connection with this island and I had been teaching other children about ecology and nature connection on this island for months. And I had a deep nature connection with other animals during this, so I knew there was a possibility; I was trusting it and not shying away from it - and welcoming it really.*

Example 7: Craig

> *…the funny thing is that I have only had profound experiences with otters when I have done some kind of meditation, breathing, ritual or whatever.*

Example 8: Anna

> *…those things have happened when I have been fully present to the moment, which usually is all about just being engaged with my five senses…and in a state of appreciation for the scents in the breeze or the amazing sunset or the feeling of the ground under my feet. So it seems to be a full five sensory awareness, but not in the sense of reaching out in a targeted kind of way but just in a wide-angled vision openness kind of way. …plus a sense of a sort of appreciation of the moment…an aspect of all the physical stimuli in the moment.* •

The above examples highlight beliefs held by some that intangible causal links may be identified, though not of the type which are generally deemed acceptable to conventional scientific thinking. We are in no position to claim an ultimate 'Truth' on this matter; it is a transient 'truth' which may change over time as science evolves and develops new measures which may prove or disprove such acausal theories. As Main (2007: 21) emphasizes, 'acausality' has a non-absolutist nature whereby:

> …the door is always left open to the possibility that what currently seems acausal may later come to seem causal when viewed in the light of greater knowledge or from the perspective of a worldview that recognizes paranormal and transcendent modes of causation, or even just a hierarchy of levels of normal causation.

Being closed to such possibilities would seem to equally imply a denial of historic scientific discovery. At various points in recent history, we were unable to identify, isolate and thus measure gravity, electromagnetic radiation, electricity or radio waves. This did not preclude the existence of such forces; although many claimed that to be the case until ultimately disproven.

It is also possible that as an individual spends more time in nature, increasing ecological literacy understandings of animal behaviour and an appreciation of statistical probabilities and perceptual biases, that what was previously viewed as abnormal, unlikely or acausal - synchronistic - may be cast differently in light of new knowledge, such that the event is seen as a result of known ecological cause and effect, psychological meaning-making or simply random chance. Whilst this research does not constitute empirical evidence, the accumulated inter-subjective experiences form an evidence base which warrants a degree of open-mindedness.

To conclude with the reflections from one in-depth interviewee:

> *I think it is because we are so conditioned to see the world through the window of science,* [that] *we are continually amazed by these experiences. But perhaps Indigenous people are not amazed. Like my son, who had a couple of incredible experiences like this together, he is not that amazed by it. Because I don't think he's conditioned yet to… you know, you see what I'm saying? We know, I mean, absolutely know, that the world is not - and this reality is mighty different to the story we've been told. But it is so heavily conditioned that part of you believes it is.*

Further explorations of synchronicity and causality refer are found in diverse literature (Jung 1960; Capra 1976, 1996; Bolen 1979; Bohm 1980; Peat 1995; Combs & Holland 1996; Jaworski 1996; McCallum 2005; Sheldrake 2005, 2009; Main 2007; Cambray 2009; Taylor 2010; Jargodzki 2010; McRaney 2011).

> *I looked the other way and there was the parrotfish I lost a kilometer away, hours ago. The fish was lying on the sand looking into the sunglasses* [which I had just dropped overboard]. *I could see the wound from my first shot* [made at my previous location] (Larkin Strunz 2007).

9.13.2.3 Paralleling must be sufficiently unlikely and detailed as to be notable

The third criterion for synchronicity is that paralleling of events must be sufficiently unlikely and detailed as to be notable (Main 2007). Systematic searches were made of statements which carried a sense of disbelief or astonishment at the non-ordinariness of the event or that there was sufficient description of the event to allow for the experience in its totality to be seen as unlikely under otherwise normal circumstances.

> *But the funny thing is I knew I was going to see it* [the snake] *exactly in the location where I saw it... 15mins prior to seeing it...!* • *We were amazed, since my brother-in-law said that all the years he's been living there, he has never seen a swallowtail in his back yard.* • *… there were many many occasions, whereupon in those years with the lions, I would leave the camp…And yet within…like 24 hours of me being back, they would pitch up… all of a sudden the lions would be there.* • *Now, they* [the birds] *wouldn't have done that - I am quite sure - because I have done it* [the same outing] *before umpteen times with groups and birds just see us and bugger off, you know.* • *And the photograph* [of the elk kill that the tracking teams had found] *…was a complete match in daylight with what I had seen happening and unfolding* [in a half-waking vision] *at about 1am in the morning.* • *And we realised that even the way they* [the lions] *were lying and their sexes and ages, were exactly us… on the other side of the river there. It was the same thing.* • *It just seems like an extraordinary coincidence that both a son and a mother would have profound experiences with an otter of all animals, within a few days of each other. It seems… too much of a coincidence, especially that both were quite similar, both were in the water… and they* [my parents] *lived there* [on the other side of the bay]. • *Ja, it shouldn't have happened, but it did… and just the amount of coincidences and whatnot, which were involved is just, you know, synchronicity… is that what it is called?* •

An individual's self-assessment of whether an event is sufficiently unlikely tends to rest, in the case of synchronicity involving an animal, on the perception of unusual behaviour based on past experience and current knowledge of what animals are expected to do - or where they are supposed to be - in that situation. It may therefore be argued that as ecological literacy increases, the likelihood of perceived synchronicity decreases. This is because the individual may have a greater experiential knowledge base and thus discernment as to whether a particular event could be classified as synchronicity or not.

> *I mean you can't get hysterical. If the birds were suddenly to land up there* [interviewee points to roof] *or start picking the ants on the ground, that is normal behaviour. I mean to know that it has got a message for you, it is got to suddenly land here and look at you or land on your shoulder or circle you or all sorts of things. I've even had people where the bird has flown into the car, flown around and then shot out again. Sometimes, they have even found the birds dead, a big kamikaze… and sometimes I think that is the ultimate sacrifice.*

> *Once* [soon after my wilderness-based Vision Quest], *while lying on a rock ledge in the sun, lizards crawl over me and sit on my body, unconcerned. This had never happened before in hundreds of similar situations.* (Dalglish 2009: 17)

9.13.2.4 Meaningful beyond notable

The final criterion (cf. Main 2007) to satisfactorily fulfil conditions of synchronicity is that the event must be meaningful beyond being notable. Careful attention is given to statements which made explicit the meaning derived or the significance of the experience as it appeared for the respondent.

> *It … gave me a lot of insight about my journey in life.* • *It felt a bit like a birthing of something new in me.* • *It felt like it was my* [recently deceased] *son telling me something...* • *I really take that as a message from the Creator to help me put me on my path.* • *This experience made me feel like we are still connected after physical death…* • *I remember feeling with a lot of conviction that this was a sign to embody that which I wanted to be in harmony with and to live very gently on the earth in order to be in symbiosis with it. My name means butterfly, so it felt like a very personal message.* • *… there was definitely a reason for what happened: a big learning experience.* • *And we drove back* [from the ritual] *and as I parked here* [at the university], *I looked on my shoulder and sitting on my shoulder was a praying mantis. And it was such a positive sign because that is almost like God…* •

> *I had an odd feeling it* [the osprey] *was protecting me. • And there's an eagle, with its prey, with its catch that it has just caught, you know. I mean, what bigger example to focus on your goal, and get what you need, and then* [for it to] *come and circle the group. • But I just found it like… okay, I'm just about to leave to Cape Town again and there is this owl* [again]… • *Why it was really meaningful then to me was that it was definitely non-local – clearly. It sort of immediately alienated me from my sense of what was a reasonable way of coming via information and so on. And it was undeniable - completely undeniable. •*

It is often assumed that coincidences are only meaningful to the first person, or the primary experiencer as the "sole authoritative judge of whether a given coincidence means anything or not" (Main 2007: 19). However, synchronicity does not always need to be experienced nor appreciated in first person, even though the meaning may resonate more powerfully with the direct experiencer. Meaning as experienced in the first person is just one dimension of meaningfulness in general and, as Main (2007: 20) states: "A coincidence, no matter to whom it happens, is an event in the collectively experienced world."

> *At that moment when he was sharing that* [he was going to stop following the career path his father had wanted for him], *an elephant came on the other side of the river…the person was overwhelmed with emotions. One of the other group members asked, "what striked* [struck] *you so much*[?]*" He said: the logo of my business is an elephant! •* [My client's healing] *release was triggered by a blackbird that sat at a ledge on the balcony and started to sing. Her deceased husband's favourite number was a Beatles song that starts with "Blackbird's singing..." • But me, as I'm writing these notes down* [of my client's bird encounters], *I'm saying to myself, "Now listen up here… there is something significant here, something significant… I knew that there was a message that was trying to be given to her but I didn't know what they were. • And this hummingbird suddenly landed on her shoulder and everybody else at the bus stop went, "Ooh - look at that!" And she thought, I wonder why - and it would shoot off and it would come back and land on the other shoulder… And sure enough, somebody else said, "You know, I think it might be trying to tell you something." • …after the crocodile* [encounter], *we had a fire like we normally would and there in the coals was a perfect crocodile - like it had been sculptured in there…I even showed* [my colleague], *who wasn't so into those things, and he was like "My goodness" - …an absolutely perfect crocodile.*

9.13.3 Screening for synchronicity: working examples

A series of examples are provided below to illustrate how storied accounts may be screened for criteria pertaining to synchronicity. This is an initial filter through which a selection of stories was screened. The following examples are therefore aimed at providing the reader with a simplified understanding of how stories may be initially vetted as to whether they meet the above (pre-selected) criteria for synchronicity.

Example 1: Dianne and the bees

> *During a very stressful time, I went outside and lay on the grass. I was looking at the sky through a bottlebrush above me, and slowly realised it was full of bees. Several flew down and crawled over my face and body, and I couldn't do anything but allow them to. When they eventually flew away, it felt like they had taken - not my problems, but the emotion - the weight away, and given me the space to assess my situation and create a plan.*

Criteria 1: Dianne notes a paralleling between an emotionally turbulent / intense period and the subsequent event of bees releasing the emotion burden.

Criteria 2: Dianne does not reflect on whether the event was considered to be of discernible normal causes; however, at face value, plausible explanations are apparent.

Criteria 3: Dianne does not make the likelihood of the event explicit, however, there is an implication that the event was rather unlikely, and detailed enough to be notable.
Criteria 4: Dianne indicates the experience to be meaningful beyond notable in that she felt the bees were responsible for her emotional release and ability to reassess her life situation.

It cannot be confidently stated that this is an experience of synchronicity. The meaningfulness and association of the encounter with a period of emotional intensity supports its inclusion. However, without access to further detail of the encounter, the event could be the result of logical causes, e.g. Dianne's presence may have invoked the bees approach, through clothing colour or bodily fragrance – and we do not know if Dianne also recognizes this. Should the event be excluded on the grounds of synchronicity, it does not undermine its importance or impact as a MNE involving wildlife.

Example 2: Dirk and the raven

> *I was in* [foreign country]... *We were wondering which route to take. I had seen the days before a number of black ravens. I asked for a sign if we had to go for a cave in the mountain, which we could see at some distance. I asked especially for a raven. When we came to the point where we had to decide on the road to take, a black raven flew along the mountain side, made a lot of noise just before the entrance and then disappeared. Before and after I had not seen a raven. It was not difficult to decide where to go.* •

Criteria 1: Dirk notes a paralleling between his request for a sign and the appearance of the raven.
Criteria 2: Dirk observes that before and after that day he had not seen a raven. It can be assumed that under normal causes his presence did not invoke the appearance of the raven. However, as ravens were seen the days before, it is known they were present in the area.
Criteria 3: Dirk notes that the unlikelihood of the animal requested, i.e. raven, appearing at the moment when the decision needed to be made, and exhibiting notable (and possibly unusual) behaviour at the location of relevance.
Criteria 4: The meaningfulness is implied in the personal confirmation, "It was not difficult to decide where to go." Dirk himself confirmed that he experienced this as synchronicity.
It can therefore be concluded that this was a synchronistic event as experienced by Dirk.

Example 3: Kris and the plover

> *I was sitting on a small island in* [wetland name], *during a meditation session at sunset and was asking myself the question regarding next steps in life. At sunset a bird, I believe a plover, came flying directly at me making a very loud noise to make himself noticeable. Once above my head exactly at that point he circled and then went directly to an adjacent island where another person of our trail group was seated, as if indicating a connection. This other person turned out to be somebody with whom I have had frequent contacts thereafter and has proven important to my next steps....* •

Criteria 1: Kris refers to instances of paralleling content: i) between his questioning for guidance in life and the sudden appearance of the plover; and ii) between the plover and the other person who has played a subsequent role in his life.

Criteria 2: Kris does not make explicit reference to the causality. It is unclear whether Kris may have attracted the plover though normal causes, e.g. wearing shiny jewellery. Additionally, it is unknown if this species of plover is a gregarious or territorial species, and acted accordingly.
Criteria 3: Kris indicates the connection to be unlikely, particularly given his inner state of mind/focus and the bird's subsequent explicit movements.
Criteria 4: Kris derives meaning from the encounter given that person which whom the plover flew toward subsequently assumed importance in his life.

As an observer, doubt remains as to whether - given the information available – this sufficiently meets objective criteria for synchronicity, particularly as it is unclear how abnormal the plover's behaviour was. However, importantly, Kris experienced this event as synchronicity (he submitted this response to the synchronicity OQ) and therefore the event, as he experienced it, was meaningful beyond notable – and thus was an experience of synchronicity.

Example 4: Sheena and the bushbuck

> *We were sitting in the lounge of their* [my grandparents'] *new house* [after a move to the city form a rural area] *and he* [my grandfather] *was saying, well what is he supposed to do here, he is bored out of his brain and there isn't any wildlife in the jolly complex they are living in….as he is saying this, he looks up and there is a male bushbuck just outside their kitchen window between their house and the one behind! He was so excited! If that wasn't a sign, I don't know what is! Nobody had seen it before and goodness knows how it got into a (seriously) fenced in complex.* •

Criteria 1: Sheena notes the paralleling content between her grandfather's complaints and the sudden appearance of the bushbuck.
Criteria 2: Sheena mentions that nobody has seen the bushbuck previously and it was unknown how it could have made it to that location under normal circumstances.
Criteria 3: Sheena infers that the paralleling was sufficiently unlikely to be notable.
Criteria 4: There is shared meaning - and thus excitement - derived from the encounter and it is interpreted to be a sign.
This event is therefore considered to be a collective experience of synchronicity as a MNE.

Example 5: Annelise and the ray

> *I was taking a sunset dip in the sea, not deep. I was facing the ocean with my back to the shore, watching the sunset. When I turned around to go out, there it was, a big black mass drifting a meter from me in the shallows. I thought it was a big black plastic bag, but then it swam and I saw its swordish tail. I was awestruck! It was such a "wow" moment! So I stood still and watched it* [the ray]. *Then it slowly swam away from me, flying gracefully with wings into the deeper water like they do...;-)*
>
> *Follow-up reflection: I was standing looking at the sunset in a rather hectic time of my life (must finish my Masters dissertation end of this month). Standing alone on a big beach. My fingertips were inside the water and I was trying to neutralize my energy field and let go of thoughts and stress, meditating for a few minutes with my back facing the shore and my face the setting sun. Then I sensed it was time to stop, and when I turned around, there it was...the big creature that came to say hello...it was very special, and maybe some encouragement or protection or greeting from the universe..I don't know.... ;-)* •

Criteria 1: Annelise notes the paralleling between her sensing it was time to stop her meditation and the sudden appearance of the ray in close proximity.
Criteria 2: Annelise does not reflect on the causality or probability of the event but it is inferred that the ray's presences was felt as a visitation. We may suppose that it is common behaviour for ray's to cruise the shallows of an evening; however, this does not suggest that Annelise's presence was able to cause the manta to appear under conventionally accepted circumstances.
Criteria 3: Annelise reaction indicates that there is sufficient basis for the event to be deemed unlikely beyond being simply notable. However, this may be somewhat of an assumption.
Criteria 4: The meaningfulness of the encounter is apparent through the emotions invoked, the 'specialness' as well as the openness to speculation that it was a personalized message.

It is difficult to draw a clear conclusion on whether this event may be considered as synchronicity. Annelise submitted this response per email (and not the OQ); therefore we cannot assert that she has perceived the event to be synchronicity or not. However, given that: emotional intensity and sensory focus is often considered to be associated with synchronistic events (Peat 1995); Annelise "sensed it was time to stop"; and that the encounter was considered sufficiently meaningful to report as part of this research, it is suggested that the experience has a notable synchronistic quality to it.

This example also illustrates the challenge of identifying synchronicity based on limited information. Annelise had heard of my research from a fellow student and subsequently submitted her experience via e-mail. Her initial e-mail is the top paragraph of the account. On this particular occasion, I chose to reply and request more details pertaining to the context as I suspected (intuited?) there may be paralleling involved. Annelise's reply to this follow-up e-mail is the second paragraph, i.e. "follow-up reflection". Evidently, having only had access to the first paragraph, one would have assessed it as a general MNE as there was no indication of paralleling. It is through the further reflection, where the context immediately enriches the encounter and signifies sufficient paralleling and meaning, that it was possible to judge it as meeting the criteria of synchronicity. How many other respondents submitted more reserved 'normalized' stories? It is therefore essential to note that other OQ accounts could be subject to similar circumstances. It was not possible to recontact most respondents, nor request that every respondent provide such detail without the questions becoming overtly 'leading', i.e. biased.

9.14 Unexpected phenomenological themes and relationships (re synchronicity)

As identified during the structural descriptions of *synchronicity as a MNE* (Section 4.3.6.3), animals of flight are often associated with the reported encounters. This somewhat distinguishes it from *general MNE* (Section 4.3.2.2) in which encounters with large charismatic mammals tended to be more pronounced. This finding was made more surprising by the fact that many of the respondents to the synchronicity OQ were Dutch and had their MNE(s) in a foreign wilderness area (e.g. South Africa). One would expect that the novelty and fascination in such a setting would be its presence of charismatic mega-fauna and, specifically, that sightings of interactions with these mammals would comprise the primary content of their MNEs. However, somewhat counter-intuitively, this was not reflected in their reported accounts of synchronicity. Similarly, with other stories submitted per email or elicited through interviews, the association of synchronicity with animals of flight was detected, even when in familiar or non-wilderness settings.

During the course of this analysis, a former WS student lent me a dense book in which I came across the following passage which triggered this quaint exploratory 'side' enquiry:

> *In common with the early Scandinavians, the Indians of North America considered the earth (the Great Mother) to be an intermediate plane, bounded above by a heavenly plane (the dwelling place of the Great Spirit) and below by a dark and terrifying subterranean world (the abode of shadows and of submundane powers)...* ***Those creatures capable of functioning in two or more elements were considered as messengers between the spirits of these various planes****. The abode of the dead was presumed to be a distant place: in the heavens above, the earth below, the distant corners of the world, or across wide seas* [emphasis added] (Hall 1926: 633).[186]

Curious, I investigated whether the MNEs comprising this analysis with animals "capable of functioning in two or more elements" found associations with synchronicity and, specifically, whereby animals were shown in the analysis to be considered to have the role of the 'messenger' in that MNE (Figure 42).

The schematic (Figure 42) represents types of animals reported during *synchronicity as a MNE*, clustered around types of animals and linked to the elements of air, earth and water. Naturally, this schematic can only represent an approximation based on the fact that many OQ accounts had only limited contextual information with which to make such judgement. Nevertheless, the preliminary results are intriguing and possibly worthy of further exploration. In short, there is evidence that clustering predominantly emerges around birds and insects; classes of animals that interface with more than one element. There is a potential though tenuous trend around reptiles (and also given the biological extent to which the reptiles listed actually interface between earth and water on a regular basis).

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[186] Mutwa (1996: 14) expresses a similar belief, however, he does not limit it to specific elemental interactions:

> The great Earth Mother, together with other lesser goddesses, was believed by African people to be capable of changing her shape to that of any animal, bird or fish whenever she chose, and this is why Zulus call her *Nomkhubulwane*, a name which means 'she who chooses the state of an animal' … 'the shape-changer'.

Mutwa (1996) goes on to list various shapes which *Nomkhubulwane* can manifest at will such as the springbok, eland, python, elephant, rhinoceros, giraffe, lion or lioness, various birds and lizards. In *Nomkhubulwane's* "bad and cruel aspect" she changes into only the hyena, crocodile and, according to some, the vulture (Mutwa 1996: 14).

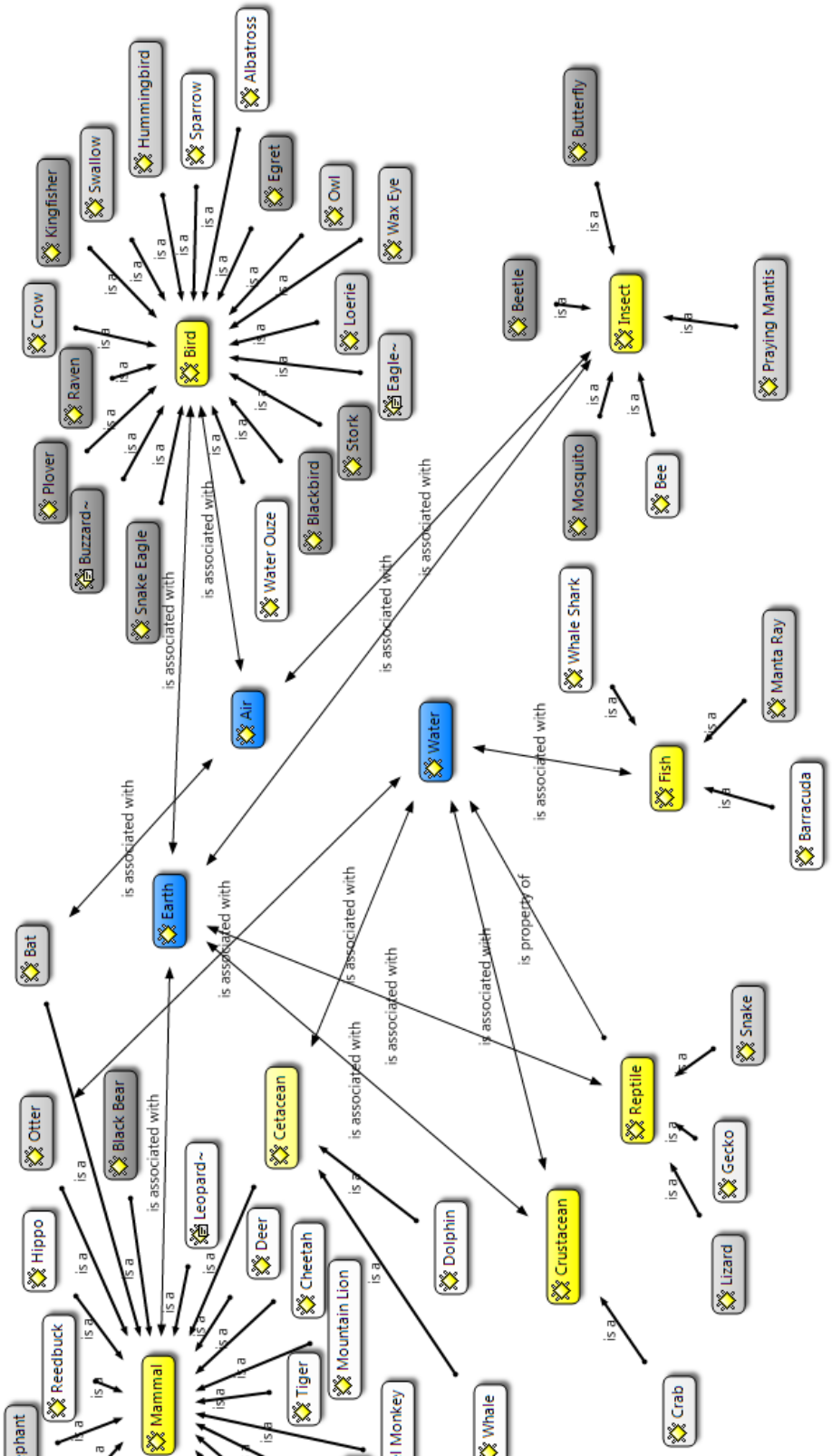

Figure 42: Relationship between animal classes and the classical elements

Key: *Dark-grey shading* - animals mentioned in the r/OQ (responding to *synchronicity as a MNE*). *Light-grey shading* - animals mentioned in the original OQ, in-depth interviews and email submissions but considered as MNEs having synchronistic qualities. *White shading:* animal reported as a *general MNE* (in the original OQ) with no apparent synchronicity. ('crab', 'gecko' and 'bee' were borderline cases)

The idea that certain animals act as messengers from the 'spirit world' is neither new nor confined to ancient belief systems (Section 2.4.3). In a South African context, Mutwa (1996), Tucker (2001) and Wansbury (2006) pick up on such themes in their books which deal with personal experiences and (African) Indigenous knowledge. In particular, traditional belief systems have long recognized the presence of animals as manifestation of ancestral or elemental spirits as this as 'reality' in their worldviews. In South Africa, this is also very much a part of the Zulu and Xhosa traditions. Bernard (2010: 191) writes:

> There seems to be widespread consensus among all the groups that the ancestors can come to visit the living in animal form both in dreams and while the person is awake. Although the snake appears to be the most common manifestation of ancestral power, especially among the Zulu, they are not exclusive to this form and the ancestors are believed to appear in a number of animal or bird guises. The ancestors are not held to always appear in one animal form for a particular clan, but may adopt several different manifestations…

Hall's (1926: 261) encyclopaedic work on symbolical philosophy broadens this perspective by observing that

> The creatures inhabiting the water, air, and earth were held in veneration by all races of antiquity. Realizing that visible bodies are only symbols of invisible forces, the ancients worshiped Divine Power through the lower kingdoms of Nature, because those less evolved and more simply constituted creatures responded most readily to the creative impulses of the gods.

Insects, as part of nature's 'lower kingdoms', were also of particular interest to Jung and Freud in terms of synchronicities involving insects and the way in which they communicated to collectively act and produce purposeful behaviours (Cambray 2009). They postured that direct psychical transference may have been an archaic yet more efficient evolutionary method or process for giving signals related to intent and purpose than phylogenetic evolution alone (Cambray 2009). In utilizing the self-organizing properties of systems, this collective behaviour would facilitate more rapid communication between organisms (Cambray 2009). Whilst such speculation cannot challenge accepted ontological paradigms, it does, in the context of this research, help generate a 'resonance of meaning' through interpretations that align with ancient wisdom.[187] Intersubjective resonance may also be found in the sharing of everyday stories (on *synchronicity as a MNE*):

> *My 37 year old younger sister had died of a massive stroke…It was a week after her death, and I was planning her memorial service... I was trying my best to keep calm while the family was struggling with their emotions....I was told by someone who was connected with her spirit that she would be visiting us (family) in some form, but she did not know what that would be. This was the first time I've really learned about spirits coming in forms of animals or other living things. I woke up in the morning (the day before her memorial service) and looked around for a sign. Nothing. I felt a bit silly believing that she would appear to us. I went to my other sister's house…and my sister shouted to me, "Come out here quick". There was a swallowtail butterfly fluttering in a flowerbed near my sister… near the purple flowers - purple was* [my sister's] *favorite color.… We were amazed, since my brother-in-law said that all the years he's been living there, he has never seen a swallowtail in his back yard. There was no doubt that this was a symbol of* [her]. [188]

In imbuing insects with this kind of sacredness, it may positively shape perceptions toward future interactions and reinforce their worth and appeal (cf. Lemelin 2013b). Further, it highlights that, far from inducing *biophobia*, insects can comprise MNEs as they have done so for millennia (Lemelin 2013a).

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[187] The word 'omen' refers to "one who observes flights of birds for the purpose of taking omens" from Latin *auspex* "interpreter of omens given by birds". Connection between birds and omens is also in Greek *oionos* "bird of prey, bird of omen" and *ornis* "bird" which could also mean "omen." (http://www.etymonline.com/ *retrieved 21 August 2013*).

[188] According to Hall (1926: 270): "*The butterfly (under the name of Psyche, beautiful maiden with wings of opalescent light) symbolizes the human soul because of the stages it passes through in order to unfold its power of light.*" (see also Appendix 9.2)

9.15 The influence of MNE on attitudes and behaviour: supplementary results

This section contains detailed tables and figures related to how OQ respondents' perceived their MNE(s) as influencing their attitudes, behaviours and outlook and the thematic relationships between them.

9.15.1 Respondents' perceptions on the impact of their MNEs

Table 48: Respondents' themed statements on how MNE has affected them

Code	*Statement*
Appreciation	*There is so much that we…don't appreciate.* *I have both an understanding of and appreciation for nature.* *An appreciation…*
Appreciation / Awe	*My experiences have also highlighted for me the uniqueness and significance of life - a desert is amazing but a desert filled with life (from bacteria to small animals) is something more profound and meaningful to me and amazing to experience.* • *…my relationship with nature changed from a human looking at 'biological' features to something inside that human appreciating and being in awe of the shapes and colours and aromas and feeling of nature.* •
Awe	*…instilled a sense of wonder … for nature in me.* • *I regularly have moments when I think "wow, that's amazing! mind blowing"*• *…I feel in awe of … something so vast…*•
Career choice	*I work in conservation as I am totally passionate about it. Reason why that passion was created must have had to do with the experiences had in nature* • *These experiences motivate me to continue with my work towards a better planet.* • *I am studying conservation ecology mostly because of meaningful experiences with nature* • *…it also dictated what I chose to study (biology and environmental sciences) and the field of work I went into* • *I studied zoology…* • *Without these I am not sure if I would have chosen an environmental profession, or stuck with it as a career option given the difficulty of finding reasonably paid, permanent and full time jobs.* • *When I was in high school I wanted to study psychology, I was extremely determined to pursue a career in that direction. I registered at the University and was accepted for the psych course. During orientation we went into the Cape Flats Nature Reserve on campus with few of the zoology/botany students and the experience with them influenced me to change my course immediately. We saw some animals and they explained how these indigenous plants and animals have adapted. It was eye opening and I wanted to know more, I wanted to learn more. And 6 years later I'm still a student in the conservation field and I'm learning so much everyday.* •
Childhood influence	*My parents took me hiking from an early age …* • *Growing up in Scotland with much wilderness around has really influenced me profoundly. I came to Scotland at the age of 10 from Berlin and had never seen the sea. Now I can't get enough of the sea.* • *As a child I spent every summer at our family cottage in the Algonquin Park area of Ontario, Canada, and the better part of that time outdoors and interacting directly with nature. I also spent a year in East Africa as a child also interacting a great deal with the natural world/wildlife. Both of these experiences have profoundly affected my relationship with nature.* • *I think that having meaningful experiences with nature throughout my childhood gave me a respect for nature and an interest in wildlife and conservation.* • *I am the person I am today for experiencing a childhood of running free in the woods and riding my bike as transportation.* •

Table 45 cont'd: Respondents' themed statements on how MNE has affected their them

Code	*Statement*
Connectedness	*My experiences made me realize how connected things are…* •
	I am part of the greater whole (the earth)… •
	I am only dust, like everything else, and will return to the soil (and thus plants and animals) one day. Just because I am not separate from everything and everyone else. •
	Connections with wildlife are by far the most strongly I have felt toward any other living thing. •
	I feel I have a stronger connection to nature due to my experiences. •
	As part of nature, I am a better animal because of the regular confirmations of life around me. •
	I desperately want to help other people make this personal connection with the world around them. •
	I think my encounter or my connection with nature has opened the possibility for me that we can 'connect' with and be in relation with nature- nature energies - nature spirits, whatever we want to call them… •
	I started looking at nature aspects as if I were seeing them for the first time, and my relationship with nature changed from a human looking at 'biological' features to something inside that human appreciating and being in awe of the shapes and colours and aromas and feeling of nature. •
	…with more meaningful experiences I feel more connected to this universe and more in touch …with the nature around me. •
	More … connectedness… •
Diminishment	*I think that meaningful experiences have shaped me as they are a constant reminder that it is not all about me or about mankind.* •
	…though I am small… •
	They remind me that I'm small in the world, because I feel in awe of and vulnerable to something so vast… •
	It has made me … ask myself the question who are we, and who am I to do to mother earth what we are doing today. •
	… I realised that there is no reason to put all other life forms in a ranking below the human being •
Empathy	*I have more empathy and respect for all living things, including individual humans, because of my meaningful experiences.* •
Experience contextualizing prior information	*The other experiences have all affected me and my relationship with nature to some degree, but this has been much enhanced by a lot of reading I have done about nature and others' experiences of sacredness in nature. It is difficult to tease the effects of the reading (and teaching by other more experienced people) from the effects of my own experiences, apart from that very first one.* •
	Personal experiences have rather provided contexts for knowledge acquired through education. •
	I understand on a visceral level Thoreau's quote "In wildness is the preservation of the world. •
Helping others	*I desperately want to help other people make this personal connection with the world around them.* •
Human Impact	*Realize that human impacts on biodiversity are devastating and in many cases irreversible. Homo sapiens seem hell-bent on destroying itself as a species and taking all other species with it. We must cut down on consumption. We do not need 90% of the things we covet for.* •
	… but I have a big impact on it at the same time. •
	I think it's a danger that so many people feel so safe all the time, insulated by a city and sharing responsibility with such a large group of people that their sense of ownership of environmental impacts is very small, when in fact, its huge. •
	It has made be understand the concept of wholeness/oneness and at the same time to ask myself the question who are we, and who am I to do to mother earth what we are doing today. •
Impacts (personal)	*M.N.E. shape and form us into the people we are.* •
	It is all part of greater self awareness and a self development process that I have embarked upon. •
	I am a better animal because of the regular confirmations of life around me. •
Influence of mind	*…I can influence and perceive it.* •
	Meaningful nature experiences came hand in hand with an event which changed my view towards life, towards how the mind works… •

Table 45 cont'd: Respondents' statements on how MNE has affected their them

Code	*Statement*
Inner peace and calmness	*…nature with or without animals has a quietening and opening impact on me. rest relaxation and openness* •
	…they make me quiet and 'in peace'. •
	The overall message that I have taken from my experiences is that peace and contentedness can be found regardless of what is happening in my life in general. •
Interconnectedness / Interdependence	*… because our own existence depends on it.* •
	My experiences influenced how I view the world around, they have helped to me to make the connection of how the entire world is linked together. •
	how necessary it is, that when I get back in the car and go back to the city, what I do there must be done mindful of what its doing to the wilderness i was just in. •
	All the experiences that I have had in nature and with Animals have made me more aware of my environment and strengthened my beliefs of interconnectedness with animals, the planet Earth and Nature. •
	The experiences make me even more strongly aware of the interconnectedness of everything. •
	Second I realized how helpful the other life forms are to support our "walk of life" in guiding directions. Third I am more aware than ever that I am "een rader in een grote machine". [Translation from Dutch: a paddle in a large machine] •
	I see the connection between things and how taking care of habitats benefits all things that live in it (including humans). •
Knowledge and learning	*It was eye opening and I wanted to know more, I wanted to learn more. And 6 years later I'm still a student in the conservation field and I'm learning so much everyday.* •
	What I have learned is, when I have an open mind, more synchronistic experiences happen. •
Knowledge and understanding	*I have both an understanding of and appreciation for nature.* •
	Better understanding and attitude towards nature. •
Lack of knowledge and understanding	*There is so much that we don't know/understand…* •
Life enhancement	*They make my life more easy, more exciting and more meaningful.* •
	The experiences have given me 5 new basic principles that I (try to) live up to. As an example: the principle "you may enjoy" reminds me of just not being too rational and just experience and laugh more. •
Loss	*…because of all the transformation that is happening at faster rate and that erases natural landscapes and species quickly.* •
Making time for awakening practices	*de wilderness sync ervaringen hebben mij nog duidelijker gemaakt dat regelmatig loskoppelen van de huidige settings/omgeving/werk byvoorbeeld dmv meditaties heel helend werkt en me fris houdt wbt synchroniciteit*
	Translation from Dutch: The wilderness synchronicity experiences have made it even clearer to me that frequently unplugging from the current atmosphere/environment/work through, for example, meditation is very healing and keeps me fresh with regard to synchronicity. •
Making time for nature	*… I take every opportunity to experience natural things* •
	I take advantage of the natural recreational areas my city and country have to offer. •
	…love outdoor pursuits and wildlife watching •
	I am an urbanite, but have to escape to nature at least once a month to feel normal. •
Nature as source of wellbeing	*I realized that my natural surroundings are very important to my emotional wellbeing and feelings.* •
	"Of what use are forty freedoms without a wild spot on the map." (Sorry, can't remember who wrote that.) And I don't need "wilderness" in the legal sense of the word, just a bit of natural flora and fauna in which to lose myself. •

Table 45 cont'd: Respondents' statements on how MNE has affected their them

Code	*Statement*
Nature as source of wellbeing (cont'd)	*And that the quickest way to find the path to that feeling of contentment and 'rightness' is through being in nature.* •
	…that nature can heal us not just through phytotherapy but just by its presence - its vibrational qualities •
	I am an urbanite, but have to escape to nature at least once a month to feel normal. •
New ways of seeing	*It is as in the poem of Ian [McCallum]: wilderness is not a place, but a pattern of soul. I can look at organisations or a town as something in which I can see the pattern of soul.* •
	I started looking at nature aspects as if I were seeing them for the first time… •
Non-ordinary animal behaviour	*If I come across something that seems more out of the ordinary, such as a hummingbird fluttering right next to me rather than passing me by to get to a flower, I take note and look up the symbolism. I see it as perhaps I need a reminder of some kind or guidance of which the spirit guides want me to be mindful.* •
Oneness / wholeness	*When I go there (or anywhere in the bushveld) I feel a sense of 'oneness' with the natural world around me.* •
	…with more meaningful experiences I feel more …at one with the nature around me. •
	It has made be understand the concept of wholeness/oneness… •
Openness & self-awareness	*Be more open and sensitive to sub conscious processes.* •
	It is all part of greater self awareness… •
	…nature with or without animals has [an] opening impact on me…openness. •
	What I have learned is, when I have an open mind, more synchronistic experiences happen. •
Patience	*Taught me …patience…* •
Pivotal life moment	*The first experience I described, in Umfolozi [iMfolozi] Game Reserve, is the one that has affected me the most.* •
	They are like flags in my life that I refer to… •
Place attachment	*I am still very fond of the bushveld (the vegetation type or biome of the Pretoria area where I grew up).* •
Positivity	*More trust in …positive outcome of things, …and in the natural course of things.* •
Preciousness / Sanctity of life	*It reminds me of my own mortality…* •
	Taught me…to value each moment like it is your last. •
	I view all physical entities as sacred in some way. •
	…made me appreciate life as a real gift •
Relations with other beings	*…opened the possibility for me that we can 'connect' with and be in relation with nature- nature energies - nature spirits, whatever we want to call them* •
Respect (for nature / life)	*They help to respect all life…* •
	…to treat nature with respect and care… •
	Taught me respect… •
	…instilled …respect for nature in me. •
	I have more empathy and respect for all living things, including individual humans, because of my meaningful experiences, •
	…gave me a respect for nature… •
Restoration and prevention	*… inspires me to contribute to cleaning up/preventing more damage…* •
Separation and disconnection	*I strongly believe that a lack of this is what results in the 'sickness' we see in people/consumerist cultures. This sick 'want more' attitude is a direct result of the disconnect between us and nature. The result of trying to separate ourselves from it. This is the greatest disservice we will ever have done to our children.* •

Table 45 cont'd: Respondents' statements on how MNE has affected them

Code	*Statement*
Separation and disconnection (cont'd)	*I think it's a danger that so many people feel so safe all the time, insulated by a city and sharing responsibility with such a large group of people that their sense of ownership of environmental impacts is very small, when in fact, its huge.* •
Sustainability actions	*I do not use as much plastic bags anymore, use cups several times, separate waste etc.* •
	I am driven to minimize my negative impact on the earth by recycling, saving water, saving electricity and minimizing consumption of products (especially those covered in packaging). I am a careful consumer and will buy organic/free range/fair trade/local goods if given the choice. •
	I now aim to reduce my impact on the environment in as many ways as possible. My attitude to food and to eating has changed completely. •
	… the whole concept of "sustainability" has now become a very important part of my daily life. •
Sustainability thinking	*… to think sustainably.* •
	…we should conserve this nature so that future generations can also have the same experiences. •
Trust in self & in life	*More trust in self, own course of action, positive outcome of things… and in the natural course of things.* •
Uniqueness and significance of life (biodiversity)	*My experiences have also highlighted for me the uniqueness and significance of life…* •
Urban - wild nature contrasts/benefits	*I don't seem to have those feelings here in the Cape (and specifically Cape Town) where I am now based. My hart [heart] is in the bush.* •
	I only really get energized in truly wilderness areas with no sign of human disturbance and preferably only really good friends around or preferably only me or my wife around. •
	But I know what I'm missing when walking down a busy street... •
	My world, my life, would be profoundly depressing without the chance to have meaningful experiences in the natural world and with wildlife. •
	… living in a busy city is a sad business. •
Using nature as teacher / guide	*I turn to the environment for lessons to learn in challenging times and hope that signs manifest.* •
	The experiences have given me 5 new basic principles that I (try to) live up to. •
	Second I realized how helpful the other life forms are to support our "walk of life" in guiding directions. •
	If I come across something that seems more out of the ordinary, such as a hummingbird fluttering right next to me rather than passing me by to get to a flower, I take note and look up the symbolism. I see it as perhaps I need a reminder of some kind or guidance of which the spirit guides want me to be mindful. •
Value as reference points	*I use them [MNEs] as reference points for my current daily activities* •
	They [MNEs] are like flags in my life that I refer to, to indicate changes that I have gone through. •
	But the good thing of synchronistic nature experiences is that the feelings and emotions that come with them, are so strong and intense that it is easy to relive them later again, I can easily recall those feelings and emotions, which makes them good drivers for change. •
	In stressful moments I go back in my mind to those wonderful experiences and they make me quite and 'in peace' •
Worry	*I think it has overall made me a more worried person because of all the transformation that is happening at faster rate and that erases natural landscapes and species quickly.* •

Statements recorded in response to the OQ invitation:
"Feel free to tell us more about the way you think your meaningful nature experiences may have changed you…"
***Note**: For the purposes of readability of this table, minor grammatical or typographical errors have been corrected from the original submissions; all other text is provided verbatim.*

9.15.2 Thematic codes, family networks and relationships

Table 49: Thematic classification and theme frequency of how MNE has affected respondents

Thematic Family	*Code*	*Code Frequency*
Emotions & feelings of:	Connectedness	14
	Respect for nature / all life	7
	Diminishment	6
	Openness & self-awareness	6
	Awe	5
	Appreciation	5
	Inner peace & calmness	5
	Oneness / Wholeness	4
	Life enhancement	4
	Trust in self & in life	4
	Knowledge & understanding	3
	Positivity	1
	Empathy	1
	Loss	1
	Patience	1
	Place attachment	1
	Worry	1
Awareness & realizations of:	Interconnectedness / Interdependence	9
	New ways of seeing	7
	Value as a personal reference point	6
	Impact on personal development & identity	6
	Childhood influence	5
	Nature as source of wellbeing	5
	Urban - wild nature contrasts & benefits	4
	Preciousness / Sanctity of life	4
	Human impact	4
	Pivotal life moment	3
	Experience contextualizing prior information	3
	Non-ordinary animal behaviour	3
	Sustainability/ERB thinking	2
	Relations with other beings	2
	Separation & disconnection	2
	Influence of mind on perception	2
	Lack of knowledge & understanding	1
	Uniqueness & significance of life (biodiversity)	1
Motivations & inspirations for:	Career choice	8
	Knowledge & learning	2
	Helping others (in connecting with nature)	1
	Catalyzing other experiences	1
	Restoration & prevention	1
Behaviour changes & actions for:	Using nature as teacher / guide	6
	Sustainability/ERB	4
	Making time for nature	4
	Rekindling family bonds	2
	Making time for awakening practices	1

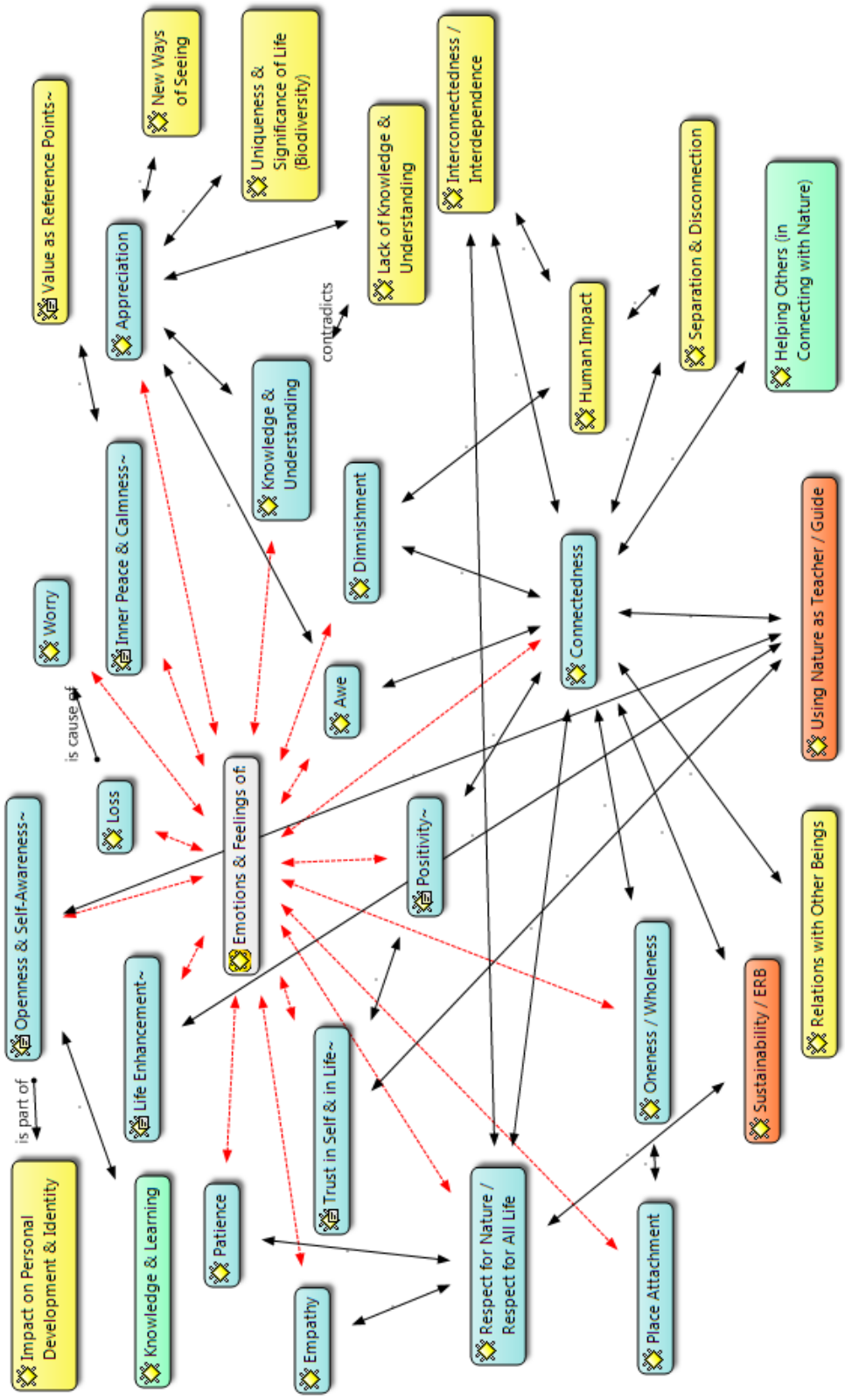

Figure 43: Thematic family - emotions and feelings

Red dashed arrows = primary connections between thematic family and its related siblings (codes)
Black arrows = "associated with" - derived from co-occurring or neighbouring codes (from original statements)
(All black arrows can be read as "associated with" unless otherwise stated, e.g. as "part of", "is cause of", with these exceptions used only when such firm/clear-cut relationships were explicitly made in the respondents' statements.)
Blue shading = siblings (codes) in thematic family "emotions and feelings of" ; Yellow shading = siblings in thematic family "awareness and realizations of"; Green shading = siblings in thematic family "motivations and inspirations for"; and Orange shading = siblings in thematic family "behaviour changes and actions for".

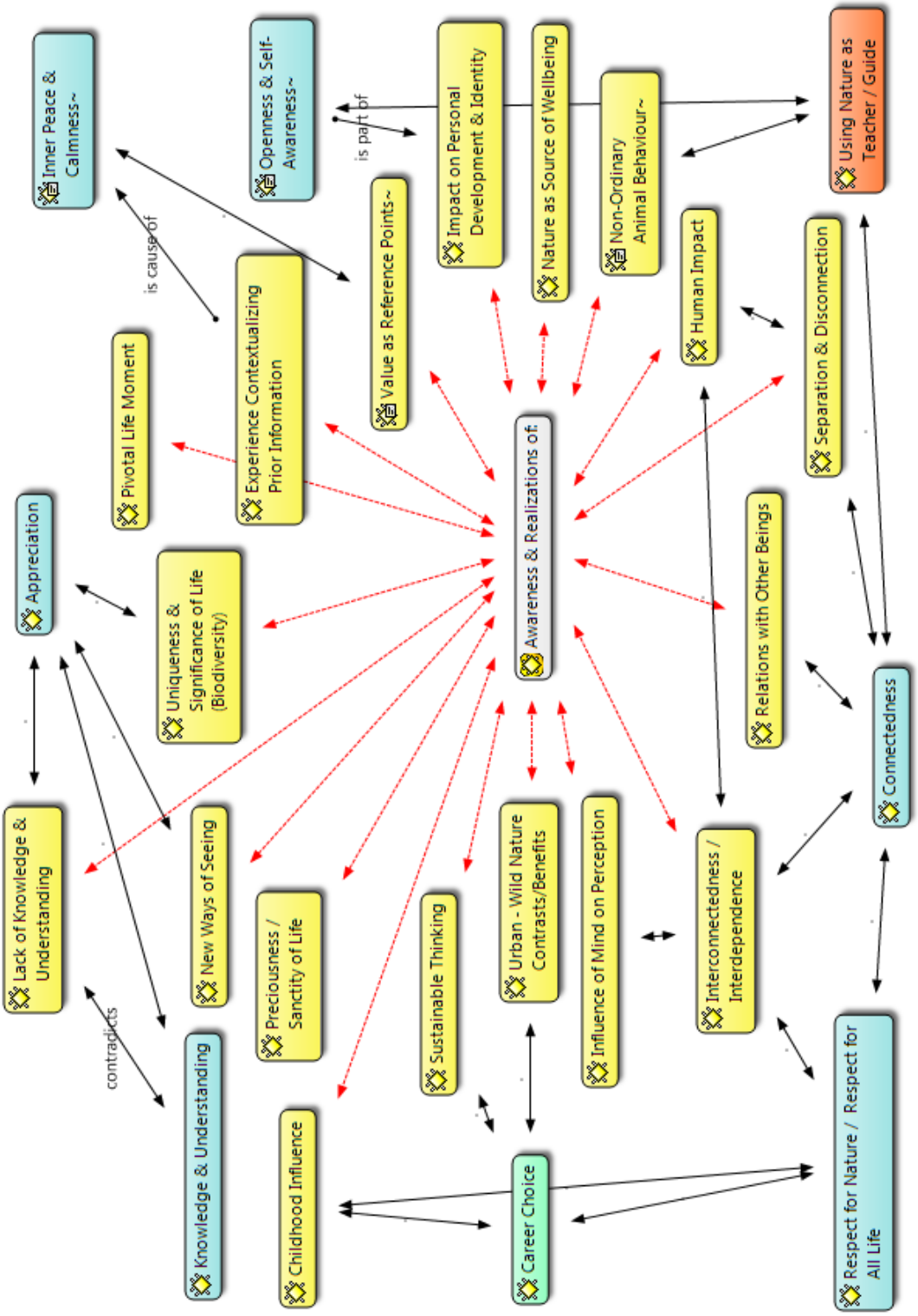

Figure 44: Thematic family – awareness and realizations

Red dashed arrows = primary connections between thematic family and its related siblings (codes)
Black arrows = "associated with" - derived from co-occurring or neighbouring codes (from original statements)
(All black arrows can be read as "associated with" unless otherwise stated, e.g. as "part of", "is cause of", with these exceptions used only when such firm/clear-cut relationships were explicitly made in the respondents' statements.)
Blue shading = siblings (codes) in thematic family "emotions and feelings of";
Yellow shading = siblings (codes) in thematic family "awareness and realizations of";
Green shading = siblings (codes) in thematic family "motivations and inspirations for"; and
Orange shading = siblings (codes) in thematic family "behaviour changes and actions for".

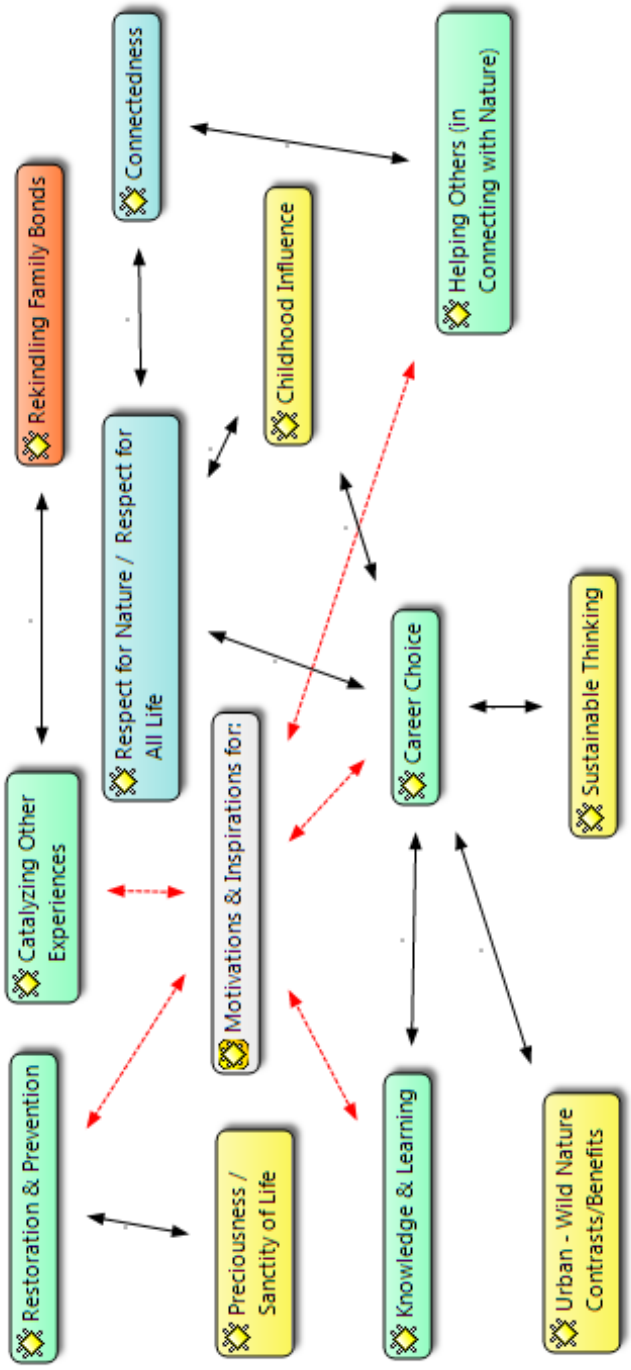

Figure 45: Thematic family – motivations and inspirations

Red dashed arrows = primary connections between thematic family and its related siblings (codes)
Black arrows = "associated with" - derived from co-occurring or neighbouring codes (from original statements)
(All black arrows can be read as "associated with" unless otherwise stated, e.g. as "part of", "is cause of", with these exceptions used only when such firm/clear-cut relationships were explicitly made in the respondents' statements.)
Blue shading = siblings (codes) in thematic family "emotions and feelings of";
Yellow shading = siblings (codes) in thematic family "awareness and realizations of";
Green shading = siblings (codes) in thematic family "motivations and inspirations for"; and
Orange shading = siblings (codes) in thematic family "behaviour changes and actions for".

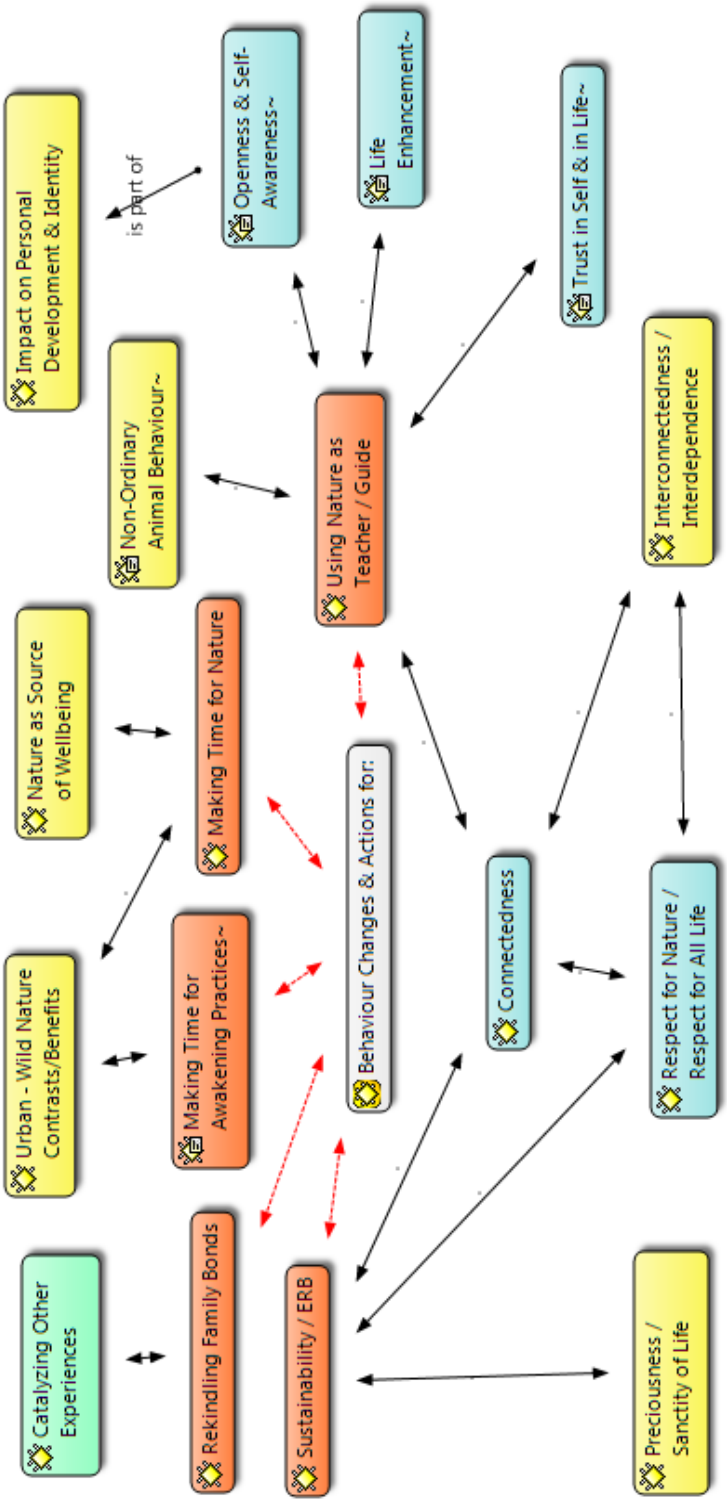

Figure 46: Thematic family – behaviour changes and actions

Red dashed arrows = primary connections between thematic family and its related siblings (codes)
Black arrows = "associated with" - derived from co-occurring or neighbouring codes (from original statements)
(All black arrows can be read as "associated with" unless otherwise stated, e.g. as "part of", "is cause of", with these exceptions used only when such firm/clear-cut relationships were explicitly made in the respondents' statements.)
Blue shading = siblings (codes) in thematic family "emotions and feelings of";
Yellow shading = siblings (codes) in thematic family "awareness and realizations of";
Green shading = siblings (codes) in thematic family "motivations and inspirations for"; and
Orange shading = siblings (codes) in thematic family "behaviour changes and actions for".

9.16 The experience of invasive alien species: supplementary field research

9.16.1 In-situ experimental study: the experience *Acacia mearnsii*

An *in-situ* experimental study, performed in October 2010, involved 10 USA undergraduate visiting South Africa for the first time as part the Wildlands Studies field program. The group were mostly students of geography and the environmental sciences, but also anthropology and law. The students had been in South Africa for less than one week and had not yet encountered fynbos ecosystems or *A. mearnsii* (black wattle).

The study sought to tap into the pre-reflective sensory and emotional responses associated with the experience of IAS as might be experienced by a visiting foreign tourist. Given their educational background, students had varying levels of existing knowledge of IAS as an environmental issue and this factor alone would likely differentiate them from the 'average' foreign tourist. However, participants had no prior experience or specific knowledge of black wattle as an invasive species in South Africa.

9.16.1.1 Method

The study was conducted during a two-day wilderness hike on private land in the Kouga catchment of the Baviaanskloof Mega-Reserve. The first day and morning of the second day were spent hiking through the native fynbos on land set aside for conservation (but which had been previously used for low-intensity stock grazing). The experiment was carried out on the afternoon of the second day upon the group encountering dense stands of black wattle for the first time. In the 30 minutes before reaching the stands, participants had been asked to engage in silence walking. They were told this was simply an exercise to raise appreciation of the remote surroundings. Concerning the study, the reason for maintaining silence was to prevent results being influenced by group discussion (i.e. students enquiring about the stands) and to allow participants to become a little more aware of their senses. Upon seating themselves in the black wattle stand (Image 24), the ten participants were invited to complete a questionnaire which asked them to:

> *Take a moment to become aware of the area you are in right now.*
>
> *1. Describe the FIRST things you notice / that come to your attention* [open-ended question];
>
> *2. Circle three (3) of the following answers to the statement: This area where I am sitting now makes me feel:...* [closed-ended question: 12 choices provided, including "other" option];
>
> *3. In this spot right here, I feel that nature is in an ecologically healthy state. (Circle your level of agreement and indicate why/why not)* [closed: 5-point Likert-scale; and open short answer];
>
> 4. *Circle your level of agreement to the following options which most apply to the statement: At this spot where I am now, I feel that the surrounding vegetation is:…* [closed: 5-point Likert-scale].

Participants submitted their questionnaires, were de-briefed and later given the opportunity to view and discuss their comparative results with peers and myself as facilitator. Quantitative analysis was performed using analysis Microsoft Excel and *atlas.ti v6*.

9.16.1.2 Results

Question 1: Results found that 7 of the 10 participants reported the change in vegetation:

> *The first thing I noticed was the trees on our entire hike. We have not encountered a dense area of trees and the change was very drastic; • I notice that we are in a forest area, which is a big contrast with the other vegetation we have been hiking through; • … an abrupt change from the smaller bushes we have been walking through today… I see how much denser and large the vegetation is compared to fynbos.*

Other participants noticed patterns on the trees, rocks on the ground, termite mounds and the silence and tranquillity – some of which were not present prior. Initial sensory observations also noted the absence of wind "*now that we are protected from the trees.*" One participant was struck by a mismatch in expectations:

> *Not what I expected in South Africa. It's not too different from a forest you might find in the U.S. •*

Question 2: Results found that the emotion expressed at that time among all participants was peacefulness (10 citations). This was followed by feelings of relaxation (6) and having an appreciation of beauty (6). No participants mentioned feeling any negative emotions such as unease, anxiety, disappointment or frustration. During the de-brief session, participants acknowledged that their positive feelings could have been residual from the broader context of the wilderness hike itself; however, it was nevertheless apparent that those feelings remained and were not immediately displaced by being seated among the black wattle stand.

Question 3: In being questioned on whether the area was ecologically healthy, participants expressed some suspicion and uncertainty worth 5 participants answering neutral, 3 disagreeing and 2 agreeing (Table 50).

Table 50: Participant perceptions on whether their immediate area is in an ecologically healthy state

Response	*Reasoning*
Agree	*Besides the fallen trees, nothing looks particularly damaged, interfered with or ruined. •* *You can tell some has been grazed & there aren't the same amount of animals as there used to be* [in the fynbos are walked prior]. •*
Neutral	*The thicket appears to be healthy, but I do not know if this tree species is indigenous (I have not encountered it here before). However, I do notice that there are no other plants around. •* *I don't feel knowledgeable enough about the area to know for sure. It does raise some suspicion that the vegetation changed so abruptly. •* *While I am inclined to say this spot is healthy, I do not know enough about the natural history of the location to know for sure. However, based on the wildlife I've witnessed, I understand that some aspects of the land is thriving. In an alien environment, my feelings dictate my attitude towards my surroundings. •* *As far as I can tell, this spot is fairly healthy, though the vegetation here is certainly different from what we've been seeing so far, which could mean it is out of place here. •* *I think the area is still recovering from farm use etc and is doing well as seen by the animal tracks and variety of plants but I think the area could be healthier as seen by some invasive plants etc. •*
Disagree	*I am not sure but I am surprised by the dominance of one species and the contrast between other biome we were just in. It is either very endangered or minimally invasive - not sure. •* *By the level of how drastic the change was I feel that these trees may not have been meant to be here. Plus all the grasses that were very green before are brown beneath the trees. •* *It seems like there is only one type of larger tree and grasses. •* *Due to this spot being so much different than when we have been in another reserve, it seems more devoid of life and as if these trees are taking nutrients away from other species. I do see a few succulents among grasses. •*

*This reasoning is misleading given the participant agreed with the statement.

The reasoning (Table 50) illustrates that the initial and sudden contrast of low open fynbos with the tall dense black wattle had significant influence on the responses. As the observation period extended, participants also began to pay greater attention to other signs such as the presence (or lack thereof) of other species in either absolute terms or relative to the area in which they were hiking previously.

Question 4: Participants generally felt that the surrounding vegetation was detrimental to biodiversity and scored only marginally better on perceived benefit to ecosystem functioning (Figure 47). However, participants' initial perceptions of the area were that it improved overall landscape beauty and, in particular, reinforced positive feelings of being in nature.

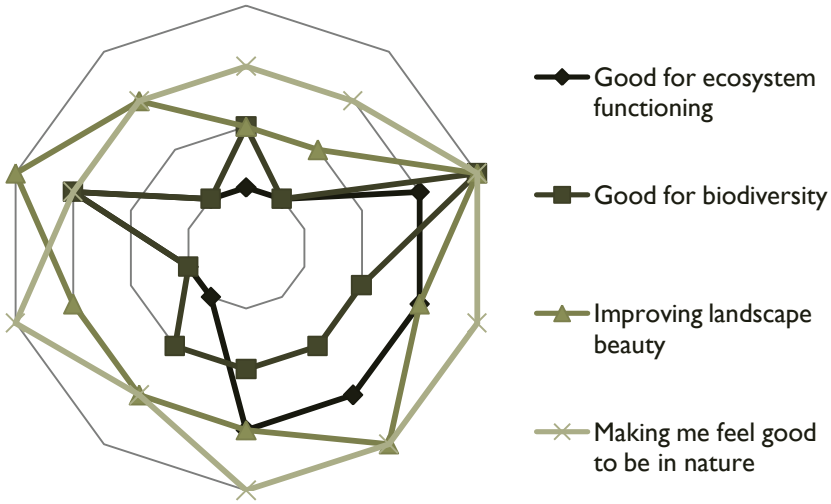

Figure 47: Participants' feelings and perceptions of the surrounding black wattle vegetation
(Each point on a plot represents each of the 10 participants' responses to the 4 criteria)
***Key**: Innermost radial:* 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; *Outermost radial:* 5 = Strongly Agree

During a more extensive de-briefing the following day, participants further reflected that, after coming from the open native fynbos areas into the experimental area they were struck by an initial sense of feeling more enclosed by the different vegetation. They gradually noticed fewer types of plants, which were dominated by one species. Participants noted that the ground seemed sparse, more sheltered and protected, and possibly because of the reduced wind compared to the open landscape, claimed to hear more bird calls. Participants recalled that sitting amongst the *A. mearnsii* stand made it easier to hear the sounds of nature and delivered a sense of solitude in feeling calmer and cosier in the area. Participants noted that the area was more similar to nature they experienced at home (U.S.A) and thus more familiar. Finally, there was a comparative loss of vastness and vulnerability toward feelings of enclosed safety in the new surrounds.[189]

[189] Another group of WS students taken on the same hike in 2011 but not subject to the same formal experiment noted, upon seeing a small stand of three large wattle and also unaware of its origin, what a nice change it was from the surrounding fynbos and that these tall trees reminded them of home. They were particularly taken by the sight and scent of the blossoms. As we walked through a subsequent stand of wattle, one student (who had distinguished himself throughout the hike by his acute observation skills) remarked: "This isn't Africa - this doesn't feel like Africa."

9.16.1.3 Discussion

It is apparent that visual sensing dominated participants' impressions and appeared to be triggered by the sudden contrast and novelty of the new surroundings. However, it is possible that the distinct lack of other engaging sensory stimuli (e.g. auditory) may have contributed to the predominance of visual impressions.

The emotional responses experienced during the sitting were all positive. This suggests at least five possible interpretations: i) Previous experiences, knowledge and mental concepts (as memories) shape emotional responses and, in this case, the area was a positive reminder of a familiar setting (i.e. 'home') ; ii) Residual emotions from the entire wilderness journey – a novel experience for most – were sufficiently positive to override any other emotions which may have been provoked by the black wattle infestation; iii) A short length of time in the area prevents new emotional responses (triggered by e.g. adverse sensory stimuli and reflection thereon) from adequately forming; iv) A negative emotional disposition toward IAS (and specifically black wattle) was not well-developed these participants and 5. Extended time and associations with a particular area can provide a basis for 'place attachment' and induce stronger emotions which were unavailable to the participants of this study.

This experimental study could perhaps be best summarized by the following participant:

> *In an alien environment, my feelings dictate my attitude towards my surroundings.*

Ironically, the participant unintentionally used the word "alien" to denote "foreign" or "unfamiliar", but which equally captured the important context of this study. Indeed, evidence from this research suggests that an individual's initial ***sensory impressions*** and ***emotional affinity*** can dictate an individual's attitudes to their environment prior to the introduction of information, concepts and knowledge which might, through ***reflection*** and ***memory***, subsequently lead to a re-evaluation of one's feelings, i.e. sensory and emotional reactions. Cognitive and affective considerations will be weighed – though not necessarily logical or systematically – and an individual will then arrive at an appropriate ***behavioural*** response.

This process may be simplistically conceptualized as a continuum where an individual's perceptual and emotional responses are continuously weighed and revaluated against incoming knowledge. For example, in this case, we may suspect that, as students of environmental science, their emotional response to their positive experience of being among the black wattle wanes over time as they become exposed to new knowledge which invites them to reflect on its impact (Figure 17). At a certain point in time, the emotional affinity (or memory) associated with the experience may intersect with the increased knowledge such that they are forced to reframe their perceptions of the past and future IAS experiences. The decision taken at this point is likely to dictate their future emotional and behavioural responses and may equally motivate individuals to seek out more knowledge on IAS (Figure 17).

Four final points which characterize this experimental study and some of the broader research are that:

i) Individual or small stands of alien trees may hold initial aesthetic (or olfactory) appeal;

ii) Aesthetic appeal appears to be driven by stand-alone visual beauty, novelty/contrast or as a result of subconscious positive alignment with memories which evoke security or a familiar sense place;

iii) The perception of IAS as being 'out-of-place' is sometimes sensed by individuals, without consciously drawing on specific prior knowledge of the species concerned or recollections of the IAS issue;

iv) Sensory and/or emotional responses are intimately tied to prior knowledge; however, when access to prior knowledge is restricted, sensory and/or emotional responses are likely to shape perceptions. However, these may be eroded or enhanced through further rational reflection or incoming knowledge. The role of the facilitator or educator in these cases is therefore pivotal.

Image 24: The sensory field exercise with students in a stand of black wattle (*Acacia mearnsii*)

9.16.2 Identity and belonging in South Africa: selected extracts from Ashwell (2010)

Ashwell's (2010) reflections on her pivotal experience(s) with IAS reflect many of the core themes raised in this research and provide insight into the dualistic yet fluid interplay between social and ecological metaphors, feelings of alienation and belonging, and intellectual- and experiential-based 'knowing':

> Despite the resonance I felt with Merleau-Ponty's (1962 & 1964) ideas of a pre-reflective relationship with the world, in practice I found that my experience of having worked in the field of environmental education for many years had profoundly shaped the way in which I experienced nature. As will be seen in the reflective passages that follow, I found it very difficult to remove the analytical lenses that caused me to identify issues associated with what I beheld. In particular, my environmental lenses unfailingly classified plant and animal species as either native or alien. As will be seen below, this powerful cultural construction can have sinister implications for relationships with self, society and the natural world (Ashwell 2010: 195).
>
> I seek an experience of belonging, but alienation haunts me even on the fynbos-clad mountains of the National Park. I settle down to draw and write in the shade of a cluster of Monterey pines on an outcrop fringed by Australian blackwoods. Memories of the xenophobic violence of May 2008 confront me: Somali and Zimbabwean shop keepers were out-competing local traders – so these unwanted invaders had to be cut down, just like foreign trees whispering in the wind. I too am an alien – a white Jamaican. An accusing thought surfaces: What right do I have to be here? … Looking back at that day's notes, I read, "When you think you know what you're looking at, look again. What is there may be quite unlike your concept of it." (Ashwell 2010: 197).
>
> Alien trees became a metaphor for the issue of alienation from self, society and nature. They reminded me of the many levels of alienation affecting youth in Cape Town: from xenophobia affecting migrants from the rest of the continent, to local youth disadvantaged by the legacy of Apartheid; from the impacts of growing up in an increasingly individualised, virtual and environmentally risky world; to the everyday emotional trials of adolescence (Ashwell 2010: 198).
>
> …I also realised that my entrenched habit of classifying organisms as native or alien, and rejecting the latter, was symptomatic of the dualistic thinking that I routinely reject in this study…This experience of embodied reflexivity was a turning point for me: it enabled me to put aside the analytical lens (native/alien) that I had worn unreflectively for so long, and look anew at the "suchness" of all around me. As I walked on, I paused next to a lone peanut butter cassia from central Africa, drawn by the rich yellow of its flower spikes. I was struck by its beauty. Walking back to my car through a field of spent lupins, their dried pods rattled in the wind. I smiled to think that they were applauding my change of heart… (Ashwell: 2010: 201).
>
> Through embodied reflexivity, I have come to know, not only intellectually but also experientially, that what we perceive is constituted by the other. For me a deeper sense of belonging has been constituted by the experience of alienation. I have experienced that opposites are not absolute, nor is everything relative; we ebb and flow in relation (Ashwell 2010: 209).
>
> The capacity of natural things to stand forth as the things that they are in their unique integrity does not consist primarily in some individual isolated objective existence. They are what they are in the context of an environment that they both constitute (Bonnett 2009: 45). However, as I continued to "presence together" with nature (Adams 2007), I experienced a shift in my ability to perceive nature (both native and alien) in its "suchness" as a meaningful other; I became more open to the "call of the world" (Ashwell 2010: 234).

9.16.3 Multiple critiques and realities in invasion biology: the role of *matterscape*, *powerscape* and *mindscape*

Since commencing this research in 2009, the field of invasion biology has been besieged by a number of critiques, some of which have called the legitimacy of the entire discipline into question (Davis 2010; Simberloff 2012b; Valéry et al. 2013). Of the numerous charges being made, one recurring accusation is that the field is fixated on stigmatizing mostly innocuous alien species according to their 'nativeness' rather than their 'impact' (Warren 2007; Davis et al. 2011; Simberloff 2012b):

> Nearly two centuries on from the introduction of the concept of nativeness, it is time for conservationists to focus much more on the functions of species, and much less on where they originated (Davis et al. 2011: 154).

This understandably has raised the ire of the invasion biology community with rebuttals arguing, for example, that "most conservation biologist and ecologists do not oppose alien species per se" since "scarcity of resources forces managers to prioritise according to troublesome species…" and "invasion biologists and managers do not ignore the benefits of introduced species" (Simberloff 2011: 36). Similarly, other such rebuttals focused on how Davis et al. (2011), in playing up the xenophobic dimensions, downplayed the ecological impacts and thus scientific foundation of alien species which, in circumventing evolution in a particular ecological community, are more likely to present themselves as a threat to biodiversity and genetic diversity through, e.g. habitat transformation (Alyokhin 2011; Simberloff 2011).

Davis et al. (2011) were not the first to raise such concerns. Simberloff (2003) may have initially lifted the lid on the debate with the article *Confronting introduced species: a form of xenophobia?* Since then, the debate has been furthered by critiques such as: Larson's (2005) concern about the militaristic language employed in invasion biology; Warren's (2007) perspectives on the alien versus native species debate in terms of concepts, language and practice; and Chew's (2009) claim that scientists "monstered" the alien tamarisk in the USA and made a problem out of an otherwise relatively benign plant.

Richardson et al. (2008), in acknowledging the widening debate, rebuke Warren (2007) in charging that he:

> …dangerously oversimplifies the full range of complex issues that confront researchers and managers dealing with biological invasions, and misrepresents both their operational premises and current modus operandi (Richardson et al. 2008: 295).

It is the latter point concerning misrepresentation which is notable since invasion biologists concur with the 'accuser's on many grounds. For example, "we should not hate introduced species solely on the grounds of their attributed alien status" (Warren 2007 in Richardson et al. 2008: 295); that "exotic introductions are often woven into people's sense of place"; and that "attempts to control or exterminate them can create acute moral tensions (Warren 2007 in Richardson et al. 2008: 295-296) are all usually shared sentiments. Furthermore, solutions put forward by opponents, e.g. applying "damage criteria" (Warren 2007) or to "organize priorities around whether species are producing benefits or harm to biodiversity, human health, ecological services and economies" (Davis et al. 2011: 154) have been countered by invasion biologists as

"nothing new" (Richardson et al. 2008: 297; Lockwood et al. 2011). It has been argued that "managers already pick their battles carefully – they focus efforts on those invaders deemed to have the most serious impacts" (Richardson et al. 2008: 297) and act according to the limited resources at their disposal.

So why the controversy? Simberloff (2012b) argues the basis for disputes is differing worldviews (i.e. in *mindscape* and *powerscape*) rather than simply objective interpretation of biological observations (i.e. 'facts' in *matterscape*). Simberloff (2012b: 7-8) contends that the discussion is four-sided with opinions generally arising from one of the following 'camps':

i) *Traditional invasion biologists* who see a substantial number of species as harmful and thus advocate stringent measures to preclude introductions and often aggressive eradication action of existing species;
ii) *Vocal minority of ecologists* who emphasize that most alien species do not appear to have substantial impacts and some are of great value to humans. They consider the degree of negative publicity surrounding alien species unwarranted and therefore advocate at most restricted and targeted management actions or simply learning to love introduced species and abolishing invasion biology as a discipline different from ecology;
iii) *Philosophers, anthropologists, historians, sociologists, and garden architects* who perceive invasion biology as a social construction and a manifestation of nativism. They generally do not concern themselves with what conservationists call 'negative impacts', usually do not advocate specific actions to counteract non-native species, and sometimes welcome a deliberate anthropogenic dispersal of many species into new regions and in anticipation of a new field called 'recombinant ecology' or 'mixoecology' (after Soulé (1990); and
iv) *Animal and plants rights advocates* who oppose eradication of aliens based on species rights.

Individuals can occupy different points along gradients among these views (Simberloff 2012b).

In some cases it appears critics of invasion biology have chosen the wrong battles and/or targeted the wrong persons. Or, alternatively, invasion biologists, as the wrong persons, have mistakenly taken offence at critiques better levelled elsewhere. Drawing on Simberloff (2003), Richardson et al. (2010: 296) argue:

> Xenophobes obsessed with eradicating all organisms that evolved somewhere else on the planet operate on the fringe of the conservation movement, as do those who link informed efforts to manage introduced species with xenophobia.

Yet despite such denials, Rotherham and Lambert's (2011) recent text, as one of the first books to address the problem of human perceptions, makes multiple references to words like 'xenophobia', 'racism', 'pseudoscience', and 'eco-fascism' and appear to espouse views which align with Davis et al. (2011) (i.e. that the geographic origin of species should not be of prime concern) (Nuñez & Nuñez 2011). Such critiques are often biased toward North American (cf. Davis et al. 2011) or European perspectives (cf. Rotherham & Lambert 2011) and make globalized claims about perceptions, attitudes and approaches to management of alien species when country-specific contexts would clearly show very different understandings and responses to the issue (e.g. in South Africa) (Nuñez & Nuñez 2011).

Claims from both sides about the prevalence of contentious perceptions and attitudes appear to be largely anecdotal: substantial empirical evidence is lacking (Nuñez & Nuñez 2011). It is therefore more likely that the 'truth' lies somewhere in the middle between these two poles. From personal experience, a mix of anecdotal and empirical observation during both research and parallel conservation practice, indicates that the attitudes being targeted as a cause for concern are more likely to reside with select biodiversity managers, conservation practitioners, environmental educators and government employees than the academic and researchers with access to scientific journals and who might read *Nature* (which published Davis' et al. (2011) highly publicized critique and Simberloff's (2011) rebuttal). Furthermore, stronger cases of language containing nativism overtones were contained in my public questionnaire (PQ) (Section 5.3.4).

The media – "prone to use colorful military metaphors and terminology that reinforces the otherness of introduced species" (Simberloff 2012b: 13) – is partly responsible, but it may well be that the language and metaphors which are constitutive to the field of invasive biology are an "an irreplaceable part of the linguistic machinery" - and presumably here to stay (Larson 2010 in Simberloff 2012b: 13). Even though invasion biologists recognize the need to invent and employ more neutral and nuanced terminology (Richardson et al. 2011; Carruthers et al. 2011; Simberloff 2012b), their efforts may still be usurped by the media. For example, a RadioLive (2012) interview with Bruce Warburton, Research Leader (Wildlife Ecology & Management) from Landcare NZ was titled: *Know the Enemy*. It would therefore take sustained and widespread coordinated efforts to displace or subdue the *modus operandi* of terminology use routinely employed across government, management and media.

Social and natural scientists increasingly realize that care needs to be taken with the use of accepted words and phrases such as 'alien', 'invasive', 'indigenous' and 'natural' so as to not presume they have "a single meaning comprehensible to all" (Carruthers et al. 2011). There remain differences in invasion biology over terms which are perceived to bridge interpretations. For example, in their compendium of essential concepts in invasion biology, Richardson et al. (2011) opt for "alien species" (but noting that that exotic, non-native and non-indigenous are synonyms) whereas Simberloff (2012b: 13) observes that: "nowadays scientists often attempt to use more neutral terms for introduced species, particularly non-native and non-indigenous." Regional and cultural differences aside, it remains unlikely that any comment on non-native species can be described in completely neutral value-free language (Carruthers et al. 2011).

In the pursuit of more simplistic terminology, fundamental ecological realities can be misportrayed. For example, use of the accepted term "invasive (alien) species" masks the ecological reality that it is the *species population* and not the *individual species* itself which is invasive (P. Genovesi pers. comm.). It is conceivable that this simple tweak of language could stem some of the reflex villanization of alien species. However, aspiring toward changes in terminology should be seen as less about being a token measure to appease hyper-sensitive politically correct critics, but rather as critical in advancing the field of invasion biology:

> The uncritical use of terms and concepts is hampering conceptual advances in some parts of the field and is impeding the smooth flow of research results into management and policy arenas (Richardson et al. 2011: 410).

In addition, more appropriate terminology holds potential in influencing perception, experience and the way in which the challenge of alien species is addressed. Although Simberloff (2012b: 13) is sceptical:

> …because the main underlying clash is between a worldview that includes dichotomization of both human society and biota and a conflicting worldview that all living things have fundamentally unifying features, it is unlikely that simply making terminology as anodyne and connotation-free as possible will lead to agreement on how to regard alien species and whether and how to categorize them.

In this regard, clarifying understandings of where these worldviews find dissonance - by recognizing the realities of *matterscape, powerscape* and *mindscape* - may identify common grounds for understanding. As outlined, *powerscape* is the landscape of social-cultural reality which consists of implicit and explicit rules that regulate the behaviour and are thus expressions of power (Jacobs 2006). It is an intersubjective reality as is it created by subjects who form a particular group and negotiate realities and system of norms and objectives which regulate how members of a particular society or community are required to behave with respect to the landscape (Jacobs 2006). In this regard, we can assert that any epistemic community, such as invasion biology, is subject to its own system of norms and objectives. It has been highlighted that invasion biology is not value-free and is potentially more value-laden than other scientific disciplines (Carruthers et al. 2011; Simberloff 2012b). Importantly, the type of language used is both integral to – and can be influenced by - the (sub) culture which comprises *powerscape*.

Invasion biology is tasked - and its practitioners would assume - to operate at the level of *matterscape*, i.e. the material reality to which laws of nature apply (Jacobs 2006). However, some of the invasion biology community may have misjudged the extent to which their practice is both part of, and influenced by *powerscape* as well as dealing with individuals at the level of *mindscape*. At times, invasion biologists may have erroneously assumed, and inadvertently argued, that *powerscape* is solely determined by *matterscape*. In reducing the landscape to *matterscape*, invasion biologists run the risk of being unable to respond to critics who are levelling arguments in *powerscape* and *mindscape*. Alternatively, in unwittingly borrowing 'loaded' subjective terminology from *powerscape* (e.g. militaristic metaphors), it can undermine the desire to make objective claims about IAS in *matterscape*. Together, these factors can lead to conceptual fallacies and, in this case, might entail both a 'confusion fallacy' i.e. where a particular issue is ascribed to one landscape reality (*matterscape*) while it exists in another (*powerscape* or *mindscape*), and a 'reduction fallacy' whereby the landscape is reduced to just one of three landscape phenomena (e.g. *matterscape*) (Jacobs 2006). It is postured that the discipline of invasion biology has at times become inadvertently caught up in one or both of these fallacies. It is therefore critical to understand that each mode of landscape reality has its own epistemological validity:

> Apart from being different objects, matterscape, powerscape and mindscape are epistemologically different. Statements about matterscape are valid if they are true, statements about powerscape are valid if they are just, and statements about mindscape are valid if they are truthful (Jacobs 2006: 16).

In this sense, opponents such as Davis et al. (2011) and colleagues may have alternatively committed an 'epistemological boundary fallacy', i.e. knowledge about a particular phenomenon is used as a basis to draw conclusions about another phenomenon without further explicit arguments (Jacobs 2006). For example, Davis et al. (2011) base much of their criticism on the belief that invasion biologists are prone to forming judgements on the basis of 'alien equals bad' and 'native equals good'. This statement is based on one of 'justness' and is therefore valid in *powerscape*, but is, on its own without further qualification, insufficient to be valid in *matterscape*.

Another example of statements of 'justness' comes from Larson (2005) who observes that the removal of invasive species through some restoration programs benefits upper-middle class rather than poorer people, and actions may therefore be perceived as class- and race-based. This has been recognized in South Africa where conservation has long been considered an activity for the White middle-upper class. In the Western Cape province, invasive trees such as port Jackson (*A. saligna*) and rooikrans (*A. cyclops*) serve as important sources of fuel, shelter and income to many people living in informal settlements and thus their removal in some areas could negatively impact the basic needs of thousands of people (Le Grange & Loubser 2005; Kull et al. 2011). There is a tension here between the subjective social justness recognized in *powerscape* and the objective ecological-based 'truth' in *matterscape*.

Critics such as Davis et al. (2011) have also made statements - which they believe to be truthful - about the innocuous nature of many alien species and have thus engaged at the level of *matterscape*. Invasion biologists have, in a rebuttal which keeps the argument at the *matterscape* level, discounted such claims by providing examples of species once thought to be innocuous but subsequently proven to have negative ecological impacts over time (cf. Simberloff 2011). Here, contestation is based around unique spatial-temporal contexts and this can transcend and be influenced by *matterscape*, *powerscape* and *mindscape*.

Understanding how worldviews and argumentations are aligned and embedded in the different modes of reality can be illuminating in unravelling contestations which might impede effective management and decision-making. Making such realities explicit can aid in dialogue and resolution in working toward shared understandings. Such an analysis can also reveal which ethical realities are more conducive to CWN and how it may be used or tempered in order to realize responsible 'connected action' (Section 6.5.4).

9.16.4 Addendum: IAS from an Integral Ecology perspective

An alternative/complementary (and arguably more complete) approach to conceptualizing and embracing the complexities of the realities of the IAS issue is to apply the quadrant model which is central to Integral Ecology (Esbjörn-Hargens & Zimmerman 2009; Figure 31). In this approach, there are at least two ways in which the model can be applied: as *dimensions* or as *perspectives*. In aiming to understand dimensions, we can place a human individual at the centre of the quadrants and investigate the four realities as perceived 'inside-out' through the various dimensions of awareness or ways of knowing: i.e. experiential, behavioural, cultural and social/systemic aspects of reality in one's existence (Esbjörn-Hargens 2009; Figure 48).

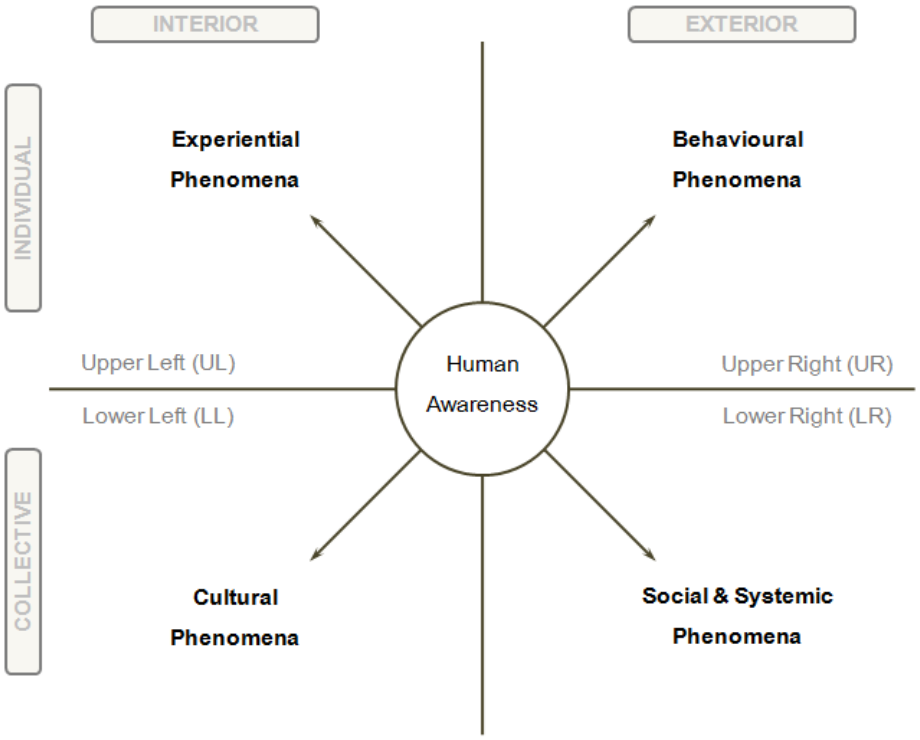

Figure 48: The four quadrants of an individual (Esbjörn-Hargens 2009)

The second way to apply the quadrant model is place an issue like IAS at the centre of the quadrants as viewed 'outside-in' (Figure 49).This combines different perspectives and approaches in understanding reality (i.e. ontologies, epistemologies and methodologies) to arrive at a more complete picture of the issue.

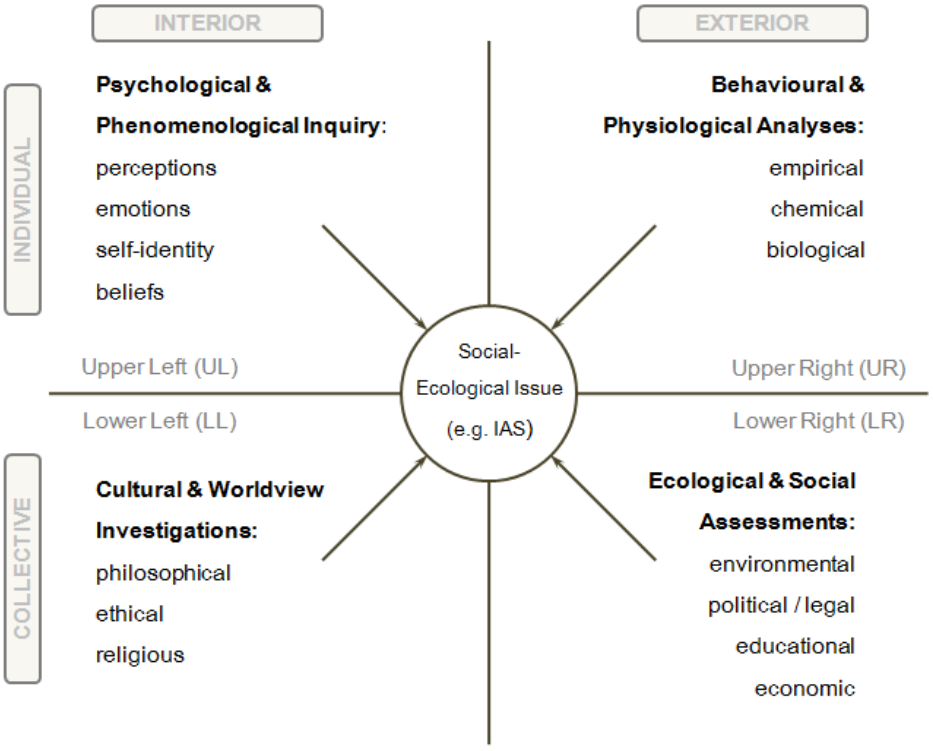

Figure 49: The four quadrivia of a social-ecological issue (e.g. IAS) (adapted from Esbjörn-Hargens 2009)

9.17 Trade-offs between tertiary (conservation) education and CWN

Further to Box 34, this account by 'AS' reveals potential trade-offs between CWN and tertiary education:

> *I had participated in several nature awareness day camps during my childhood, but the moment I realized I had never been happier was on a week-long wolf tracking expedition when I was 13. Those expeditions were pretty ideal in terms of blending science and nature connection on a spiritual level. Expert trackers like Jon Young and crew would "figure out what the wolves were up to" on the ground, and relay the information back to the Nez Perce Native American tribe who oversaw the monitoring (in later years using Cybertracker software) and participants like me would learn tracking etc. Some of our less conventional but usually spot-on methods for finding wolf sign included intuition, dreams and spirit tracking. There were also the underlying principals of respect and thankfulness to the animals, such as beginning each morning with the Lakota wolf honoring song and thanksgiving address. It was after two of these expeditions that I became hooked, quit regular high school and instead attended Wilderness Awareness School's [WAS] Community School. This was a full-time programme for high school-aged students and was an incredible experience that instilled in me a love of nature and passion for conservation.*
>
> *I realized how satisfying it was to help foster a connection with nature in children by working as a youth programs instructor over the summer holidays. Later I attended a liberal arts college for a year where I felt pretty lost as to what I wanted to study. When I returned to Seattle that summer, my parents informed me we were going to move to New Zealand (NZ) for a change in lifestyle. I opted not to go back to college for the eight months before the move, and instead worked for WAS again, and signed up for their year-long tracker training course, as well as the apprenticeship program. It was during this time that I got really into my independent studies and challenges, and I think my connection with nature had never been as strong. I delved into survival skills, making my own things, and spent as much time outside as possible. Most importantly, I was really happy, and felt like I had overcome the initial depression so many people experience when they begin to get in touch with nature [or as far as I had been told]. [But] It was also during this time that I got tired being around, living with, and working with people experiencing heavy grief [as part of a process of "finding themselves"]. I decided that working at a wilderness school wasn't the end all and be all for me.*
>
> *In order to immigrate to NZ, I had to move there as a dependent student on my parents' residency visa. I knew some really good trackers that worked in a wildlife management capacity, and I thought that could be a good career option for me. I majored in zoology and ecology, and figured all that was important was getting an outdoor job where I got to work conserving the animals I loved. I completed an MSc in wildlife management and began working and volunteering in that field. During that time I realized that most "experts" in the field didn't actually have decent holistic naturalist skills. Moreover, I felt like despite the time I spent outside in a fieldwork sense, connection to nature and awareness were lacking. For example, working on a specific task for data collection usually had me relieved when the day was over, and left me not wanting to go outside for recreation. This was the case even when the work was being carried out in a beautiful, pristine wilderness area, or on a very cute endangered species. Also, for me, catching and handling wildlife for monitoring purposes lacked the magic of an animal approaching on its own accord.*
>
> *…since I started working in a wildlife management capacity, I haven't been keeping up simple core routines like having a 'sit spot' [designated place to observe nature on a daily basis]. It's also been difficult for me to find the motivation to learn about plant and animal species in NZ. So, I'm complaining about all these conservation workers lacking solid knowledge of place, but I'm right there with them. I feel like things would be different if I was working with a team using tracking and a holistic approach to data collection and wildlife management– but so far this hasn't hit NZ yet - most likely because of the lack of mammals, as so much of the basis of these groups is [mammal] tracking. Although it's satisfying to a degree knowing I'm working in conservation, I'm finding it difficult to be completely happy with this as a career, and consider working on developing nature awareness and connection with children again.* ~ AS

This story again reinforces Kimmerer's (2002: 437) observation that capable students may abandon:

> …their science education and a potential place in the scientific community because of the perception that science prohibits the expression of personal connection to nature.

9.18 Dilemmas in transformative education: meaningful experience and moral inertia

Extracts from a dialogue between Andrew Cohen and Ken Wilber (2012)

Cohen: Here in the West, at the beginning of the twenty-first century, there is a profound lack of moral context, not only for us boomers, but also for the X and Y generations. And I think this is perhaps the biggest issue that all of us who are interested in development, transformation, and enlightenment need to come to terms with.

We have all emerged in this world in the postmodern context—a time when there is no traditional moral, ethical, philosophical, or spiritual framework for our own existence. Indeed, we entered the picture when the old structures were being rejected. And to a large degree, we have set ourselves free from them, but as of yet, we haven't really found anything to replace them. Our generation and those that have followed have experienced more freedom—personal, philosophical, political, religious—than any group of people *ever*, anywhere. There have never been so many who have had this incredible liberty to experiment—to *think* in whatever way they want, to *do* anything they want, to *say* anything they want. But the significant issue here, I think, is that a human being has to have reached an unusually high degree of maturity to actually be able to handle the kind of freedom that so many of us were given simply because of the time in which we were born. And most of us haven't handled it very well because we haven't had enough maturity. So we're in an incredible time when the largest group of individuals at the highest level of development is in a transitional phase. The old has been rejected, but as yet, we haven't really found a new narrative, a new moral, ethical, philosophical, and spiritual context in which to live our lives—one that will enable us to handle the freedom that we've been given and help us to make sense of our own experience.

Now, there have been many of us who responded to this lack of context in our own lives by pursuing Eastern philosophy and its promise of higher consciousness. And as a result, many have tasted higher states, glimpsed nondual awareness, experienced moments of enlightenment. As you yourself have said many times, dramatic spiritual episodes like these have a very profound impact on a soul level, especially if the experience is a deep one. But, as we have discussed in the past, pure experience in and of itself is not what's most important. What matters is how we *interpret* these experiences.

Wilber: Yes, that's right - what's important is the interpretive context in which the experiences are occurring.

***Cohen*:** So here we are in postmodern America, up to our necks in a culture of narcissism, devoid of an authentic moral framework for making value distinctions. What happens when an individual has an enlightenment experience in this context? Let's say they taste nonduality, glimpse emptiness, are overwhelmed by fullness, see that *all is One and One is all*. They experience the truth beyond good & evil, beyond opposites. But how is that extraordinary experience going to help them navigate this complex, ever-evolving, ever-changing world system that we are all a part of?

Wilber: In other words, if the ultimate truth is beyond good and evil, how do we navigate in the world of good & evil?

Cohen: Exactly. Now, this is what has happened for so many of us, and I think it's obviously going to happen to the younger generations if something doesn't begin to change: When we had these enlightenment experiences, when we experienced the nondual state, we concluded, "Oh, the ultimate truth is beyond differences, is beyond good and evil." That's what our most profound spiritual experiences reveal to us. But *because* they occur in the context of a culture that is having a lot of difficulty making value distinctions anyway, these experiences end up lacking any kind of moral weight and, therefore, lack the power to create a real moral framework for our lives.

Wilber: They end up reinforcing the postmodern cultural narcissism that I call "boomeritis" - bizarrely.

Cohen: That's the whole point. In the past, when these experiences were being pursued in a premodern, traditional context, there was *already* a very strong moral, ethical, philosophical, and spiritual framework in place that told us how to interpret them. Now, at the beginning of the twenty-first century, because we have not created new maps, it's confusing as to what the moral, ethical, and philosophical context for the highest spiritual experiences actually is. Because of this, as you said yourself, enlightenment experiences inadvertently reinforce the plague of boomeritis.

Wilber: Yes. Rampant relativism, rampant pluralism, inability to make choices - all of that gets reinforced for all the wrong reasons…

Cohen: I think this is one of the reasons why a lot of people are very confused about higher-state experiences.

Wilber: Yes, I agree. And I agree very strongly with what you said earlier, that, to put it crudely, there's *satori* [awakening] and there's how you *interpret satori,* or your experiences. What interpretive context do you have to *hold* this experience? Because after all, you might feel that you're one with everything, and that's fine - in a very profound sense that's your always-given condition, and a *satori*, a *kensho,* an awakening is a recognition of that ever-

present state - but once you recognize that, how do you *carry* it? Charles Manson said, "If all is one, nothing is wrong." Now, is that how we are going to carry our *satori?*

Cohen: Some teachers *do* say that kind of thing.

Wilber: That's exactly the problem. So the general approach that I take, and that you and I share a similar view on, is that we want realization plus an *integral* interpretation of it. Almost every time you and I talk, we come back to this - the extraordinary importance of the context, the interpretation, that you frame these experiences in. Because as rare and precious as the experiences are, if you don't have an adequate unfolding of them, they can lead to just as much harm as they can good on many occasions.

Cohen: Yes. So we have to recognize that spiritual experience alone is not enough. Because the context for personal experience for our generation is narcissism, a personal psychological context in which there simply is no moral imperative. And most of the people who are teaching this stuff are products of our own generation and so are stuck in this position themselves. Or, if they are Easterners, they usually represent a premodern cultural context with a moral worldview that has almost nothing to do with the postmodern, twenty-first-century world we're living in.

Wilber: And they're often a little naïve - they assume we're going to share the same moral background and then they're shocked when things fall apart.

. . .

Wilber: And so absolute truth is beyond good and evil, but relative truth has good and evil. And in the relative world, you're supposed to *choose* good and avoid evil - Buddha was very clear on that one. In the absolute world, you transcend both of them. Now, what we've done is to confuse the two, and we think that because the absolute is beyond good and evil, therefore in the relative world, we should make no judgments at all. And that is already to capitulate to an *immoral* action in the relative world. You're *already* reinforcing immoral action when you do that.

Cohen: That's true. And that's occurring in a consciousness where the degree of narcissism - self-obsession and self-concern - is probably unprecedented in human history.

Wilber: The narcissism is the scary part. It might be the worst part because as we've discussed before, when people say, "You shall make no judgments whatsoever," what it really means is, "Nobody's allowed to judge my egoic self-contracted activities as being bad or wrong or inadequate." And so that gives the ego the ultimate safe haven against spiritual realization.

Cohen: Right. And that extreme narcissism is too often the only compass by which we are actually making judgments.

Wilber: Yes. Because "what's true is what's true for *me."* And that's unchallengeable.

Cohen: It's the last stand of the narcissist.

. . .

Cohen: We have to be emotionally connected to truth, whether it is absolute or relative truth. And the lack of this kind of development is like an illness in our generation - I can see it in many of my own students. It is this emotional capacity that I'm trying to help them to develop. Maybe they had a deep experience or recognition of truth on an absolute level, but because of a big investment in narcissism, emotionally they're not really connected to it. And I've found that until they are, an individual is never going to change in the most important way.

Wilber: How do you handle that in students?

Cohen: Oh my God!

Wilber: Sorry to bring up such a thrilling, fun topic for you, but how do you handle this reluctance; how do you handle this lack of connection?

Cohen: Well, through confronting the individual with the BIG picture. And trying to get them to face their own refusal to take responsibility for the larger truth that they have recognized for themselves - which, when acknowledged, becomes *the moral context for the spiritual experience.* You see, the big picture that I'm talking about is the evolutionary context, which I am convinced is the most important factor in awakening to a new moral framework for our own time. When we discover this evolutionary context and recognize what a big part our individual and collective transformation could potentially play in the larger scheme of things, a higher conscience awakens in our own consciousness. And if we have the courage and audacity to face this larger picture, suddenly what we're doing and why we're doing it has big moral, ethical, philosophical, and spiritual implications. Now there's a very real and ultimately demanding context for our own presence here. The choices we make and our reasons for making them suddenly take on incredible significance, and not just for ourselves.

…

Wilber: And as you were saying, a lot of people cognitively get the worldcentric integral view, but because they have come from this sort of pluralistic mushy boomer background, their cognitive understanding is really infected with egocentric remnants. So they're not living up to their own cognitive understanding. And even as they talk about it, they're really sabotaging the integral view.

Cohen: Or their potential to manifest it.

Wilber: Exactly. And that's become a real problem because we have a lot of people talking about this, but they're not really acting on it. Their moral center is not as high as their cognitive center, so there isn't the urgency that you're talking about. There's none of that passion coming out of them. They're actually afraid of passion because passion for a view means you're making a judgment that one thing is better than another. And of course the "sensitive self" says, "Oh, no. I can't make a judgment." So that basically jams the entire process of their own growth and development because you can't get passionate unless you can *believe in* a certain direction—

Cohen: And in its rightness.

Wilber: And this is where people also get confused. In the relative world, you're making these judgments and they're always judgments of increasing holism or wholeness. So the reason worldcentric is better, is *more right* than ethnocentric, is that it's bigger, it's more encompassing, it includes more—it's bigger care, it's bigger consciousness, it's bigger compassion. Ethnocentric is better than egocentric for the same reason. So there's a gradient of better, of *more right*, in the manifest world, and *that* is what you have to engage passionately. But you can do that, as you well know, in the context of the vast emptiness or vast impartiality in which all of this arises moment to moment. So you're holding both the nondual one taste of equality where everything that arises is a perfect manifestation of the great perfection *and* the fact that among those things that arise, some are better than others. So therefore you get passionately involved in that directionality but as a manifestation of the absolute in the world of form.

Cohen: Which is real nonduality.

Wilber: Absolutely. All of that gets jammed when your moral compass is broken because you just sort of sit there spinning, going nowhere, and you think that that's *one taste*, you think that's *sahaj* or equality consciousness. But actually, it's just a meltdown. It's a complete paralysis of action in the relative world where you're supposed to be unfolding this higher and deeper understanding as a duty and *dharma* of your realization.

Source: http://www.andrewcohen.com/2012/10/11/guru-pandit-search-moral-compass/ , *retrieved on 6 January 2013.*

This dialogue is highly relevant to various themes addressed throughout this dissertation. For example, in the phenomological anlaysis of MNE, various respondents and interviewees caught glimpse of some of the non-dualisitc or oneness states referred to by Cohen and Wilber. My analysis highlighted the importance of such interpretations and how they become a 'truth' for the persons involved. In many cases, this opens up important realizations which support ERB; however, with respect to invasive alien species (IAS) - where notions of 'good' and 'bad' may be invoked this can have unpredictable outcomes which do not always align with conservation objectives. Cohen and Wilber's dialogue therefore sheds a new light onto how such interpretations may be managed in the context of a post-modern narcisstic world where morals (and the passion which drives them) may be tentative and uncommited. Finally, there are clear implications of this dialogue for education. Various sections of this dissertation (e.g. 2.5.2.2, 5.5.5) have alluded to the moral imperative which should be integral to an education for sustainability (EfS). However, again, if EfS is lead by learners' direct experiences with nature, their insights may counter the aims of the EfS program. Chapter 6 further explores this challenged through *Theory edU* and, in particular, how the experience of synchronicity may break through the mental constructions (which are sometimes conflated with a 'moral compass') and allow an individual to glimpse what their soul yearns or what needs to be integrated or unified around journey to Self. When properly understood and sensitized, synchronicity may serve as a moral compass (i.e. as intuitive guide) which informs one when an action is - or is not - in harmony with their soul truth, pathway to Self or the development required of their psyche:

> No transformation of the kind we aspire for, that would really create a world more founded upon truth and living in truth, is possible without that psychic change affecting and then ruling the being. ~ Vika Vickers.

However, we cannot only rely on synchronistic guidance in determining moral action: an overemphasis on subjective judgement in an intersubjective world is dangerous. Moral concepts and frameworks must be introduced but as one explores their being (by, e.g. dropping into the *U* to access Source and glimpse Self (Figure 21)), one may become more attuned to the soul-aligned 'vibrational action' which can be more instructive in informing their moral value set.

9.19 Reflections on personal experiences in field-testing *Theory edU*

This section contains complementary reflections on personal experiences linked to field-testing the *processes of connecting*, *harmonizing* and *becoming* comprising *Theory edU* as outlined in Chapter 6.

9.19.1 Process of connecting

My primary experience in introducing relevant theoretical concepts to students (e.g. in WS programs) was when presenting this PhD research. Stories and conceptualizations of MNE featured in these presentations alongside applicable literature, emerging results and frameworks which represented the stage of my thinking at the time. Before such presentations, I would usually give an introductory lecture on environmental psychology, and, specifically (landscape) perception. This exposed students to fundamental yet unfamiliar concepts and was usually well received. Other theoretical concepts were introduced to students by guest speakers, field visits or through required course reading. It was notable that students took an interest in optional articles which looked at: the value of naturalist education (Hayes 2009); peak and profound experiences in nature (McDonald et al. 2009; Smith et al. 2011); understandings of wilderness spirituality (Ashley 2007); and/or interdisciplinary and cross-cultural interpretations of nature (Bernard 2007), as well as articles on TEK and local biocultural diversity (Dold & Cocks 2002; Boll 2006b; Cocks 2006).

9.19.1.1 Introducing theoretical concepts

The primary focus of the entire WS program is for students to gain robust scientific field experience with conventional conservation ecology, environmental science and natural resource management approaches, within the relevant cultural context. So during initial experiences with teaching the 2009 WS program, the key lesson learned was not to shy away from introducing 'edge-pushing' elements of this research and the concepts it encompasses. At that stage, I had not come across the range of field-based activities available to facilitate CWN so any canvassing of this topic was largely theoretical or anecdotal.

I hesitatingly introduced this research toward the conclusion of the 2009 program. Encouragingly, many students subsequently lamented they wished they had known about these perspectives - and that I was working on this - much earlier in the program. The presentation appeared to provide some students with new mental models upon which they could now assign experiences which had previously circulated unprocessed in their field of awareness. Memories of MNEs could be reassessed as being legitimate - not necessarily that they were 'real' but that it was acceptable and important to have an interpretation of them as being relevant to their identity and belonging. A few students also chose to share stories with me personally or reflect upon them in their field journals:

Synchronicity: I found it to be extremely interesting. I had never thought much about why things (unusual things) happen when they do. Linking those experiences with your emotions at that point in time is fascinating. And I'm still unsure if it is a coincidence or if there is more behind it. •

I feel like the more I learn in this class, the more I realize how life is based on perception… •

Synchronicity makes a lot of sense and should be pursued, especially in education…•

This presentation topped it off (my day of learning), it put the icing on the cake...It was such an eye-opener and brain worker. You do have to listen to his [Matt's] presentation with an open mind. It was really complex but really meaningful. I do want to say "a job well done". And it does make an impact on my life more than you know.•

My presentation was also witnessed by an accomplished mature-aged natural scientist. However, for one reason or another, he felt compelled to chuckle in a rather dismissive way at various points throughout the presentation. His reactions, obvious to the students, were also disconcerting to me. I later broached this issue with him in private and, to my surprise, he confessed to having had an indescribable experience of revelation when researching alone in a wilderness area many years earlier. This contradiction only served to pique my curiosity. As it turned out, despite some reservations, he was quite sympathetic to the transformational power of MNE yet, paradoxicially, challenged the intepreative power. What this taught me was the need for the educator to be brave and to speak their truth, even that which does not always conform with conventional scientific or social norms. I realized that the fear - or even the reality - of being criticized paled in comparison to hearing how the presentation may have resonated for just one student.

In subsequent years, I appreciated how the careful introduction of a concept can provide an alternative mental model for how the student perceives their subsequent interactions with the world. This was again reflected in the students' journal writing as they reflected on the MNE presentation in the context of their own experiences. For the 2012 program, we actually commenced this presentation with an open invitation for people to share their most profound MNEs. That circle in itself yielded far more depth than I could have ever anticipated and surpassed the content of my presentation. The humbled recollection of personal stories created a special space, beckoning each other into shared relation with these powerful memories.

Some students would then enthusiastically report their MNEs; others remained shy or dubious. Each year, we had a student or two who, as seemingly the most connected or emotionally charged in the group, would consistently report unlikely encounters. This was particularly so for one student (in 2010) who was repeatedly at the centre of a string of uncanny nature encounters during fieldwork such that it became a little unnerving for her. We also had students who attempted to 'test' suggestive concepts such as cultivating thoughts or a state of mind aimed at encouraging animal sightings. On multiple occasions, for particular students, this was perceived to bear fruit and the excitement was palpable. Other students naturally harboured a more cautious curiosity, reticence or reluctance. Rarely did I encounter any student who was outright and openly dismissive and this presented another interesting phenomena: the power of the *social norm*. As the group - or particular individuals in the group - became enlivened by their MNEs, a

contagious critical mass would form such that disengaging with the shared experiences would undermine group cohesion and bonding as possibly one's sense of belonging in the group.[190]

9.19.1.2 Introducing experiential activities concepts

With respect to experiential activities, experimentation remains in its early phases. I have relied heavily on core routines recommended as part of *Coyote mentoring* (Young et al. 2010). The 'sit spot' and games such as 'predator-prey' are two examples. In recent years, I have also come across additional activities and I have begun trialling them as part of my expanding 'toolkit'. For example, I have experimented with intuitive / sensory tracking (Image 1; Box 40) and adapted basic *yoga asanas* to align with local animal species, with names assigned to postures which resemble movements of that animal. This has been useful in making yoga more playful, grounded and relevant as well as providing a vehicle through which students can begin to empathetically 'become animal' (by mimicking their postures). Increasingly, I have been looking toward Goethe-inspired nature observation as a necessary inclusion during the *process of connecting*.

Standout experiential activities in terms of facilitating connectedness have been: i) animal tracking; ii) animal and plant observation / identification (particularly through 'sit spot' or ethology exercises); iii) animal necropsy (this is not covered Young et al. 2010, although the relevance of hunting to CWN is); and sensory awareness activities (Image 15). Wildlife tracking has repeatedly shown to be embraced by students of both genders and cultivates curiosity and attentiveness. Many students have reflected that they were surprised about how much they enjoyed and learnt from the activity. Tracking has many benefits ranging from sensory awareness to eco-literacy to integrated problem-solving and empathy (Liebenberg 1990). It can also act as a conduit for synchronicity in that, often after a period of acute exploration and observation, the student may suddenly and improbably finds themselves in the right place at the right time with answers to their well-formulated (tracking) questions (Young & Morgan 2007). Animal observation and ethology encourages students to consciously direct their attention toward the natural phenomena under study and may spark newfound appreciations for sentience, intelligence and social behaviour of species under study, a consciousness more attuned to 'happenings' on the landscape and the simple but dying art of patience.

The act of participating in a necropsy (i.e. animal dissection) has been surprisingly powerful for students. After originally deciding to exclude the activity from one our first WS programs, circumstances led to its

[190] Cumulated experiences in these settings led me to entertain a phenomenon I call the *first and final focus theory*: i.e. MNEs seem more likely to transpire at the beginning or end of a field endeavour. Some of my MNEs also seemingly conformed to this principle (including those witnessed / shared by others). I have since heard stories from researchers who, e.g. report how their first direct experience with the animal are studying is a 'one-off' or filmmakers tell of capturing the vital wildlife scene on the first day or final minutes of shooting (e.g. Patterson 2009). I later learned of contested research at the now disbanded Princeton Engineering Anomalies Research (PEAR) program (see Jahn & Dunne 2005) which, in researching the effects of consciousness (and remote perception) on random physical systems and processes, found that people were statistically more likely to be able to affect random event generation at the beginning and end of the experimental sessions (Alcock 2003; Watt 2006). If one is receptive to the idea that human thought and emotion can influence outcomes in physical reality, then it is plausible that such influences are more likely when individuals' attention (and consciousness) is more focused, alert and emotionally charged at the onset and/or conclusion of a novel event, e.g. a field trip viewing wildlife, and could thus be a contributing factor evoking MNE.

last-minute inclusion and its permanent fixture since. I had never anticipated how much impact the act of dissecting a swine would have on students. In South Africa, the honourable subjects were warthogs routinely culled by park rangers in order to control numbers in an area where they are considered an extralimital species. In Australia, it was a wild feral (introduced) pigs that are similarly the target of routine culling programs which aim to mitigate the extensive damage inflicted on sensitive ecosystems. Therefore, to begin, there is already a basis for discussing and experiencing the ecological, economic, social-cultural and ethical issues around IAS. This has generated valuable and insightful group discussion and reflection.

Being sometimes emotionally charged, the activity can qualify as MNE, but a 'limit' rather than a 'peak' one (Fengler 2010b). Similarly, as an activity which can overwhelm the senses (particularly sight, smell and touch), some students have reported intensified levels of awareness. In any case, as an 'edge experience' it requires them to review and release past perceptions and beliefs. For many students, it is the first time they have participated in such an activity. For those who have participated in lab experiments on rats, they indicate that the context of this *in-situ* experience is vastly different, due to reasons of the: animal's size; animal's body heat (it is usually freshly culled); and the very real, natural surrounds, as opposed to the detached laboratory environment. Students obviously learn much about animal physiology and, by default, the relatedness to their own physiology. All these realizations contribute to a somewhat paradoxical yet powerful *process of connecting*. Students reflect on how disconnected they realize they are with their food origins and the cycles of life and death which play out through the distanced food choices they make.

Critically, many students who had romanticized about careers as park rangers are suddenly forced to reassess given exposure to the concept of 'killing for conservation'. Finally, the activity provides an opportunity for ceremony and food preparation. This is not imposed upon students but some groups have taken the occasion to offer respectful gratitude for the life which has been taken as a result of (past) human ignorance and which will assist in the students' experiential learning and *process of connecting*. Bögeholz (2006: 81) argues that: "For educational purposes, nature experiences should be regarded as a construct which covers several dimensions and can include positive and negative approaches towards nature." Her results support Wals (1994) claim that environmental education programs that exclusively focus on positive nature experience are far too limited. My experience with the necropsy supports these assertions.

Sitting somewhere between theoretical and experiential experiences is the selective use of film (e.g. nature-based documentaries). The evocative and vicarious nature of film as a medium allows it to open portals to worlds which may have otherwise never been possible for someone to 'experience': it can convey a story which allows the viewer to be empathetically and powerfully drawn into shared relation with the subject(s). I have therefore learned that film should neither be underestimated nor overused. During WS programs, I found presenting a selective array of films has been of great value. The standout examples have been:

i) Quality locally-relevant nature documentaries (e.g. the BBC's Great Barrier Reef series);
ii) Films exploring the further reaches of human-nature connectedness (e.g. Foster Brothers films)
iii) Films showcasing real people working to steward nature (e.g. South African 'Caretakers' series (http://www.caretakers.co.za) – learning is enhanced through its facilitated screening format)
iv) Films provoking audience reaction, e.g. my ill-considered screening of *Darwin's Nightmare* to WS students elicited a very emotive discussion, since two visiting East African students (both also completing their PhDs in Europe) were able to share alternative (grounded) perspectives on the issues portrayed, e.g. revealing how the West tends to view Africa through a certain (unfavourable, pitying) cultural lens. The insight moved a few of the WS (U.S) students to tears.

Variables which determine the 'success' of all experiential activities outlined above may be classified as either *personal*, *group*, *situational* or *preparation-dependent*. *Personal variables* include students' levels of interest, openness, energy, playfulness and concentration along with confounding individual personality traits and past experiences. *Group variables* include group dynamics (e.g. bonding, unity, trust, interactions) and overall traits (each group seems to have a defining quality to them which distinguishes their cohort from others). *Situational variables* include time of day, weather, and the general aesthetics or character of the area. *Preparation-dependent variables* refers to how well myself and co-instructors have created or primed a 'space' for enabling connectedness. This includes site and student preparation. Our demeanours / reactions can also determine the activity's potential success and learning value.

9.19.2 Process of harmonizing

Students appear to respond well to extended 'sit spots' in nature, i.e. sitting, observing and then reflecting through journaling or group dialogue). Morning mindfulness (i.e. meditation and yoga) and awakening (i.e. breathing) sessions were introduced to the group and thereafter optional. Usually, a third of the students took the opportunity to practice with the course facilitators; however, for some it appeared that the concept of 'meditation' carried too much stigma despite it only being the act of observing one's breath to focus attention. This is unfortunate.

I have only experimented with diluted versions of ceremony which have taken the form of either:
i) (Tribal) council: e.g. gathering in a circle and speaking / listening from the heart (using a 'talking stick');
ii) Respectful rituals before entering places of cultural significance (e.g. acknowledging the ancestors past and present who have walked the land or, e.g. burning incense (*imphepho)* before entering a Khoisan cave, or when entering places of risk (e.g. a silent focused request for and visioning of safe passage);
iii) Ceremony or gatherings of gratitude to mark the group's departure from a given location, particularly when the area has either been known to have a long history of inhabitation from Indigenous peoples and their ancestors or which has gifted the group safe passage or multiple MNEs and/or profound learning.

In attending the 8Shields *Art of Mentoring* course in Santa Cruz (AOM 2011), I witnessed and/or participated in more elaborate ceremonies designed to deepen connectedness with Nature, Self, Community, Source and could see their potential in achieving those aims. Workshop facilitators spoke matter-of-factly about the potential of ceremony to induce synchronicity or other MNEs (J. Young & M. Morey pers. comm.).

Different student groups respond to harmonizing activities in different ways. One WS class responded to such activities very well and I attribute this largely to a couple of key (i.e. popular) individuals in the group who embraced the idea such that it became a 'group norm'. It may be only chance that this group had more profound wildlife encounters than any other group I have been involved with. On the final day of this program, after an extended session of mindfulness and gratitude (to the land) for all that the group had received in the past weeks, the group encountered (from a vehicle) a black rhino at close range in what was a peaceful, innocuous exchange and a fitting farewell as they exited the nature reserve for the final time.

In all groups but, again, notably with the group which engaged with the *process of harmonizing*, I observed that after being in a particular area for an extended period (e.g. more than one week), the group appeared to fall into synch with the landscape, such that there were a series of days filled with multiple MNEs. As *Theory edU* suggests, I see this as a natural result of a *process of connecting* (i.e. engaging, sensing, edging and place familiarization) during the days prior. Note that there is an important, sometimes ineffible, dimension to the *process of harmonization* which is organic. Harmonization cannot be forced or manufactured: it is about tuning in (to and with landscape) and then *going with the flow*.

9.19.3 Process of becoming

Having only been engaged with educational endeavours for a few years, I cannot report on long-term successes in the sense of being able to instigate or effect a *process of becoming* (unless reflecting on my own efforts to walk this path). I expect this would be a similar situation for most educators, particularly those who only have contact with students over short periods. However, it is evident that there is much scope for educators to create fertile ground to plant the seeds of becoming. Similarly, it is clear that one should not be fixated on a grand outcome of *self-actualization*, but rather to acknowledge that life is an infinite series of micro-processes of *connecting-harmonizing-becoming*, and that a single powerful or insightful activity may be sufficient to take students through the *U*, such that they are given a glimpse of their Self in an alternative future. The results of such activities may be immediate, although the sense of becoming may fade as students leave the field and return home to 'everyday (urban) life' and systemic constraints.

The primary avenue through which I have been able to monitor students' longer-term progress is via their random 'checking in' e-mails, to report follow-up experiences or to act as their referene in pursuing further study or careers. These requests have often been prefaced by a reflection of how the program made them reflect upon and either reassess or realize where their life passion lies.

One example concerns a student who joined the South African program with a relatively fixed mindset about right and wrong, and about pursuing a desired career in law. During the program, she experienced some profound learning moments which, alongside finding a greater appreciation for the importance of context in forming judgement (e.g. regarding environmental actions), resulted in awakening her passion for conservation and, in particular, the study of birds. Since that point, she actively pursued a number of opportunities for fieldwork with bird conservation and ultimately returned to South Africa to enrol in a Master's degree in conservation biology. She has been active with volunteering with bird monitoring and rehabilitation, and her thesis research, internships and now employment have taken her to exotic foreign locations to pursue bird conservation. This is not to assume that she is on a one-way ticket to Self-actualization, but it is apparent that she has found her passion - at this point in her life, at least.

With only six weeks with the WS students bi-annually, experimention with the optimal ways to implement *Theory edU* remains nascent. Ideally, it would be helpful to maintain contact with students after the program and having the opportunity to reconvene and reconnect at some future time to follow an abbreviated *Theory edU* process. To my mind, there is probably no greater impediment / challenge to the swath of nature-based programs available than that of 'the reintegration problem', i.e. being able to return to society and enact insights, personal commitments and/or recreate 'the space' and motivation found during the retreat. As stressed in Chapter 6, the *process of becoming* is much more viable / achievable in a supportive environment in which the student may be able to readily have access to a mentor, elder or 'anchor' (family or otherwise) and continually experience, learn and share with like-minded understanding community.

9.20 *Theory edU* and TEK: rationale and guidance for its inclusion in education

> *The Enlightenment ideals of an educated mind and just relations among different people have become problematic in our era because the process of formal education in the West has consistently abjured or condemned non-Western ways of knowing, and because the quest for just relations still strains at the barriers of race, gender, and class. If we truly believe in the wisdom of Enlightenment thought and achievement… then we should consider encouraging the educated mind to wander beyond the comfort of its own solipsisms, and we should extend the principle of justice to include everything that touches our lives.* (Lopez 2003: 165-166)

9.20.1 Relevance of TEK to EfS (and an education in connectedness)

Bonnett (2002) emphasizes that in order to promote sustainability as a *frame of mind*, we need to be open to diverse ways in which nature is significant to people (Ashwell 2010). Turning our attention toward the significance of nature to Indigenous peoples is a necessary beginning for revaluating our own frames of mind. As Fien (2001) notes, Indigenous conceptions of oneness, which contributed to sustainable ways of living, have been lost in the cultures of their colonizers; Fien therefore suggests that such notions need to gain ascendance within the worldviews of students and teachers (Podger et al. 2010).

Western discourse implicitly privileges the position of its own (scientific) worldview as being the most effective and reliable way of 'educating', even when it is acknowledged that many non-Western cultures have (traditionally) maintained meaningful connections with nature, alongside intricate social-cultural structures. There have been multiple calls to action for opening EE/EfS up to multicultural perspectives such that is inclusive of histories prior to and alongside colonization and Western discourse (Kimmerer 2002; Armstrong et al. 2007; Whitehouse et al. 2012; Shava 2013). Weaving traditional ecological knowledge (TEK) into mainstream science and EfS curriculum is therefore imperative because of TEK's:

- Complementarity to scientific knowledge (as per the *UN Convention on Biological Diversity*) and therefore deserving of recognition, representation, protection and utilization;
- Relational ontology of place which contrasts with the cognitive focus of contemporary education curricula that reproduces ways of knowing and being which exclude relations to and within place;
- Epistemological and contextual relevance;
- Interrelated and interdependent relationships between 'people' and 'the environment';
- Incorporation of people, context (place, time), culture, language, knowledge and practices;
- Value in both drawing upon on a wealth of empirical biological knowledge;
- Focus on (local) 'place' and the ability of this knowledge to foster community resilience;
- High regard on desirable values of respect, reciprocity and responsibility (toward animate earth);
- Potential to provide new biological (and sustainability) insight and validation;
- Potential to offer productive partnerships with Indigenous communities;
- Potential to increase the numbers of Indigenous students in the scientific community;

- Ability to revitalize the art of storytelling to help students learn and recall ecology lessons; and
- Holistic integration of scientific and cultural concerns which, in imbuing a sense of spirit, may make the study of complex systems more attractive to students.
  (Kimmerer 2002; Armstrong et al. 2007; Shava et al. 2009; Whitehouse et al. 2012; Shava 2013)

With specific relevance to themes covered in this dissertation, TEK has potential in addressing:

***Epistemological divides**:* TEK invites critical discussion and philosophical reflection. Work at this cultural interface (through, e.g. the use of examples) allows epistemological meanings to be navigated, negotiated and connected in a way that demonstrates that different ways of thinking and knowing (i.e. scientific vs. traditional) often lead to the same conclusions (Armstrong et al. 2007; Whitehouse et al. 2012);
Experience as central: TEK recognizes that phenomena can only be understood within all connected dimensions of human experience: mind; body; emotion; and spirit (Cajete 1994). It may be this appeal to the full-spectrum of human experience which holds the greatest relevance to MNE, the student's own evolving CWN and ultimately an *education in connectedness* (Section 5.4.5.3);
Knowledge as story: TEK thrives on the use of narratives to hold and transmit knowledge. Stories engage learners by inviting intrigue and therefore facilitate better knowledge recall (Armstrong et al. 2007).
***Education for sustainability*:** TEK embodies a conservation ethic as its foundation, based upon intrinsic understandings and awareness of the interconnectedness of all life. Specifically, desirable values such as respect, reciprocity and responsibility are often found embedded within traditional beliefs systems. In researching how EE/EfS is conceptualized in New Zealand's Māori culture, McKay (2012) found that there is no equivalent or specialized need for EE/EfS since the ultimate goals of EE/EfS are already foundational to the Māori worldview, attitudes, values, interactions and identity as *tangatawhenua* ('people of the land') (However, such positions are contestable and there is fertile ground to discuss the extent that some TEK may be glorified and if Indigenous CWN always equates to equally contestable notions of 'sustainability')

TEK amplifies the meaning of CWN through its detailed prescription for 'living in place' (Kimmerer 2002). However, the ambient connections with non-physical realms may also explicitly intersect with place. Specifically, *sacred natural sites* are regarded as providing a gateway to communing with other forces (e.g. Xhosa people communing with ancestors in the forest). The importance of sacred natural sites to (biocultural) conservation is increasingly recognized (cf. Verschuuren et al. 2010; Cocks et al. 2012). In arguing the importance of MNE to personal wellbeing and conservation action, Swan (2010) found that the *power of place* is influential in fuelling the onset of such events. Drawing on three decades of research documenting unusual experiences reported when visiting special places, Swan (2010) describes the types of transpersonal experiences associated with sacred sites and the common traits of reported altered states of consciousness. In the context of education, Swan (2010) suggests that journeying to sacred places may facilitate breakthroughs in consciousness aligned with connectedness. If a visit is not feasible, then mental imagery journeys to such places can also be valuable as an educational tool aimed at helping people bond with nature and appreciate the power or spirit of a place (Swan 2010).

As identified (Section 5.5.5), African principles of *ubuntu* and *ukama* may be instructive in guiding and framing EfS. As opposed to championing 'humanism'[191] which suggests an absoluteness or finality, *ubuntu* is aligned with 'humanness'[192] which instead sees education as a 'coming into presence' (Biesta 2006; Le Grange 2011a). 'Humanness' is therefore inextricably tied up in our connectedness with the 'three ecologies' of self, society and nature as part of a constantly changing and complex world (Guattari 2001; Le Grange 2012). An *education in connectedness* embodying *ubuntu* understands that *how* the learner exists in the world (their being) is of prime importance. In other words, *ubuntu* is a condition of being and a state of becoming – the 'coming into presence' is realized through empathetic and compassionate interaction and relationality with social and ecological communities (Ramose 2009; Le Grange 2012).

These notions align with *Theory edU* processes of *harmonizing* and *becoming*. Equally, Scharmer's (2009a) *Theory U* places 'presencing' as the centrepiece of a learning journey which is characterized as creative process aimed at bringing something new and indefinable (of ourselves) into reality. With this ideal, the educator must assume the challenging and amorphous duty of 'creating a space' which allows the uniqueness of individuals to 'come into' a world of plurality and diversity (Le Grange 2011a).

> Coming into presence as singular beings involves taking responsibility for the world, or as Arendt (1954, p.193) puts it, 'to love the world enough to assume responsibility for it'. *Ubuntu* is at the heart of such an idea of education, because it concerns a condition of being that becomes/unfolds in relationship with the other (other human beings and the biophysical world) (Le Grange 2011a: 11).

Ubuntu may therefore be understood as a philosophy of wholeness and connectedness of the social (including self and spiritual) and ecological whereby caring for one involves caring for - and healing - the other (Le Grange 2011a; 2012).

9.20.2 Summary program guidance for applying *Theory edU* with TEK

There is reason to be buoyed by the possibility of integrating TEK perspectives into a transformative education curriculum which not only challenges the dominant social paradigm but equally equips students with values, knowledge, understanding and behaviours that align with connectedness, harmony and social-ecological sustainability (Kimmerer 2002; McKay 2012; Whitehouse et al. 2012). The following therefore provides initial guidance for how inclusion of TEK in curricula might be framed according to *Theory edU* and increase the likelihood of it effecting transformational learning.

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[191] *Humanism* tends to be based on an Enlightenment idea of what it means to be human, i.e. an understanding that education needs to produce rational autonomous persons (Le Grange 2011a). The educator therefore takes the role of midwife, endeavouring to release the rational potential of the human being (Biesta 2006; Le Grange 2011a).

[192] *Humanness* is an 'anti-humanism' idea of becoming or unfolding, which follows Heidegger's notion of the 'being of the human being' (existential being) (Le Grange 2011a). With this understanding, the educator does not seek to 'produce' or 'release' anything but rather focuses on "the ways in which the new beginning of each and every individual can come into presence" (Biesta 2006: 9 in Le Grange 2011a: 8).

- ***Embarking:*** Share personal perceptions and experiences of TEK within the small group discussions. Introduce understandings of Western worldviews, cultural assumptions and epistemologies as currently experienced by students.
- ***Elevating:*** Introduce Indigenous worldviews and relevant TEK literature. Invite guest speakers (e.g. Elders, shamans, anthropologists, biocultural researchers) who might be willing to frame MNE and CWN through their lens: select a (preferably local) example / case study to explore in depth.
- ***Engaging*:** Engage with the case study through various means of *attentive participation*: field and community visits or, where appropriate, guided visits to sacred natural sites. Explore the in-depth case study using means of *empathetic participation*: periods living / working with the community or community groups (e.g. Indigenous rangers) or, alternatively, simulating dimensions of the local example's community life and cultural worldview (and relevant TEK) as a means of 'seeing through Native eyes', e.g. sensory awareness activities, animal tracking and forms, hunting, wild plant harvesting. Simulating traditional roles and responsibilities which bind clans and communities.
- ***Edging – Emerging - Embracing*:** Create a space for students to process new – and release past - information and experience in the context of their cultural conditioning. Activities may include: journaling and contemplation; artistic / creative / physical expression; storytelling; extended 'sit spots'; introspection; and appropriate ritual and ceremony (e.g. elder facilitated thanksgiving, communing with Ancestors, men's / women's circles).
- ***Enacting:*** Provide a space for students to explore the meaning of emerging insights and understandings and what they envisage they can do with that newfound wisdom. Dialogue openly around the ways in which they believe their perceptions have shifted. Create scenarios for future choices aimed at: enhancing CWN, sustainability and in finding a better way of being and becoming in the world. If appropriate and if possible, consider avenues through which students might be able to 'give back' to the Indigenous or persons of communities which inspired their learning.
- ***Embodying*:** Encourage students to experiment with 'head, heart and hands' and prototype new life choices in the broader community. Are they able to act on their learning? Are they able to engage in *servant leadership*? If needed, revisit steps of the *Theory edU* process to regain clarity.
- ***Evolving:*** Celebrate the student's efforts in awakening to their Self purpose, inspiring others in their class / community and performing from a *consciousness of connectedness*. Support the student's future efforts to become a role model or mentor for others desiring to follow a similar path.

Throughout this process, it is imperative that the ethical issues associated with the responsible use of TEK are fully understood (Kuanpoth 2005 in Armstrong et al. 2007). In tapping into Indigenous knowledge, it is critical that TEK is not appropriated or adulterated to fit Western perspectives: it is recommended to cite specific practices from specific Indigenous groups which recognize and respect the cultural context rather than making generalized (and erroneous) claims about the lessons to be learned from 'Indigenous wisdom', 'shamanic traditions' etc. (Armstrong et al. 2007; Esbjörn-Hargens & Zimmerman 2009; Chalquist 2011).

Box 40: Personal experience: putting TEK into practice

Leading the WS South Africa and Australia programs taught me that introducing articles and presentations (including guest speakers of Xhosa, Zulu and Aboriginal origin) which touched upon TEK, biocultural diversity and anthropological perspectives served as a gateway for opening alternative appreciations of how people can engage with nature. Its effectiveness is enhanced when coupled with critical reflection on Western (scientific) worldviews, historical interpretations, philosophical underpinnings, assumptions, taboos and norms.

For the WS South Africa course, we included articles by local (Eastern Cape based) academics (e.g. Bernard 2007; Cocks 2006) as well as field presentations or visits by practitioners working with wild medicinal or edible plants and, further, in the context of cultural ceremonies (e.g. initiation). We discussed the *Apartheid* and *Betterment Planning* legacies in terms of changing CWN and livelihoods within the South African landscape. Similarly, for the Australian WS course, we included scientific articles and reports which articulated the intimate relation the Aboriginal people have with their land and the way that has been embedded in, for example, language, law, ceremony and skin name (including totemic relationships), as well efforts being made in integrating TEK and associated cultural perspectives into conventional conservation practice. We received presentations from Indigenous elders and stayed with an Aboriginal land management group for a week. This provided unparalleled insight into alternative conceptualizations of nature and its physical and non-physical dimensions. It tragically demonstrates how European settlement has devastated Indigenous connectedness to 'country.'

Student journal reflections on the literature, presentations and field visits were usually very insightful. Students on the 2010 WS South Africa program were particularly challenged yet impressed by Bernard's (2007) accounts leading up and contributing to her initiation into the Zulu *sangoma* tradition. This opened up realms of possibility and views of an interconnected reality that most students had any never attended to. Reflections on visits to former Khoisan shelters / caves were also regarded as highly special and reflected upon in a variety of ways - usually lamenting the historic ignorance and failure to appreciate their intimate ties to the land.

In Australia, some students struggled reconciling Aboriginal worldviews with their own (particularly in reference to defined gender roles, i.e. 'men's' and 'women's' business) and found extended immersion experience intense and taxing. In other years, students relished the chance of being welcomed as family, having knowledge shared and wished to stay on longer to learn more. With much of traditional Aboriginal culture becoming diluted or lost, the result can be a cultural blend which does not always sit easily with one's (more romantic) preconceptions. Students generally revel in the opportunity to partake in cultural activities which provide opportunities for unprecedented interaction with both unfamiliar nature and people. Guided visits to sacred sites, hunting-gathering activities and conventional yet communal food preparation were particularly valued and also supported feelings of connectedness.

My most memorable experience in working with TEK-related themes came during one of WS Australia programs. Our group had been based at Boodjamulla National Park for about a week and engaged with various activities. Boodjamulla NP is known for its stunning landscapes and the indescribable 'feel' peculiar to certain places in the Australian outback. 'Boodjamulla' itself is the name the Waanyi people (the Traditional custodians of the area) give to the picturesque and sacred river gorge which is the park's centrepiece. 'Boodjamulla' is also the Waanyi name for the Rainbow Serpent - a powerful creation being / ancestor - and its animal manifestation, the olive python (*Liasis olivaceus*).

The group appeared to find increasing resonance with the rhythm of the area. Alongside extensive conventional lectures and fieldwork, the group had already shared some profound experiences including a feral pig necropsy; a sunrise hike (with bird survey) and canoeing the Boodjamulla gorge. A Waanyi elder had spoken to the students about plants of importance and animals of (totemic) significance. I had introduced the students to this research and we had an inspired gathering in we shared our respective MNEs.

We had roughly scheduled a day around 'softer' skills such as exploring different (i.e. more intuitive) levels of sensory awareness. The students began the day early by spending an hour performing standard ethology practices (animal behaviour observation). After reporting results, students were asked to read an article about interspecies communication and discuss its merits. We then organized some playful experiential activities which involved using one's 'body radar' to instinctively sense the location of their peers. This was followed by conventional wildlife tracking activities, this time focused on detecting subtle variations in each other's spoor (i.e. human footprints).

Finally, we introduced students to what may be called 'signature- or spirit tracking': the ability to track an animal using extra-sensory cues (Image 1). The idea draws on accounts from Indigenous peoples who report being able to track using sensations aroused in their body (e.g. San Bushmen refer to a tingling in their armpits when the target animal is nearby (McCallum 2005) and Aboriginal people speak of involuntary twitching as an indicator of incoming information (Sveiby & Skuthorpe 2006). On this occasion, we employed what I understand to be an Apache Indian technique whereby, with eyes closed, one uses their hand to first detect and then describe the animal spoor based on the subtle sensations (e.g. tingling in the hand) or mind's eye images received. We had never tried this with students and had only experimented a few times ourselves, but had yielded surprising results.

As expected, there was embarrassed laughter and doubtful sideways glances. We did not set expectations or prescribe what might be encountered but simply asked students to play and have fun. The eventual outcomes surprised many: most of the students were in various states of disbelief as they recalled their successes of being able to correctly identify or locate spoor or scat. Under an unusual rain-shower accompanied by a double-rainbow, we informally de-briefed with a number of students that afternoon to further reflect on their experience and insights. Two students, who were particularly moved by their 'spirit tracking' experience, later encountered 'Boodjamulla' itself in the form of the (harmless) olive python (a symbol of the Rainbow Serpent to the Waanyi people) across their path. Regardless of the interpretations, I found the energy which filled that last afternoon as palpable. Many students had enlivened energized expressions and this felt hugely rewarding. During a final de-briefing conducted the following morning, the student who encountered the olive python summed up what he considered his most profound learning experience on the course thus far:

> *I thought it was really an incredible transition, starting from the much more grounded science with animal observation in the morning and then we opened it up to a more philosophical context in terms of what extent of interspecies communication is possible. And then ended the day with spirit tracking, which is something which I didn't think I would ever be able to tap into personally, but it seemed like half the group succeeded in doing that, which I thought was really incredible. So, that has kind of opened my perspective to other possibilities, which I think will have lasting benefit beyond this course.*

With respect to sacred natural sites and the power of place, it is evident that this quality may be sensed by non-Indigenous persons. The same student reflected on his Boodjamulla experience:

> *…there was an indefinable and undeniable power, especially after we went to the Wild Dog Dreaming site, and just sitting around there...it is impossible to really to describe... there is some inherent force and presence in this landscape. I think definitely having been inhabited for tens of thousands of years... and also it is just so vast here…*

On another occasion and location later in the trip while accompanying Aboriginal field rangers to a sacred waterfall formerly used as a male initiation site, a student approached me during our swim and confided that this was the most beautiful place he had ever visited – "a peak experience", he whispered with eyes ablaze.

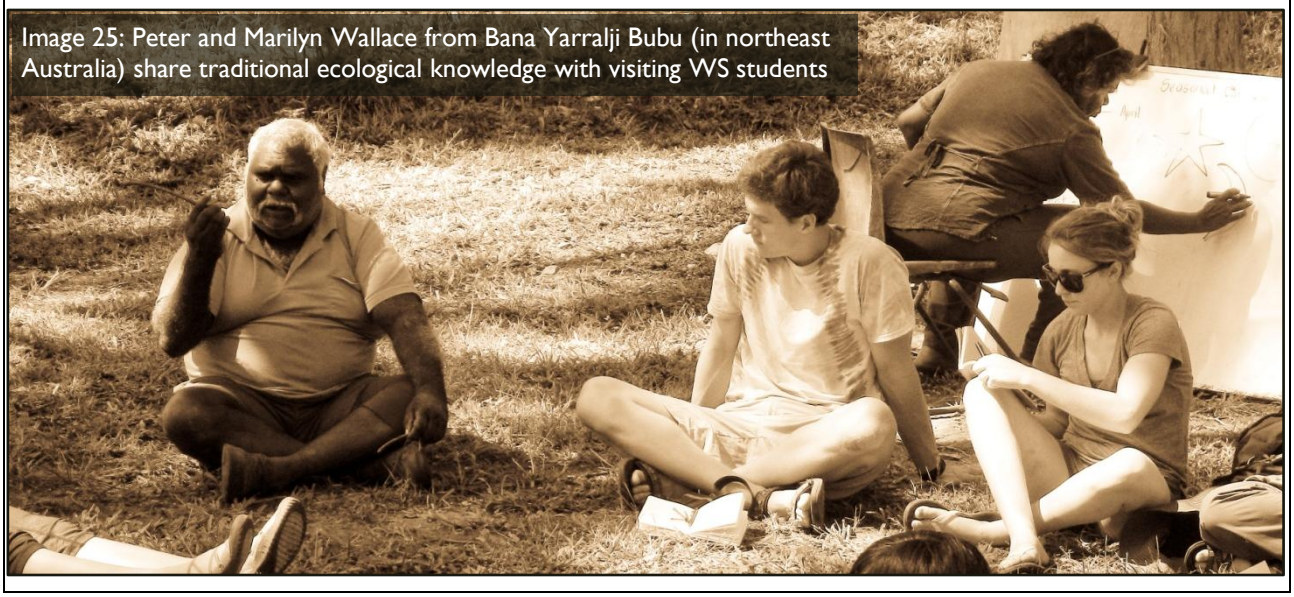

Image 25: Peter and Marilyn Wallace from Bana Yarralji Bubu (in northeast Australia) share traditional ecological knowledge with visiting WS students

9.21 Recommendations for improving MNE research

Table 51: Improving Significant Life Experience (SLE) research: responses to Chawla (2006: 370)

Chawla's recommendations	*Adopted?*	*How this dissertation responded to those recommendations*
Emphasize responsible environmental action rather than merely concern	No	Emphasis is largely on CWN as a predictor for action (ERB); however respondents were also asked to reflect on how MNE affected attitudes *and* behaviour (actions). Phenomenology also reveals legacy on action.
Measure levels of concern and activism	In part	Levels of CWN were measured; 'activism' was not of specific interest to this research. Activism cannot be assumed to align with CWN.
Use consistent questions, categories of analysis, and criterion …across studies	In part	Some questions / criterion used are included in other studies, though my online questionnaire (OQ)OQ was largely developed prior and independent to SLE research.
Define categories clearly	Yes	Mostly. Some categories could have been better defined but most important categories, e.g. CWN, were well defined.
Check for intercoder reliability	Yes	Coding for the phenomenological analysis was verified with two other persons, though could have been more extensive.
Report multiple mention rates and ranges	Yes & No	*Horizontalization* in phenomenological analysis allows for all statements to have equal value and it is therefore made explicit that codes/themes may be mentioned multiple times and that this is considered when interpreting results. For the OQ, participants could enter a maximum of two MNEs (i.e. one MNE with an animal and one without).
Continue to broaden sample diversity	In part	The OQ sample taken was global in reach; the PQ sample South African which is outside of the usual North American and British/European bias for SLE research. The sample was open to all; however, greater randomization / stratification could have been performed but was deemed sufficient for this study at the time.
Include comparison groups (including contrasting groups)	In part	The r/OQ targeted persons known to have a business / corporate backgrounds and professions; however, future comparison groups could widen this and include groups which might offer greater contrasts.
Integrate research on autobiographical memory	In part	Addressed in Box 17; however, this could be updated and expanded.
Record estimated age at time of events	Yes	Age range was requested for the OQ and in some in-depth interviews
Use prompts and cues to increase memory accuracy	In part	Guidance was provided with the OQ to help memory recall; where possible prompts (which would not unduly bias) were given to some in-depth interviewees
Use a dynamical analysis to build 'grounded theory' by distinguishing context, action and consequence	NA	Not entirely relevant to this research and the methods adopted. However, results chapters do distinguish between the various analyses carried out to distinguish context (e.g. personal and situational variables) and reported actions.
Add / include new research approaches (naturalistic experiments… observation, longitudinal designs)	Yes	Phenomenological analysis and *in-situ* field observation included. Longitudinal design was outside of the scope of this dissertation but recommended for future research.
Pay attention to cohort differences	NA	Not an aim of this research; although some cohorts emerged without explicit searching and these have been discussed.
Look for gender and cultural differences	In part	Not a primary aim of this research; however gender and country of origin was elicited in the OQ and PQ. This research focused mainly on Western socialized persons or those of Anglo-European descent.
Notice differences in individuals	In part	Not a primary aim of this research. Some variables emerged during the analysis but have not been included in the final results.

9.22 *TdU:* Applying the *U-process* to a transdisciplinary PhD research process

Figure 50 is a result of reflection (as an outcome of Chapter 7) of how the *U-process* (as a basis for *Theory U, Theory edU* and, here, *TdU)* could be equally applicable and instructive for orienting a PhD endeavour.

Figure 50: *TdU* (expanded): A *U-process* for transdisciplinary PhD research (adapted from Scharmer 2009a)

9.23 Outreach and engagement: eyes4earth.org

9.23.1 Reconnecting with nature contest: first announcement

This first announcement of the "Reconnecting with nature" contest as on posted 21 June 2011 at:
http://eyes4earth.org/%E2%80%9Creconnecting%E2%80%9D-%E2%80%93-what-does-she-look-like-tell-us-win/

"Reconnecting" – What does she look like? Tell us & Win!

You do not need to look far these days to see mention of the words: "reconnecting with nature". If it is not emblazoned on any number of eco-tourism websites or outdoor-based courses then it is to be found in the scientific and popular literature which calls for new understandings of a conservation ethic.

"Reconnecting" has seemingly become the mantra for overcoming humanity's separation from nature and the 'more-than-human' world – the collective schism that characterizes the ecological and, by default, social crisis of today's world.

But there is relative silence on what 'reconnecting' actually means.

eyes4earth.org seeks to break that silence and is offering a little cash prize to those who would like to share their voice. Keep reading below for more details.

'Reconnecting' is not an only child. She exists with her brother and sisters: namely, 'disconnected', 'connect', and 'interconnectedness'. Together this cohort is increasingly defining how individuals and society perceive their relationships with their environment and each other. For a family of words carrying such intrinsic importance to the human-nature condition and, in the case of 'reconnecting', increasingly cited as an aspiration for a sustainable society, one would expect to find sustained scientific, public and policy dialogue on their implications for how we (should) think and behave. Or least some pointers on what we are aiming for. Somewhat surprisingly, this does seem to be the case.

So if everyone is looking for 'reconnecting', has anyone told the masses what she actually looks like? How does she feel? How do we know when we have found her? Will we wake one morning and suddenly feel her presence? How do we measure the strength of our relationship to her? Is it connecting Facebook style? Is it too individually subjective – in fact, can any of this even be put into words?

eyes4earth.org feels we need to give it a go.
So we are offering cash prizes of R500 (50 Euros / 70 Australian dollars) for the best answers to:

1. What do you understand by the phrase '(re)connecting with nature'?

Please include in your answer:

a) What the experience of being (re)connected with nature looks/feels like (i.e. the what);
b) What you think people need to do to (re)connect with nature (i.e. the 'how');

Winning entry receives: R300 (30 Euros or 40 Australian dollars)

2. What criteria or indicators can we use to know if we are (re)connected with nature?
(i.e. How do you think we can 'measure' or gauge your or anyone's level of connectedness with nature?)

Winning entry receives: R200 (20 Euros or 30 Australian dollars)

Email your answers to info@eyes4earth.org
[please include name and preferred email address, if different from your sending address]
Entries close 22nd July, 2011. Winners will be announced by the **7th August, 2011.**

Entries will be reviewed by three independent judges in consultation with eyes4earth.org. Obviously, there is no one 'best' answer for such a subjective topic but the judges will judge according to what resonates with them and what they know from professional experience. The judges' decision is final. (I've always wanted a chance to say that!)

Important: The cash prize can only be paid out to winners who hold a South African, Dutch or Australian bank account. If the winner does not have a personal bank account in one of these countries then eyes4earth.org will donate the equivalent amount to support community-based landscape restoration (through spekboom planting) in the Baviaanskloof, South Africa (see http://elementalequity.org).

The answers from this contest will be used to support PhD research currently being lead by Matthew Zylstra at Stellenbosch University in partnership with the TsamaHUB. The theme of 'reconnecting with nature' is central to this research and part of the text above has been extracted from a forthcoming article to be published on this topic.

NOTE: *Prize money (or, rather, the thanks-for-your-time-and-creativity-in-submitting-a-great-response-money) is provided out of personal funds…and not by official research funders or listed partners.*

Thanks for your support.

9.23.2 Reconnecting with nature contest: winning entries

The announcement of winners to the "reconnecting with nature contest" posted on 21 August 2011 at: http://eyes4earth.org/winners-of-reconnecting-with-nature-contest/

Winners of Reconnecting with Nature Contest

The winners to the Reconnecting with Nature Contest have been awarded! As one of our judges said after reading the responses, "Phew, that was a difficult task … I'm grateful there were only a few (entries)!! A sense of connectedness is such a personal thing, and I found the insights fascinating."

We are pleased to announce the winners of the Reconnecting with Nature Contest. Admittedly, we were not swamped with entries, but given the detail and quality of those we did receive, it may have been for the best! So we are grateful that those who did manage to send us their opinions – their time and efforts provide valuable added insight. It appears we are only really just scratching the surface on this critical topic.

The final decision went as follows:

QUESTION 1: Tie – winner's prize split between entrants Sally Hofmeyr and John Roff.

QUESTION 2: Winner – Sally Hofmeyr.

Below you can read the winning responses for both the contest questions. This is followed by some text from the handbook *Coyote's guide to connecting with nature* (Young et al 2010) which provides added insight into what connecting with nature could mean and how we can assess it.

Sincere thanks to Alice Ashwell (EnviroEds), Bruce Dell (Wilderness Guide) and Mark Ogilvie (Cape Town Environmental Education Trust) who kindly helped judge the contest and provide helpful feedback.

Contest responses are as follows:

QUESTION 1: What do you understand by the phrase '(re)connecting with nature'? a) What the experience of being (re)connected with nature looks/feels like (i.e. the what); b) What you think people need to do to (re)connect with nature (i.e. the 'how');

~ Response to Question 1 by Sally Hofmeyr

(Re)connecting with nature is the process of letting nature back into our lives, of remembering that we humans are just as much a part of the entire community of life as the trees, grass, birds, bees, soil and water around us are. And in remembering this, it is the process of allowing ourselves to imagine what it might be like to be another type of being – to empathise with other members of the living community and to reawaken our sense of participation in the drama of life as a whole (as opposed to the life of humans only). It is a humbling but also enlivening, joyful, comforting, inspiring experience – as if finally coming home, after years of wandering. As far as I can see, the only way to do this is to slow down – or take time out anyway – to be quiet and spend time with non-human beings, allowing oneself to be as open as possible to the experience. Watch, listen, observe, feel, taste, touch – allow all experience in! Although spending time in wild places is probably the most powerful way to reconnect with nature, even just spending time in a garden or park or appreciating the birds and trees and other wild things in a suburban area can lead one back to reconnecting.

~ Response to Question 1 by John Roff

The phrase '(re)connecting with nature' implies that there is something 'out there' called nature that conceptually or physically, needs (re)connecting with. This is unhelpful, since we (humanity) are as much an integral part of the planet's ecological systems as any other part. So the initial question is flawed, because it assumes and thus perpetuates a human/nature divide, which is at the root of the problem we are trying to solve. That being said, I have spent the last 22 years trying to bridge the perceived gap between people and the rest of creation, and I believe there are few more important tasks. I like to think of my work as:

a) unveiling the connections and unity which are already there,
b) removing the blinkers to our understandings & perceptions of the richness of fully living on Earth,
c) and pointing people towards wonder.

This work includes:

1. Direct experiences of, in and with wild and beautiful places and creatures. These experiences may be mediated by a facilitator/teacher/guide, or they may be had without such a person. Both have their place.

2. Using the arts in their many forms – music, photography, painting, drama, poetry etc. as a platform for engaging with all of creation, thus facilitating and encouraging deep emotional connection between people and place, which is often more powerful than intellectual understanding by itself.

I have seen many different kinds of change in people during my time as an environmental educator, from apparently simple learning of facts and behavioural change to profound acknowledgement and realisation (almost revelation) of our place in the great scheme of things, the wonder and beauty of that, and the responsibility which accompanies it.

QUESTION 2: What criteria/indicators can we use to know if we are (re)connected with nature? (i.e. How can we 'measure' or gauge people's level of connectedness with nature?)

~ Response to Question 2 by Sally Hofmeyr

Gauging someone's level of connectedness with nature is probably easier with yourself than with others, because I would say a big part of it is inside – not necessarily easy to see or measure. I would say that one factor that can be used is how much time they spend in nature; and if they are spending time outdoors and in natural areas, what are they doing? Are they zooming around in 4x4s, quad bikes or speed boats, or are they travelling quietly and slowly, taking time to listen, watch and absorb all that is around them? Do they notice the small things, or are they only out to see the big five, tick rare birds or catch the biggest fish? In other words, do they participate in nature, or try to dominate it? Another factor could be how much a person considers the rest of the community of life in their everyday thinking, activities, shopping, decision-making. Do they think about where their food comes from and how it was grown and processed, or is it simply a commodity to be purchased from a shop? Are they aware of the connections between all the aspects of our lives and the resources we use and the larger world? Does it bother them that natural areas are being destroyed to make way for development? Do they think about whether to poison the insects that bother them in their houses or to try and find another way to deal with the problem? Do they find inspiration in beautiful sunsets, majestic trees, tiny butterflies? Or do they spend their free time plugged into headphones / computer games / clubbing and getting drunk / etc.? None of these are absolutes – I am sure a dedicated fisherman or twitcher also experiences some level of connection with nature, and it is certainly possible that someone who enjoys playing computer games can also enjoy the outdoors – but these are probably all on a continuum of sorts – I would guess that the more connected a person is with nature, the less likely they are to pursue these sorts of activities, and the more likely they are to simply want to be outside and allow the natural world to be itself, and experience it for what it is on its own terms.

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One individual and his affiliated organizations who have been very focused on the 'nature connection' question already for many years is Jon Young (USA). His stunning co-authored handbook *Coyote's Guide to Connecting with Nature* provides some authentic experiential insight into what connecting with nature could really mean.

In relation to our contest's questions, we provide an extract from the book which might provide some added insight:

Extract from *Coyote's Guide to Connecting with Nature* (by Jon Young, Ellen Haas & Evan McGown, 2010)

What is reconnecting with nature?

"Simply put, we aim to create meaningful bonds between people and the rest of nature. When we say connection, we mean a familiarity, a sense of kinship, just as we all experience with our human family. The goal includes knowledge and skills, but ultimately relationships restore our bond to nature. Building this foundational connection with nature is like an relationship – it takes time to form really true bonds. Therefore, mentoring people in nature connection requires a long-term practice. Every outdoor event adds to the accumulated knowledge we strive for… But a longer-term and slower-growing mentoring relationship is far more effective for the powerful development of the individual's awareness and connection to nature." (Young et al 2010: pg. 30)
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9.23.3 Baviaanskloof Nature Awareness Group: summary of key activities

As part of this study's outreach component, I helped form and mobilize the BNA Group. The idea itself came from the youth involved in a wilderness trail co-organized with the Kenchaan Foundation. We subsequently organized events, e.g. a camping weekend, training workshop and meetings aimed at advancing the initiative and managed to secure a micro-grant to support furthering mentoring and related events.

Nature Speaks to Baviaanskloof Youth

Emerging from five days in the Kouga wilderness, a group of youth from areas across the Baviaanskloof Mega Reserve (BMR)...

Read More

A wilderness trail for Baviaanskloof and Kouga community youth. Such experiences enliven the senses, answer personal life questions, awaken one's being, reconnect us with nature "...and to live in that state is a fantastic thing." http://vimeo.com/46518382

Group Reunion Sparks Nature Communion

A mini-reunion camping weekend for the proposed 'Baviaanskloof Nature Awareness Group' delivers a range of experiential learning experiences as well...

Read More

Somewhere Under a Rainbow

An experiential training workshop was run for members of the Baviaanskloof Nature Awareness Group between 4th-7th March. The purpose of...

Read More

200% Committed: BNA Group Looks Forward

"Are you guys still up for this?" was the question cautiously asked, "100%. We are 110, no, we are 200%...

Read More

Where the Wild Figs Grow

Members of the Baviaanskloof Nature Awareness Group came together again under the shade of Sewefontein's...

Read More

9.23.4 Stories and images of meaningful nature experiences

The following list extracts of selected stories and images of MNEs as posted on eyes4earth.org during the course of this research in an effort to: i) engage interested public with this field of research; ii) document and highlight my own and other's MNEs as appropriate and iii) provide an outlet for my creative impulses.

MNE #001: Mesmerized by Mantis
Our first image as part of our weekly release of meaningful nature experiences and profound wildlife encounters: "Mesmerized by...
Read More

MNE #002: Fauna Mirrors Flora
In 2009, in my position as Wildlands Studies course co-instructor, I was driving in the Great Fish River Reserve and on our way out for a day in the field…
Read More

MNE #004: Cleaning Space for the Argonauts
Our weekly image from the meaningful nature experiences archive. How does a washed-up paper nautilus (argonaut) and a beach clean-up...
Read More

MNE #005: Calling Cricket
Living in a rural area of South Africa where it is rare to see people around but lots of animals you start getting curious about the animal kingdom...
Read More

MNE#008: When the Rhino Saw Us
Boom. There it was. Completely unexpected. Completely unsolicited. And it was huge. You just don't realize how big a rhino...
Read More

MNE#009: The Energizing Effect
Seconds later, the silence broke and with it an exclamation of delight. "Ah-ha! Just what we were talking about! Look...
Read More

Stories and images of MNEs cont'd

MNE#010: Tenacity & the Cycle of Life

Witnessing the mass nesting of sea turtles can bring up all sorts of meanings – but it probably depends on...

Read More

MNE#011: Great Noble Beast

I felt deeply honoured to have been so close to this animal, especially as I have always regarded them as...

Read More

MNE#012: Awe Comes with Orcas

On a wintery gusty grey sea; Dolphin pod huddles nervously; Surfers indecisive: do they hear; The release of orca breath so near...

Read More

MNE #14: Landscape Comes Alive

"It felt as if the whole beach was pulsating and as if all the separate elements, the water, the sand...

Read More

MNE#18: Gift of the Golden Key (Kalahari Part 3)

There they were, reflecting the sunlight amongst the deep orange sands. /Urugab was visibly moved as he knelt before the...

Read More

MNE#21: Beautiful Mourning

Rebecca witnesses animal grief and is moved to be included in such an occasion. Is this fanciful anthropomorphism or is there...

Read More

Stories and images of MNEs cont'd

MNE#22: Moving Odyssey

Join us on an odyssey ("otter-sea") as we share a little video clip of an encounter with this elusive creature....
Read More

MNE#23: Something with the Elephant

An unlikely encounter with a Knysna elephant leads to questions about the more fuzzy dimensions of MNEs...
Read More

MNE#24: Truth: It's a Fine Lion

Look at this photo and tell us what you see. A lioness? Correct. Grassy plains? Correct. Anything...
Read More

MNE#26: Mantis and the Trickster

A series of events which may or may not prove anything with respect to MNE - except maybe...
Read More

MNE#28: Mother's Revenge

Even the diminutive field mouse can dish up a karmic lesson when one fails to show a bit of respect...
Read More

MNE#30: Life is a Leaf

What does the Bodhi Tree, a shimmering leaf and bliss bugs all have in common?
Read More

9.23.5 Poetry capturing meaningful nature experiences and related insights

9.23.5.1 Twitter

A selection of short poetry (100+ 'poetweets' of haiku and mixed verse in less than 140 characters) posted on Twitter during the research. The aim was to use poetry, as a form of phenomenological expression, to capture lived experience as it happened (or as close as possible to). Most of these experiences occurred whilst remotely based in the Baviaamskloof (BMR) interspersed with some months at Plettenberg Bay and concluding when writing up from Australia and Costa Rica (Section 3.3.2). *Read entries from left to right.*

21 Sep 10
Back from the wild they arrive
Souls at peace, faces alive
Wishing to be removed from ratrace
Wanting to make world better place

25 Sep 10
Being held hostage by an ostrich
Is an amusing way to spend a day

20 Oct 10
Bees, tortoises, adders and herons
On cue they coincidentally appear
Messengers running their errands
In response to desires or to fear?

13 Jan 11
Outside one shrill whistle, another and then a third
Not wanting to be disturbed
I lope to window, take a look –
A playful male springbok

13 Jan 11
One after another, bees into my room they flew - wondering "Why would you want to be trapped in here when..." And then I knew:
I'm just like a bee too

14 Jan 11
Yo tortoise in my hood
Fully unfazed about where I stood
Life's just a graze and then you're still
But I dig your style brother, chill

18 Jan 11
Striped field mouse
Getting cornered in my house
Terrified. Trembling wide-eyed
Raises its head with silent plea
Releases a panic pee

28 Jan 11
cicadas whirring
relentlessly healing earth
frequency holders

1 Feb 11
Information soaked. "No more new reading" - That's the vow I took
Then met another respected expert:
"You must read this book" Pfff...

7 Feb 11
leopard confronts
staring soft and gentle
recurring dream

11 Feb 11
In disbelief we jolt to a stop
Seeing slender shape near the hilltop
Spotted. Rises and proudly slinks off
Great leopard of the Baviaanskloof

15 Feb 11
Thank U to Mr. Mountain Reedbuck
With raspy whistles numbering four
You wake me from morning slumber
An alarm clock I cannot ignore

30 Apr 11
dusk shadows eaves
high-pitched squeaks siren
bat colony wakes

1 Mar 11- *Part 1a & 1b combined*
Sorrow seared into my memory pane
Eyes dilate with terror, head recoils
with shock...Sometime in-between I
pulled the trigger - forgive me for
how you suffered springbok

1 Mar 11
there's hunters true
there's those who shoot wildlife
today I'm neither

2 Mar 11 (see also Image 9)
To the East she aligns her gaze
A beacon of auspicious days
Iridescent green-yellow displays
Lady Mantis welcomes sunrise rays

2 Mar 11 (see also Image 9)
Another mantis appears on my table
Unable to stalk as well as he's able
Web constrains his chance to be free
I muse: "The same applies to me."

10 Mar 11
kitchen battlefields
marching for honey and ghee
hail the ant army

20 Mar 11
Something I've noticed over time
Is that the real soulful poetry
Never actually seems to rhyme

20 Mar 11
With stealth it rises, and I
Like a hare caught in headlights
Am transfixed by the full moon

21 Mar 11
cool misty morning
slobbering over my chins
autumn in fynbos

Twitter poetry cont'd

21 Mar 11
Maybe it's the changing season
Maybe it's the weather too warm
Maybe there is no real reason
Why in my room hornets swarm

23 Mar 11
shadowy hillside
crunching fynbos, tumbling rocks
eland herd make haste

23 Mar 11
dark tweezers
probing the sunrise
eland silhouette

29 Mar 11
amber glow
stealing the stars
in the city

29 Mar 11
dawn chorus
revving motors, yelping dogs
in the city

1 Apr 11
silent afternoon
ringing ears of emptiness
back in the bush!

1 Apr 11
neighbours -
duiker, mouse, cape hare -
I know of

12 Apr 11
Twas a fitting farewell gesture
Two bontebok sniff & snort in synch
To me in disdain or pleasure
I mimic & wonder what they think

14 Apr 11
On your marks get set
Stretch sprint swim - sand sweat wet
Afternoons in Plett

25 Apr 11
As if it were for us reserved
Encore after the lightning show
Humbled that we were deserved
To marvel at this giant rainbow

28 Apr 11
Icy southerly blast
An April weather 'freak'
How long will this scene last
Snow on Tsitsikamma peaks

4 May 11
Tsitsikammas gently throw
Fiery orb into the sky
Shaft of light embossed below
Sea reflects a golden 'i'

10 May 11
How things change in 24 hours
Strong onshore winds & heavy showers
River runs brown into ocean's wrath
Estuary fills, a foamy bubblebath

25 May 11
Thought. Feeling. Emotion - it's done
Safe and successful surf is the wish
Prayer concludes but I am stunned
Stingray? No - huge freakish jellyfish

31 May 11
Last time it was the 26th April
This time the 27th May
Another family of orcas
Plays in Plettenberg Bay

2 Jun 11
Beam of perfect precision
Sunrise cradled between two peaks
Few better ways to savour
A lukewarm bowl of Weet-Bix

21 Jun 11
Face-off high on Robberg cliff
Tensions rise - a lover's tiff
Defused by the sudden sight
Of what lurks below - a Great White

21 Jul 11
Broken - she's now a widow
Grieving to release the pain
Teary eyes glance at window
Comfort - there stands a blue crane

5 Aug 11
Scared! Large male in her doorway
Claps her hands and shouts "Hey!"
He casually gazes - their eyes engage
Then leaves, no trace of baboon rage

9 Sep 11
blip, blip, blip-blip, blip
supermarket checkout chick
with the vacant stare

9 Sep 11
thumbs scroll, fingers swipe
commuter choreographed
smart phone line dancing

30 Oct 11
frustrated roar
shuffling bat's in the roof
writer's block release

4 Nov 11
tail flails
dark horizon devours
Scorpius' head

9 Jan 12
Lone snorkeler
Eyes lone snapper
Prolonged mutual curiosity
Connection and reciprocity

17 Jan 12
On horizon giraffes freeze
"Tis no longer wild Africa"
Reminds the gentle sea breeze:
"Steel cranes of Brisbane harbour"

24 Jan 12
sheet lightning
trapped behind windows of
TV room

30 Jan 12
Reaching searching leech
Waves and wobbles at my door
Waiting wanting to teach
That life is this metaphor

Twitter poetry cont'd

1 Feb 12
cicadas
mexican (sound)wave
through the bush

1 Feb 12
cicadas
pulsing synchrony
dusk descends

14 Feb 12
ethereal shrill
bridging heaven and earth
black cockatoo

1 Apr 12
Wobbegong motionless
Like a marbled seafloor feature
Couldn't seem to care less
As I flap about to snap its picture

13 Jun 12
Six foot 'roo head down
Advancing with purposeful bounds
I don't stick around

4 Jul 12
Melodious currawong
Coos its lonely carefree song
Competes with incessant traffic rush
Hopes of hearing her partner crushed

9 Jul 12
Mob of mighty macropods
Confined to speck of bush reserve
Walled by human development
Better they surely deserve

10 Jul 12
Healing dawn kookaburra laughs
Massaging chosen chakra paths
Activating joy in their wake
Acupuncture for the landscape

23 Sep 12
Weekenders herd along the beach
Oblivious to the humpback's breach
And mighty fin slaps not far offshore
The observant smiles with quiet awe

7 Jan 12
scorching sun
silencing all life
except flies

28 Jan 13
Tranquil below
Tension above
Tuna glide in the shallows
Surfers ride, cuss and shove

6 Feb 13: "Early morning wave"
Her body pulses green
Glistening with sunrise sheen
Gliding my fingers across her face
Her lip quivers, I savour the embrace

9.23.5.2 Personal journal

Tracks
Tracks upon tracks
Walking the same path
Each with their own identity
Grey soil grains hold
Soft spoor, splayed spoor, subtle spoor
Each with their own identity
Storylines etched into Earth's canvas
Temporary mysteries to be explored
Each with their own identity
Spoor overlays tractor tread
My prints the freshest obscure layer
Each with our own identity

Ode to Acacia
Understand
I do this
With reverence
And respect
'The Whole'
A living system
I wish to protect
What's yours is mine
This milieu we share
All it takes is
For us to care

On the backroad
I thought it was bad
Maybe it was good
Maybe it was Dad
Telling us he would
Liked to have been there
With us forever
All the love we've shared
From our time together
Owl you're suddenly here
Sitting on this back road
Vacant alluring stare
Filling my veins with cold

Do you bear a sign?
For my brother and me
Just something benign
Or cruel tragedy?
So now wise bird
Alleviate my fear
Tell me I'm absurd
Before you disappear
I've seen you before
Messages you bring
I know you're here for
My remembering

Skimming or dipping
I feel like one of those smooth 'skimming stones'
Whom across the surface of life I've been thrown
With force and speed I skip and skim the water's skin
Not wishing to lose momentum for fear I'll fall in
To the depths below for I know not what they hold
Darkness, emptiness, stillness or so I've been told
So I skim over life not ever wanting to miss a beat
Not reaching the other side is a sure sign of defeat
And every skip on the surface feels like another year
The skips still quicken so that the gaps now disappear
Between hitting times of activity and pure times of rest
Frantically chanting the chant "I'm just doing my best"
I am that skimming stone with 66 skips I'm flat out
But I've lost my pace, sputter sputter, I begin to doubt
If I'll really make it to the edge of life's pond after all
What is there anyway except for a hard bumpy fall?
As I begin to slow, I dare to dip in, down and beneath
The surface of life; aah, quiet time and space to breathe
And what peace lies down here; how I wish I had known
For my next life…
May I return as a rock and not a skim stone

Encounter with willow
Silent whispers of presence
I ask to be filled with this essence
"Join me" resounds the still tree
And, O Man, remember this
Warm touch of your close family member
Doubts still remain and the questioning why
Is dispelled with the touch of a butterfly

Awe comes with orcas
Unknown someone gave the shout
Vehicles race to the Lookout
People stream over to Central beach
Rare glimpse of an orcas breach
On a wintery gusty grey sea
Dolphin pod huddles nervously
Surfers indecisive: do they hear
The release of orca breath so near
Transfixed the watchers now blink their eyes
Nature bestows another surprise
Soft amber light - radiant rainbow frames
Orcas royal return to wild ocean rains
Who knows for whom this day had power
String of emotions condensed in an hour
It all comes back to what one perceives
Or if in "a something more" one believes…

Legacy
All I see is marine debris
Strewn across the beaches
Defacing pristine features
With plastic and polystyrene
A painful and pitiful scene
So sorry for the intrusion
The danger and confusion
To the scavenging vulture
Victim of a consumer culture
Still shirking responsibility
To be free of marine debris

Opening the senses
Little modest plant of the karoo
How do I describe all that you do
For me. Rough like sandpaper with soft leaf
With bitter taste which tongue felt so brief
Maybe it's the tingly and tickly feeling
That against my cheek is so appealing
Or maybe it's the pleasant sweet aroma
That reminds me of dandelions around home or
Maybe it's the crackly sound you make while I walk
The noise that quickly alerts the baboons I stalk
So those are some of the things my senses chose
That and others - could be any of those
But it was when I gradually opened my eyes
That you gave me the most pleasant surprise
You instantly reminded me of when I was here last
I chose you as my symbolic tree here on Bergplaas.

Life's a leaf
Gazing up at the leaves of the Bodhi Tree
I felt its wisdom - a mini-epiphany
What if life's paths are like veins on this leaf?
With one central soul path to which we should keep
A path that flows without any obstructions
A path that holds our original instructions
Other divergent veins we may follow
But which soon reveal promises hollow
And those paths lead us to the leaf's edge in vain
Before tracing back to the main vein again
Only then we realize that which had been amiss
And welcome the return to 'follow our bliss'

9.23.6 Outreach writings: opinions, announcements and reflections (online)

In addition to posting stories of MNEs, other opinion pieces shared on eyes4earth.org captured personal learning as prompted by research events, experiences or literature / media encountered at the time.

Meaningful Nature Experiences: Only in Hollywood?

This eyes4earth.org website talks a lot about the idea of meaningful nature experiences...or meaningful coincidences with wildlife. And if you...

Read More

The 'SSS' of Natural Learning

The Wildlands Studies –South Africa (WS-SA) course recently came to a close. As lead instructor for the six-week program...

Read More

Stories Bring Landscape to Life

Bushmen stories come to life in the Baviaanskloof and give local youth a glimpse of their heritage...

Read More

Volunteering Helping Hands for Healing Lands

You can research restoration, you can coordinate it, you can talk about it, you can workshop about it... But the...

Read More

Swirling Beneath the Surface

Seven days. Eleven people. Plenty of powerful stories. An intense and inspiring week of interviewing for research on meaningful...

Read More

Too Late to Save the International Year of Biodiversity?

Well, theoretically, yes. We are already six weeks into the 2011 International Year of Forests, for what's it's worth....

Read More

Outreach writings cont'd

Nature Writing as Wilderness

Is it possible to cultivate non-ordinary experiences with nature and, in doing so, allow the non-ordinary to become the ordinary?...

Read More

Art of Mentoring: Nature Connection & Cultural Repair

Is nature connection really only possible when embedded in the fabric of healthy community? The recent Art of Mentoring...

Read More

The Quest for Scientific Social Responsibility

Have you ever stopped to wonder if any illicit poaching was involved during the construction of the so-called scientific 'ivory tower'…

Read More

Don't Kill the Messenger!

Concerns are sometimes expressed about how indigenous perceptions of certain animals acting as a 'sign' or 'omen' for an undesirable...

Read More

Xavier Rudd's Connection with Nature

Australian songwriter Xavier Rudd shares his views on connection with nature. We also discover how a meaningful nature experience inspired...

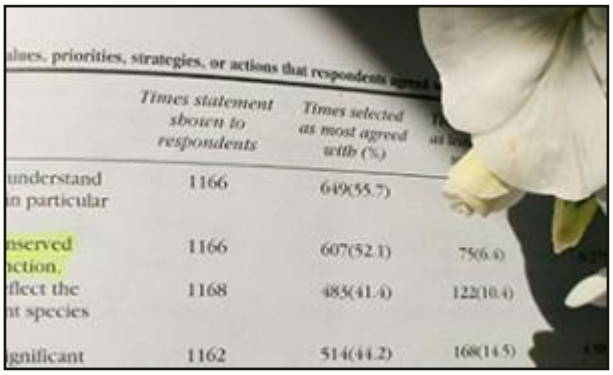
Read More

Thought-Provoking Pieces at the ICCB

The 25th International Congress on Conservation Biology in Auckland (NZ) ran with the theme "Engaging Society with Conservation"...

Read More

Outreach writings cont'd



Paradoxical Priorities in Biodiversity Conservation

A recent survey of scientists' opinions on the state of global biodiversity and its management provides insight into the values...

Read More

Wally Windbreak & Lindy Landscape at our Service

Two decades ago the Queensland Forest Service was already cleverly communicating the concept of ecosystem services at the landscape...

Read More

Nature's Awe Opens Door to New Life

Adventurers plunging into the depths of the Tasmanian wilderness were so moved by the experience they decided to change the...

Read More

Awe-Inspiring Experiences Change Time Perception

Outcomes of recent research claims that awe-inspiring experiences make you feel that your time is more plentiful. They are also inclined...

Read More

Ecologist or Bunny-Hugger?

We might all be into the environment, but lines are drawn when it comes to invasive species...

Read More

Dolphin-Assisted Fishing: Mutualism or More?

Five fascinating cases (with photos & video) of dolphin-assisted fishing from around the world. Is life more about mutualism than...

Read More

Outreach writings cont'd

The Problem with 'eyes4earth'

A reliance on our eyes as our primary sense organ inhibits our engagement with environmental issues and our connection with...

Read More

The Hatching of an Idea

Introducing 'free-range education': scrambled idea or hard-boiled movement in the making?

Read More

9.23.7 Multimedia: music, video, presentations, newsletters, facebook

Various media were used to support outreach and engagement. I am indebted to Andrew Zylstra for his tireless creative support with web and newsletter design, music composition and video filming and editing.

Video

What is Connectedness with Nature? (Part 1)

There's much talk these days about 'reconnecting with nature'. But what exactly do we mean by that?

View : http://vimeo.com/53013323

What is Connectedness with Nature? (Part 2)

Matthew Zylstra shares more of the findings unearthed during his studies on connectedness with nature.

View: http://vimeo.com/57930573

Wanderabout

Wander about, awaken the senses and use those skills that connect us with nature. And who knows what sort of meaningful animal encounters might await us...

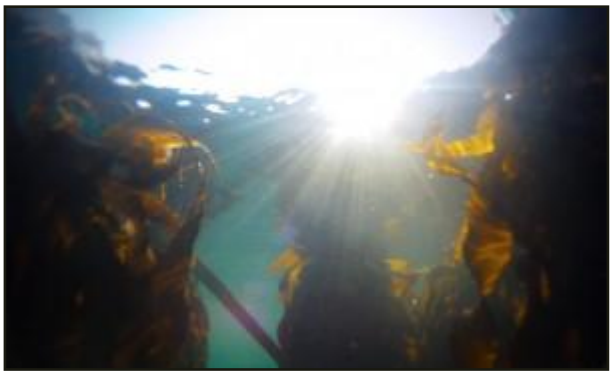
View : http://vimeo.com/46277483

Up Close & Personal

…But the third deer stayed around grazing... seemingly undeterred by their presence. Elena edged closer, and yet still this lone deer had no apparent interest in leaving.

View : http://vimeo.com/57531139

Music



Too Much of a Coincidence

The vibes4earth audio collection launches with a music featuring a MNE involving ottera and a sense of oneness.
Read More

Beyond Environmental Anger

The second music release weaving ambient soundscapes with real stories told of meaningful nature experiences.
Read More

Downloads (conference PowerPoint presentations)

ICCB Presentation Available for Download

The oral presentation on meaningful nature experiences delivered at the International Congress for Conservation Biology (ICCB) is now available for...
Read More

Out of this Worldview: When Aliens Invade Our Experience of Nature

The presentation delivered at the 4th World Conference of Ecological Restoration (SER) in Merida is now online...
Read More

Newsletters / eyes4earth.org updates

eyes4earth.org Update: Preliminary Results…

eyes4earth.org newsletter previewing preliminary research insights on meaningful nature experiences as well as a summary of recent news, weblog posts...
Read More

eyes4earth.org Update: Results, Videos, Stories…

The first eyes4earth.org update for 2013 is now featuring news from recent months including research results, meaningful nature experiences snd more...
Read More

Facebook

An eyes4earth.org Facebook wall was created to support dissemination of the stories, blogs, images and news on eyes4earth.org. Relevant news from other sources was also regularly posted on the page. The following images were also posted on the Facebook wall (words and images my own except where stated).

Image: Unknown Internet source; Words: Adapted from a similar joke about musicians

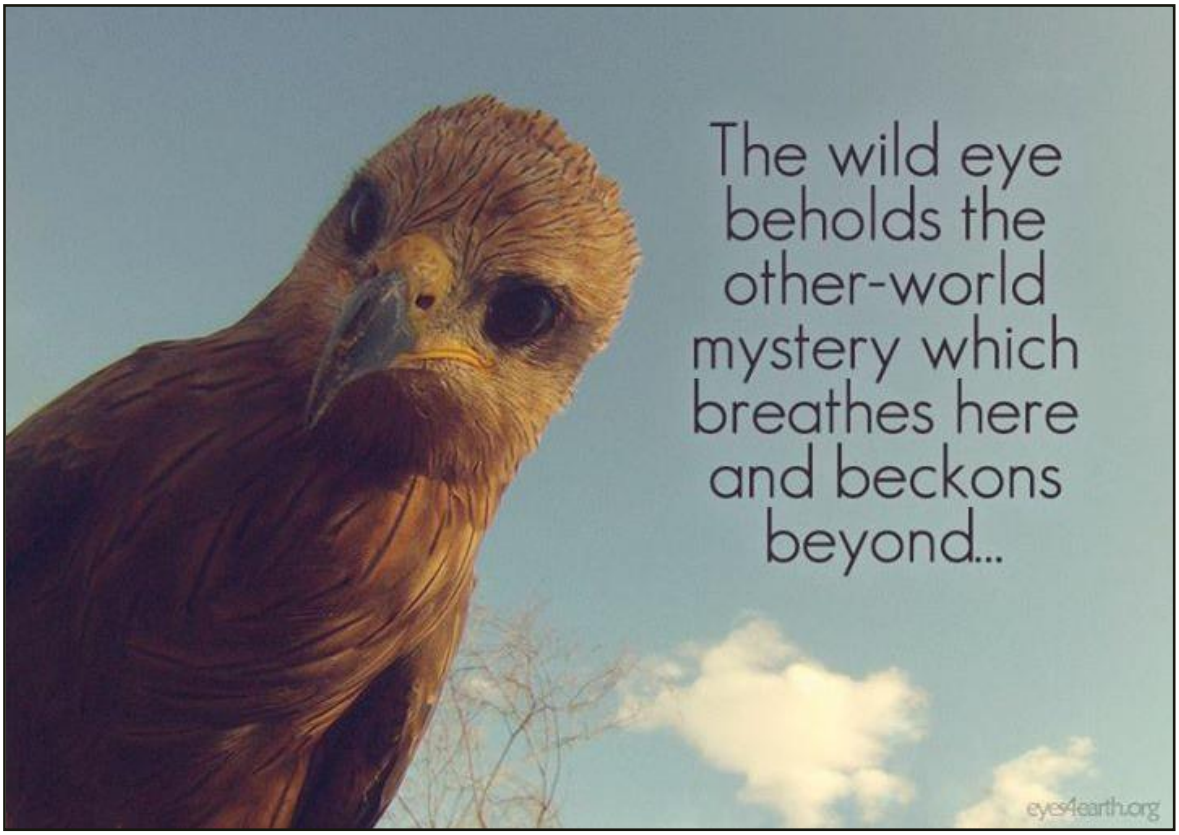


Image: Andrew Zylstra; Words: Matthew Zylstra

9.23.8 Posters displayed at public events (selection only)

Figure 51: Poster displayed at the PRESENCE Workshop (2011)

Figure 52: Poster displayed at the International Congress on Conservation Biology (2011)

9.24 Essay of lived experience: connection through contemplation

Essay submitted as a contribution to the compiled book:

Contemplation of Nature

Commissioned by the Foundation for Contemplation of Nature

http://www.foundnature.com

Chapter Title

Connection through Contemplation:

Meaningful nature experience for an education in connectedness

Synopsis: The essay follows 'the Student' [193] as he embarks on a multiple day solo journey into wilder nature. We trace this process of *connecting*, from his initial anxiety and 'letting go', to opening up and *harmonizing* with nature in unexpected ways, to his return when he reflects and seeks to understand the relevance of his lived experiences to his *becoming*, particularly in his professional role as an educator. The Student's experiences of synchronicity, symbols, metaphors and mirroring in nature inspire him poetically and reflectively as he explores the meaning of these profound encounters with the other-than-human world. We are left with an insight into the deeper connection and 'knowing' gained during such journeys and how educators may be enabled to cocoon these transformative experiences for learners.

> *Ask and it will be given to you, seek and you will find, knock and it will be opened to you.*
>
> ~ Gospel of Matthew 7:7

[193] In line with the book's theme, the original essay, as submitted to the editors, uses 'the Contemplator' to refer to the lead character throughout. However, in the context of this dissertation, 'the Student' is more appropriate.

"It always feels the same," he resigns. It is a mixture of anxiety and uncertainty: anxiety about the process of honouring his personal pledge and uncertainty about if it is really necessary.

"It is only two nights," announces a reassuring voice inside his head.

"Exactly", reasons the other, more sceptical. "Of what benefit can just two nights be?"

"Though remember how good it feels once you are there", the other voice reminisces.

"But what if it is different this time?"

No one knows. That is part of the magic and attraction of entering wilder nature. It might only be a three-day solo in a cave at the foothills of nearby mountains, but it edges him out of his comfort zone. He grew up in the suburbs of a developed country; his childhood nature experience was sheltered and risk-averse. He had no reason to regret that, but he knew that there comes a time in one's life when one feels compelled to pursue inner development and to push personal boundaries. About 18 months earlier, he committed to this bi-annual learning journey of immersing himself in nature and practicing the soft art of reflection and contemplation. He knew these wanderings were also character building. But as an amateur, he still recognizes himself very much as 'The Student' seeking to unearth the depth of nature's wisdom.

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In the part of him which he usually denies access, there is a gentle intuitive push telling him he must do it. The voice reassures him that all he is feeling is the initial fear related to 'letting go'; and that once he passes that barrier, the rewards will multiply.

"Other people do not have any problems with this sort of thing - spending days or weeks alone in real wilderness. If I cannot even face three days, how can I expect to find so-called 'enlightenment'?" He jokingly chides himself and his idealisms, but yet is aware of a lingering truth behind the observation.

Arjuna, Buddha, Jesus, Moses, Muhammad and esteemed mystics, gurus, shamans, philosophers, Romantics, visionaries, elders and nature-writers spent lengthy periods in wilder nature or on pilgrimage, drawing insight and inspiration from the book of nature. "Prophets do not come from cities speaking of clothes and riches," the Student reminds himself. "No, they come from the wilder places speaking of animals running free and a different kind of treasure." [194] Their contemplation was embedded in a rawer, riskier natural environment, no doubt. Back then, earth was likely a different place; teeming with the very wildlife that now felt so estranged and menacing. The Student had his fears too and it mainly involved the leopard. He knew that many other more realistic risks were present – tripping, falling, lacerations, burns, stung by insects or bitten by a snake - but it was the leopard which fuelled his apprehension.

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The first half an hour of the walk is territory he knows well. The Student ambles down the creek bed leading away from his cottage. There is a flurry of activity as birds of various types dart back and forth between bushes ahead. He stops for a moment and listens. He has read about what can be learnt from being attentive to 'bird language'. Various calls and behaviour can tell one multitudes about what is

194 Based on a quote by Andrew Little and used in a speech by Dr. Ian Player.

happening in the landscape at any moment, such as the presence and movement of predators. [195] On this particular occasion, the Student observes that an unfamiliar fire-coloured bird is in great distress: the mother has become separated from her young and he watches like a helpless intruder as he stands awkwardly between them.

He moves on and casts an eye up toward the bushes. The Student recalls that a resident spotted eagle owl may sometimes be 'spotted' here – even during the day. He respected the owl, as many do around the world. They certainly have an indefinable quality about them, which is undoubtedly why they have been shrouded in mystique, superstition, or oracle-sque qualities for centuries. The previous occasion when the Student walked through here, lost in thought, the sudden silent swooping shape snatched his breath. As the owl came to rest ahead of his gaze, he remembers looking at it accusingly:

He stares at Owl and asks:
"Do you bring news of death or wisdom?"
Owl stares at him and asks:
"Do you or I create symbolism?"

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The Student reaches the first ascent. In his mind, this hill marks the beginning of the separation, a farewell from familiar territory. His mind is still active: processing new scenery, but more absorbed in processing current thoughts associated with his personal and professional life. Even so, he senses that from this point, he is steadily entering a different space. It is a process of letting go and gradually trying to bring his attention and awareness back to the present. He scoffs out loud at this impossibility. He has been trying to do that for years and is convinced he is the only one that has such a wild untamed and erratic mind. But he finds solidarity in a catchy poem penned by a friend:

My monkey mind is naughty
Naughty as can be
It swings around from branch to branch
And just won't let me be!

It pokes and pulls and teases
And jumps just like a flea
Why won't it let me sit in peace
Underneath this tree?

My monkey mind swings to the past
The future it wants to see
But my monkey mind is naughty
'Cos the present is where I want to be! [196]

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Droplets dangling from the surrounding foliage glisten under the sun. But the Student's awareness quickly moves elsewhere. Last time he was at this point, he had encountered fresh leopard spoor. It had come as a surprise and shock, as whilst it was well-known that leopard roamed the area – and had even attacked

195 Young, J. (2012). *What the robin knows: How birds reveal the secrets of the natural world.* Houghton Mifflin Harcourt Company, New York.
196 Nowell, M. (unpublished). *Monkey mind.*

a neighbouring farmer in self-defence years earlier - there had been little recent hard evidence, especially this close to his cottage. Yet there it was: an unmistakably fresh imprint after the previous night's rain. He can still recall how his heart pounded, though it was not entirely related to an absolute fear of leopard. On the contrary, he humbly revered them, particularly since they began to sporadically appear in his dreams. But those encounters were characterized by calm interactions; the leopard suddenly appearing before his dreaming eye and making a casual affectionate approach. "What if I actually have a visitation? How would I react? Would I stay calm in the hope that a placid dream-like exchange may unfold?" He lets his mind race off into the world of adrenalin-filled childhood fantasy. But this time, there are no leopard tracks. The Student chides himself that it is ridiculous to think that, within the thousands of hectares in this immediate vicinity, the leopard would have passed this very same spot, the night before, as it did six months earlier.

The day is rapidly warming. In another hour, it would become a little more uncomfortable. Atop the first ascent, he leans on his makeshift walking staff and looks back toward his cottage and the surrounding farmland. He is deeply appreciative for being able to explore this area on a whim. He only had a few months remaining to immerse himself in this place, but with every day he could feel his attachment growing, knowing that these chances are unavailable to many - possibly most - people on the planet. And ironically, those that do have the opportunity do not see it. He feels grateful to the people and experiences in his life that have helped him 'to see'.

The Student removes his backpack. He savours that first moment when it slips from his torso. There is an immediate sense of release and lightness in his shoulders. Flapping out his shirt, he realizes that he has already accumulated a sweat patch on his lower back. At this moment, it feels pleasant – almost ticklish - as the crisp morning breeze plants a chilly kiss on his unsuspecting skin.

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Within an hour, he arrives at the mountain stream which will need to sustain him in the days ahead. He is upstream from his final destination and the next 30-45 minutes will be spent hiking alongside the stream to reach the cave tucked just off to the right of a little waterfall.

He knows this last section is demanding. And he wonders how much worse it had become since his previous trip. There has been significant rain in the meantime and the vegetation he was most concerned about would have responded with zest. The vegetation is the black wattle (*Acacia mearnsii*) - a species native to Australia but considered highly problematic here in South Africa and elsewhere in the world, where it now has the dubious title of being the world's most invasive species. This is largely due to its devastating effect on local ecology, ecosystem functioning and landscape form. In particular, the black wattle's ability to uptake water is extraordinary: in some densely infested areas in South Africa, it has been known to consume over 30,000 litres per day per hectare. That alone would seem sufficient basis to declare 'war' – as governmental and non-governmental agencies have done at various times or another in recent
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history. But there are historical, economic, ethical and political dimensions that muddy the situation and which polarize opinions when proposing appropriate management options.[197]

The Student has wrestled with this issue. Indeed, its impact on both the ecology and people's experience of nature has been a key feature of his research and teaching profession. This time, like he has done times before, he wanders among the stands of encroaching wattle; hoping and awaiting some decisive revelation that might help him to perceive the problem through a perspective of 'wholeness'. But now he takes a moment to recall his first solo visit to the caves. Back then, this tributary stream was more open and accessible and he was able to walk downstream some distance. Under a towering and thriving black wattle, he sat and pondered as the afternoon shadows lengthened. The area felt empty and oppressive, or was that just colouring from his mental conditioning? The Student's goal that day was to depart with insight into how 'the black wattle problem' could be better addressed. Was there something more subtle that we were missing through our addiction to technocratic fixes? On that day, he attained some unorthodox assurances - certainly not the type which would be readily embraced by his conservation colleagues in more mainstream scientific circles. He continued to doubt the validity of this acquired 'wisdom'.

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So now, almost 18 months later, he makes his return knowing with imminent sadness that the black wattle had inevitably seized the opportunity to assert its dominance. Again, he gazes disparagingly at these trees: vilified here in South Africa but embraced in their home country of Australia where they 'belong'. Indeed, context is everything, as possibly is our quest and need for belonging in this world. As a foreigner in South Africa, the Student cannot miss the blatant metaphor for resolving his own life predicament about where he belongs. His mind turns to how such thoughts fuel xenophobia in human society as we angrily point a finger toward those whom we consider 'don't belong here'.[198] [199]

The Student's face contorts with a mixture of lament, confusion and frustration. "Clearly" he rationalizes, "if efforts had not been made to extensively remove these alien trees alongside this stream, there would be no flowing water and I would be carrying my entire water supply. Nor would there be the same diversity of flora and fauna to evoke fascination along the way. Would this landscape and the journey itself be imbued with the same sense of peace, aliveness and power? [200] And, once at my destination, encased by black wattle, what sort of experience would I have?"

The Student interrogates the black wattle tree standing lackadaisical before him. "What is your use here?" He pouts, "What is your contribution to the ecosystem? What do you do besides just taking from here?

197 Carruthers, J., L. Robin, J. P. Hattingh, C. A. Kull, H. Rangan, and B. W. van Wilgen.(2011).A native at home and abroad: the history, politics, ethics and aesthetics of acacias. *Diversity and Distributions* 17:810–821.
198 See also: Ashwell, A. N. (2010). *Identity and belonging: urban nature and adolescent development in the City of Cape Town*. PhD dissertation, University of Cape Town, Cape Town.
199 See also: Murray, S.-A. (2005). Working for Water's "AlienBusters": material and metaphoric campaigns against "alien invaders". *Critical Arts* 19:127–149.
200 Craig, pers. comm.
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What have you got to teach us?" He demands answers. And yet this tree stands nonplussed in its arrogance, surrounded by its friends, exuding calm laconic confidence that it will have the last word, 'naturally'. The Student reluctantly opts for another approach: he looks upon this wattle with compassion, acknowledging its history, the human role in its history and that it is *life* in its unlabelled purity after all. He suspends thoughts of judgement and accusation for a moment. He breathes.

And then it manifests, like a crisp footprint in the fresh snow of realisation, an insight which he had never perceived previously. In firing those questions toward the black wattle, nature's mirror casts a very troubling reflection. He is suddenly humbled with what he sees and hears. The mirror responds with the same: "What is *your* use here? What do *you* do besides just taking from here?" The Student's ego leaps to his defence with instinctive retorts embellishing his current efforts in regional conservation… but it is quickly subdued. Even the ego knows this is pretend. The mirror slowly articulates the final question: "What is *your* contribution?"

He is ruffled and drops his gaze toward his feet, perplexed. "It is true" he admits, "There is very little - if any - tangible role that humans play in supporting the ecosystem. It is true what they say: "If all insects on Earth disappeared, within 50 years all life on Earth would end. If all human beings disappeared from the Earth, within 50 years all forms of life would flourish."[201]

Yet, in the same instant, he is gifted a paradoxical mini-revelation: humans *do* have a role in global ecology, beyond just letting their waste be processed for nutrients. "Yes, for many traditional cultures tending and stewarding the land has been an enduring obligation. Could that be a part of why sacred areas inhabited and nurtured by Indigenous peoples may have higher levels of biodiversity than those that remain devoid of human presence?[202] Surely, in our original design the human race was more akin to being 'Leavers' than the 'Takers' they have evolved to become.[203] But maybe there are intangible dimensions also: in fact, one almost wishes there has to be. Maybe at some level, our thoughts, emotions and actions - acts of gratitude and ceremony - somehow sustain consciousness and ancestral connections through reciprocity with the creative life forces." He wonders if the ancients knew that they might be 'holding a frequency' during ceremony. For example, many Aboriginal people of Australia were devoted to the necessity of singing and dancing to sustain the land and their interconnections with it.

He wrestles with these oblique perspectives. He suggests to himself that it hardly feels right to accept that his contribution to ecology is just his waste material, something his body does not want anyway. He asks whether restoration activities, such as replanting, cultivating or providing wildlife rehabilitation are the only ways in which humans can make a contribution to global ecology. But this also seems paradoxical because, whilst restoration activities make sense now, in the original blueprint of creation, an urge to restore would

201 Salk, J. Quote attributed to biologist Jonas Salk but its original source is unknown.
202 Verschuuren, B., R. Wild, J. A. McNeely, and G. Oviedo. (2010). *Sacred natural sites: conserving nature & culture*. Earthscan, London.
203 Quinn, D. (1992). *Ishmael*. Bantam/Turner Books, New York.

infer that there were already imperfections in the evolutionary design. So surely that was not it either. As the rational mind steps back in to join the dialogue, he recalls books that he has read about the human urge and divine mandate being to *co-create*. "That's a wonderful role to be gifted," he says probing the revelation, "but surely that can be done in harmony with pre-existing ecological processes?"

He thanks the tree. And, in gratefully acknowledging the insights received, decides to give something back. The Student pauses and performs his own self-created ritual for thanks. He departs a humbler man. With his forehead creased into a troubled frown, he realizes that whilst his despair with black wattle infestations continue, he equally realizes that he sees a reflection of himself – the microcosm in the macrocosm - a foreigner consuming resources. He begs the answers from himself, "What is my contribution? What will be my legacy here?" The Student resolves that the best the land might wish for is for him to act as caretaker; to 'be' in full-bodied awareness, communing with nature, contemplating co-creation and thus - *hopefully* - making a positive contribution to collective consciousness.

The Student kneels at the nearby stream, dips his hat below the surface of the chilly clear waters and replaces it dripping on his head. With a freshened purposeful frame of mind, he offers silent thanks to the waters which will sustain him for the coming days.

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The Student nears Eland's Demise, the unfortunate name he bestowed upon this stream crossing during his last visit. On that day, he was shocked to see an adult bull eland dead and decomposing in the shallow waters. His death remained a mystery: did the eland sink on the soft marshy stream bed unable to free himself? Or was that actually undigested black plastic wrapped around his rotting intestines? It was impossible to be sure, but if it were the latter, it would be a bizarre twist: these would be rogue plastic potting bags used for the native saplings during revegetation after the black wattle removal. However, these thoughts had come later. At that time, the real concern was that the water downstream, from which the Student needed to drink, would be contaminated and sicken him. That scenario did not transpire and now he is grateful that this time only a few algae-covered eland ribs remain.

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The path increasingly becomes obstructed with black wattle. It requires ducking and weaving, pushing and pausing to locate the best track through. It is not easy. As he accumulates mild lacerations, he reminds himself to expand his senses and attune to his surroundings. He knows he cannot get lost in this area, nor are there any immediate dangers. So he resolves that this is an ideal situation to test his softer intuitive senses, alongside his other five, to find the best path through. His eyes fix on some tiny antelope tracks. In the spongy mud alongside the stream, they are unfamiliar. His mind flicks back through visual images spoor associated with antelope of the area, but he does not find an immediate match. In any case, he finds enjoyment in tracking the spoor, questioning where the two antelope were going and what they were doing. Following their trail helps him in finding the easiest path alongside the stream. The Student imagines that if he could see himself as an animal might view him, how awkward he would look in the landscape, tramping and tripping without any sense of subtlety or composure.

With this in mind, he rounds the bend, only to be alarmed by the sounds of scampering and the falling of small dislodged rocks on the hillside. "A-ha! There they are!" he exclaims. The two antelope are *klipspringer* – which literally translates from Afrikaans as 'stone/rock jumper'; quite a rare sight in an area otherwise devoid of the steep rock faces which attract these shy antelope. Alert, these couple of ungulates stare back at him warily and he smiles at this moment of reciprocal exchange. "Surely they must have heard me and shrieks of bird alarms from some time back; I guess they might have thought I was just a herd of eland". There is a prolonged meeting of eyes. He tries to reassure them that he is just passing through; to stay calm and that they have no reason to be scared. That seems to set them off and within a few bounds they are out of sight behind the *koppie* (rocky outcrop).

He savours the moment and begins replaying it through his mind as he continues his hike. He finds himself scrawling poetic descriptions on the freshly dusted chalkboard of his mind - his sensory awareness momentary lost as he absorbs himself with this nature-inspired endeavour.

"Got it", he congratulates himself. He pulls out his notepad and fluidly scribes:

Birds shriek and coo
Klipspringers bound round rocky peak
As I now clumsily enter and disturb the scene
Glance up, "Thank you"
Klipspringers - to whom I now speak
"Your spoor guided me along the path beside this stream"

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The Student cautiously approaches the cave, knowing this to be the trickiest part of all. The scene recalls a rush of memories from his very first visit here when he, along with his girlfriend and brother, accompanied the former property manager and his volunteer workers. That had been a disconcerting evening. They had arrived late and with darkness rapidly enveloping the area, there was some haste in the group. They took the quicker, but more dangerous route into the cave. It required walking along a tiny ledge about ten metres above a pool at the base of the adjacent waterfall. On that evening, as the group was making its final shimmying along the ledge, someone screamed out, "Aargh! Shit! Shit! Get out! Everyone get out! Quick!" There was a frantic retreat, despite most still confused as to what was transpiring. Within seconds, it became starkly apparent. He and the group had been beset upon by an upset swarm of bees, determined to protect their hive nestled high above the cave entrance.

He remembers how, in the twilight, one particular girl's frightful whimpering gave the whole event a very eerie and foreboding vibe. Everyone lay low to the ground, endeavouring to protect themselves with whatever they had. The group leader had the presence of mind to light a fire and throw on fresh green leaves, creating smoke with the intent of warding off the bees. But it took time, the bees 'attack' pheromones were in full flow and the continuous curses were testament to the fact that people were being stung repeatedly - and it was painful.
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The Student had tried to remain calm, but could feel his heart pounding and the crawling of bees over him, searching for exposed flesh. He knew he was once fiercely allergic to bees - and with it being so long since his previous sting, he was unwilling to have that reaction retested, particularly being so far from medical assistance. When the bees subdued, and everyone finally staggered into the cave ruffled but relieved, the toll count began:

"How many stings did you get?"

"Six."

"Fifteen."

And so the aftermath went.

The Student had avoided a sting but that was in part due to the selfless act of his brother who, in trying to remove a bee caught in the Student's hair, had inadvertently 'taken the hit' himself. Most people had calmed except for that one girl who later shared that her biggest fear in life was being stung on her neck by a swarm of bees. She would subsequently reflect on the incident as being incredibly important in her path of overcoming that fear and shaping her future interactions with nature. She noted the oddity that only months earlier she had a similar encounter when mountain climbing in India.

Others sat quietly in reflection, behind swollen faces and limbs. There was a sense within the group that their hasty approach may have been to blame. Some felt that the group had not shown the respect required before entering this former shelter of the Khoisan. Some wondered whether the emotional baggage or *karma* of certain members played its role. Some saw it as just bad luck.

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Under the warm mid-morning sun, the Student reflects upon this memory from over twelve months earlier. He was not about to make the same mistake. He chooses to walk around the alternate route which, whilst steeper and more difficult terrain, is safer and further from the wild bee hive. But deep down, he concurs that a measure of respect is required. It is widely known by many with an interest in such things that when approaching former Khoisan cave shelters, one should do so with deference and preferably with an offering. Ideally, this would involve burning *imphepho* - a word of San or Zulu origin usually referring to herbs of the *Helichrysum* family (most commonly *Helichrysum petiolare*) - which are burned as incense, for divination and/or as a means of communing with the spirit ancestors.

The Student digs out a cheap plastic yellow cigarette lighter from his pocket. It is not ideal and hardly appropriate. But in this exposed area, with the moist *imphepho*, he knows it will be the only way he can get the fragrant herb to burn. He takes a moment to thank the cave for the shelter with which it will afford him. He pays tribute to the people – the Khoisan and their descendents - who had walked the land with reverence and respect in the past. It is easy to romanticize, but by all accounts these were people who fitted the fabric of the landscape. They treaded lightly and were not just Takers. "They would have answered the question about their role in the ecosystem far better than I can," the Student laments.
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Finally, he is satisfied that he can enter the cave. He harbours a *non-expectant expectancy for the unexpected* and an anxious longing for the few days of solitude and contemplation which await him. Recent rains have made this entrance more difficult to access, but it is a fun challenge - a mild sense of adventure which reawakens his natural problem solving abilities. It is a gradual feeling of coming alive.

Crawling through the last spiky thicket, he stops and holds his breath with curious wonderment. The rains had brought a normally dry tributary stream bed into flow - and in a startling way. Staring back up in front of him is the near-perfect shape of the African continent. The water had washed over a large slab of rock in such a way that the dry exposed surface had created this resonant geographical form. But the uncanniness continues: there are four other smaller circular shaped rocks, which are spread evenly across the top of the continent in an arc, such that they created a giant footprint. For the Student, this is no ordinary footprint - he immediately recognizes this as supersized otter spoor. Given the profound encounters he experienced prior to this trip, the otter held great meaning and personal significance.

He is aware of Man's eye for symbolism, hunger for messages and need to make meaning.[204] After all, it is the focus of the Student's research. He is wary of making extravagant extrapolations through over-analytical reflection. But he also knows the quality of these experiences when they spontaneously arise in their blatant pre-reflective 'is-ness'. He was struck immediately by these symbolic forms; no thinking was needed. He knows he can now reflect upon them in three different ways: i) As a fantastical creation of the conscious mind; ii) As an unsolicited projection of the sub/unconscious mind; iii) As a mystical sign from a divine Source unseen and unknown.

It does not really matter to him whether any of the phenomena actually exist. In this moment, as it is perceived in its immediacy, he feels welcomed without having to reflect. It is a sense of, "I am here now and this is where I am meant to be at this moment." On another level, he wonders whether the landscape, as it interweaves with his mindscape, has somehow responded to his intentions. In any case, he feels comforted and is able to dispel some of his residual anxiety.

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"There is nothing like creating a new abode," the Student announces. That feeling of settling in and getting everything just right is something which we inevitably share with our animal kin, who can spend months of the year preoccupied with the building of their nest. This is not the Student's intent for these nights, but there is certainly pleasure in greeting and exploring this space anew: becoming reacquainted with the sun's trajectory, so as to position himself according to cardinal points, as recommended across Indian Vedic, Chinese Feng Shui and Indigenous traditions. Like a Japanese Zen garden, he contours the sand-covered cave floor to cradle his air mattress and rearranges rocks purposefully around the fireplace.

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204 Eiseley, L. Based on the quote: "He hungers for messages and when he ceases to seek and interpret them he will be no longer Man."

The Student decides to fetch firewood for the evening. The immediate irony being that it will be those vilified black wattle he relies upon for warmth. He will harvest nearby dead timber which previously flourished before it had been cleared as part of a regional land restoration programme. The Student is aware of its utilitarian uses and its benefits in certain contexts. However, the ecological balance in South Africa was being lost at a large-scale and in this little gorge with its life-giving stream, he wonders who will ultimately win 'the battle' here. But as it now stands, the indigenous vegetation has far from surrendered.

He descends the near-vertical slippery track from the cave down to the pool at the base of the adjacent falls to arrive at stream level. Here lies the nearest firewood, though the return ascent, with arms loaded and hands occupied, requires sustained focus. He clambers upward and shuffles across to the next makeshift foothold. In a moment of concentration lapse, the Student's legs slide from out beneath him as he falls spectacularly, his chest taking the full force of his undignified landing. Face-to-face with the earth he stops to breathe and wait for any sharp pains or warm trickling blood.

Nothing. He feels immense gratitude because, ironically, the pliable black wattle broke his fall; he is unscathed apart from a few minor grazes. The Student laughs: being out here with its little challenges makes him feel alive again. At ground level, conversing with the moist musty soil, he gains new perspective and appreciation. His creative mind dances toward *haiku* - the Japanese form of poetry which aims to capture a moment of profound perception in nature. In its simplicity, it seems so very apt in blending the supreme aesthetic expression of the experience with contemplative reflection of a thinking being interrelating with the world. [205] He knows he has not mastered the art of *haiku* - or even being anywhere close to what is expected of this genre. But out here amongst the trees, soothed by the gentle sound of running water, he does not care. "The joy is in the creating", he reminds himself. Lying there, a verse solidifies amidst his mental chatter:

with loaded arms
slipping, falling, finding
empathy for ants

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He breaks up the firewood in the mouth of the cave and enjoys the golden rays of the afternoon sun warming the rock face behind him. He sits cross-legged facing the west, savouring the serenity. A hovering hornet snatches the Student's meandering attention. It is on the search for something. It lands and makes a series of stilted stop-start moves that characterize its exploration. In a moment, it finds what it is after and begins digging furiously, spraying tiny grains of sand from out underneath its abdomen. It abruptly departs but soon returns, this time with a helpless green grub destined for the recent excavation. The Student realizes that these are the details of life he never directs attention to during his everyday existence. Usually, they might appear mundane, unable to compete with the powerful sensory stimuli of artificial media or city life. But out here it delights with a richness surpassing anything arising in the urban domain. It is like being front row at the theatre – a whole production being acted out just for his pleasure. Of

205 Mossley, D. J. (2001) Bashō. Pages 51-56 in J. A. Palmer, editor. *Fifty key thinkers on the environment*. Routledge.
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course, normally that could be considered quite a self-centred view. But in this moment, he feels humbled that this show will indeed go on long after he has left the scene. For now, it is a privilege to be in the select audience. He decides to join the performance:

Hornet digs like a hound
And finds hole to exhume
Drags stiff grub into ground
And replaces stone over tomb

Bravo!

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Darkness sets in. As the Student journals the day's events, he feels a blend of emotions which capture both anxiety and the anticipation for the solitude and peace he experiences when beneath these cradling cave walls. It is also a time for extended contemplation and creative writing. Though, conversely, he knows he should quieten his thoughts to simply appreciate the depth of silence which pulses behind the scattered sounds of the night.

Sometimes he sleeps well out here, sometimes not. And usually on the first night, it is the latter. The monkey mind initially builds undesirable scenarios, possibilities and encounters. But it too eventually tires and joins in being mesmerized by the next performance: the dancing flames of fire. It is not yet the hour for slumber, but he compromises and reclines to marvel at the stars. And he feels small.

Khoisan cave shelter -
The one where
The rocky lip curls over
Like a 12 foot wave
And here I now sit
Like a vulnerable surfer
Pretending to be brave
Floating in its pit
Alone

He has located just one Khoisan painting in this cave. Standing on the north facing wall, this sole figure exudes an eerie presence. The Student is ignorant to the complete history of the area, but knows enough from piecing together the fragments of stories told by various people that it is not pleasant. The expansive mountains which roll off into northern, western and easterly directions from this cave were known as a last vestige of the Khoisan as they fled endless persecution and annihilation by the White settlers and, in some cases, the Black tribes. The figure painted on this wall is not your usual depiction of a male Khoisan hunter. No, it is a taller crooked and sinister looking figure notable by the absence of the prominent buttocks which characterized the San and their self-portraits. This person is holding something - and it is not the bow and arrow which one normally sees on these walls. To the Student, it looks like the butt of a rifle. It feels strange to him to say such a thing about a painting, but nevertheless he feels that this depiction is not a happy one. And he wonders if this cave itself was one last hideout from the rampant explorers and farmers seeking revenge for livestock loss and to claim a repulsive bounty for the Khoisan's heads. The Student detects a tightening within his abdomen. The world is immeasurably poorer for the disappearance
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of our first ancestors. And they are not the only ones to have been erased. There is a lot more missing from this area and, if you were not to experience it before, you would never know now.

On these nights, I wonder…
Where the mammals have gone

Does the silence know
That it only has sipping slurping streams and
Crackling chattering campfire as companions?

Lying in a cave where the Khoisan used to be
I wonder -
Now that the
Bluebuck are gone
Cape Lion are gone
Brown Hyena are gone
Migrating Elephant are gone
Cape Leopard now almost gone
Cape Buffalo and Black Rhino are fenced away

I wonder why I feel content
Not knowing how it once must have been being prey
To a lurking mammal in the shadows

I wonder what it was like for the Khoisan who were predator and prey
Before being dispensed by the most ruthless predator of them all
Like another inconvenient mammal in the shadows

But I feel safe now
And I feel safe here

Though I wonder -
Is my life any richer for that?

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The Student readies his sleeping bag, adds extra logs to the fire and positions other sticks beside him to slide into the mouth of hungry flames throughout the night. He is unsure what to expect from his first evening. Rationally, he knows he is safe. But irrational emotional and physiological responses to dark in exposed environments like this are somehow etched into our collective psyche – maybe even our genes. Nothing will change that, at least not tonight. Of most importance to him now is to maintain the comforting glow of the fire. However, like a restless newborn baby, it requires frequent attention and this is hardly compatible with a sound night's rest.

fire burns bright
drifting to sleep
fire dies out

"Damn." He groans while leaning over to blow into the glowing coals and squinting to shield his eyes from the ash blowback. A little flame awakens and then another. The fire is again active and content, but the indications are that this will be a long night.

solo I spend
anxious nights that never end
fire - my best friend
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"At least I have a near-full moon", the Student reassures himself. The grey veneer cast over the trees and cave floor provide reassurance. He lulls himself to semi-sleepful state only to suddenly feel the sharp bite of a cool breeze on the crown of his head. He forces an eyelid open to glance upward…

sleepy night sky
pulling out thick grey blanket
puts moon to bed

A cloudy weather front is moving through from the northeast. It is now very dark and slightly chilly. But paradoxically, the Student feels extreme privilege for the impermanence of these experiences. And he sleeps, a little. He wonders whether antelope ever complain in the morning about not getting enough sleep. Or do they feel any need to record or reflect upon the vivid composition of dreams that seem to revel when under the stars?

awake again
recalling dream fragments
sleeping in sound bites

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The days are resplendent. The Student gradually feels himself letting go of his usual preoccupations. His senses now awakened, his body relaxed and a perception which seems to be tuning into a different channel - a deeper space resonant with a growing nature connection. The Student chooses to experiment with more routines for enhancing nature connection. In addition to gaining confidence with this survival living, he has been engaging in journaling, creative writing, imagination, questioning, tracking, expanding the senses, listening to bird language and artistically sketching visiting birds (though having not used coloured pencils since childhood, only he would recognize his avian scribbles). Today he has three activities in mind: sitting in one spot and observing for an extended time; secondly, to become familiar with animal behaviour and forms; and, lastly, to wander timelessly with no fixed destination.[206] [207]

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The Student revels in the bliss of just sitting and observing everything doing what it does. But the longer one dwells, the more one feels that this is not merely about observation, but about participation[208] - an "interweaving with the other" [209] which cocoons him in this place. The joy in experiencing nature need not be attached to viewing big and charismatic wildlife; in this space, one finds a different quality in the process of communing with the enveloping environment. But like most profound experiences, it is those moments when an animal unexpectedly appears in close proximity which ignites a range of emotions. In those instances the visitation feels personal: "It is there for me", the Student whispers.

206 Young, J., Haas, E. & McGown, E., (2010). *Coyote's guide to connecting with nature.* 2nd ed., Owlink Media Corporation, Washington.
207 Jodi pers. comm. : guidance on how wandering with intent and presence connects one with nature.
208 Abram, D. (1996). *The spell of the sensuous: perception and language in a more-than-human world.* Random House, New York.
209 Morse, M. (2011). *River experience : a phenomenological description of meaningful experiences on a wilderness river journey.* PhD Dissertation, University of Tasmania, Hobart.

And in these situations, one comes to feel kinship for all life, an understanding that each species, like him, is intimately interconnected as part of something bigger. And each creature, in their own way, animatedly preoccupied with a survival embedded in relationships and the perpetuation of creation.

Out all alone
Shimmies left, hovers, darts right
Repeatedly enacting for a purpose unknown
Incessant drone
Doubles as another zips into sight
Heatedly vacating this bumblebee 'pick-up' zone

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There is minimal space to wander in this area. The steep sides of the gorge limit that to a degree. However, the Student realizes he will have to do his wandering on a micro-scale. Staying within the confines of a small area, he chooses to employ his amateur wildlife tracking skills. The art of tracking is purported to deliver many benefits for an individual's cognitive development: numeracy, ecological literacy, problem-solving, temporal and spatial awareness and refining the suite of one's senses, including that of intuition. Critically, it cultivates empathy. The Student carefully examines the natural details and features, studying changes in the vegetation, searching for animal spoor, feeling the temperature changes and just being open to whatever may present itself. His eyes lock on a curious piece of evidence.

Cluster of feathers perched pitifully
At the high end of a fallen tree
A sure sign to stay on guard
For these are leftovers of the leopard

He reasons that there is a chance the remains may not be from leopard at all; it could be caracal (lynx) or another smaller wildcat - but that is not nearly as poetic! The Student smiles and muses about where to draw the boundaries of poetic licence. Has this leniency - and the desire to tell an engaging story - crept up and swayed the stories relayed by some of our renowned nature writers? It is possible. But there is just as much to be said for the poetry *and* the science of nature - both have their reason and their place[210] in exploring the mystery of the human-nature interface. "And after all", he contends "innocent nature-inspired tales are far more nourishing than the hollow fallacies being trolleyed about by consumer marketing."

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Back in the cave, the Student initiates an impromptu *yoga* session. Facing the afternoon sun, he performs a series of *asanas*, wondering whether a burst of increased focus might gently prod the possibility of another nature encounter. He is aware that activities like *yoga* may disrupt one's usual mind-body homeostasis and/or sufficiently still and intensify one's life energy, transferring it to perception and an attentive, awakened state of consciousness.[211] [212]

210 Samways, M. (2007). Rescuing the extinction of experience. *Biodiversity and Conservation*, 16: 1995-1997.
211 Taylor, S. (2010). *Waking from sleep: why awakening experiences occur and how to make them permanent*. Hay House, London.
212 Fengler, J. (2010). Peak and limit experiences in outdoor environments: Opportunities of nature's classroom for health promotion. Pages 1–24 *Healthy Parks, Healthy People Congress*, Melbourne.

Toward the end of his exercise, the Student becomes captivated by one of the most extraordinary sights to have befallen his eyes: a jumping egg, of all things. Direct experiential appreciation of nature does not come more unassuming than this. The egg is tiny and the casing clearly fragile. But right here on the unevenness of the sandy cave floor, this egg springs around in a way which appears anything but random. He wonders how the egg obtains the leverage to leap forth a few centimetres from the ground. It is one of those moments which compels him to want to yell out to the world and say, "Hey everyone! Check this out!" But there is none of that. This is a private moment, destined for him alone to cherish.

This little white spherical piece of popcorn leaps in the cutest animated way imaginable, such that the egg sac itself assumes its own personality; the ambiguity of what is inside becomes secondary to the Student's experience. This tiny egg responds like it knows where the Student is and that he is watching it. During one strange moment of interaction, the egg pauses and swivels around to 'face' the Student and then swivels back. In such an instant, he cannot help becoming convinced of its awareness and sentience. This popping continues all afternoon, covering some ground, before the decompressions left by the Student's footprints make it too difficult for the egg to 'jump' about with ease.

The Student considers placing it within an enclosed area, so he may come to know what is inside wanting out. But he cannot bring himself to interfere with the purity of this encounter. However, so he can relocate the lively egg the following day, he broadly encircles the egg with stones and completes his *asanas*. Afterwards, the Student searches extensively, unable to find anything. Eventually, he detects a faint "tick tick" which prefaces another moment of astonishment. Somehow, in some way which the Student is unable to fathom, the egg has manoeuvred its way under one of the encircling rocks, protecting itself from any external harm. Perplexed, the Student muses whether this is an 'intentional' act to seek night shelter.

> *I've witnessed a wonder of life.*
> *Twice!*
> *How can a simple tiny egg-sac spring to life and have the mobility, vision, instinct and sentience to bounce and roll its way under the protective refuge of a rock?*
> *Twice!*
> *I've witnessed a wonder of life.*

He is overjoyed, in 'eggstacy' perhaps! He chuckles before cringing at his Dad-like wit…

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The Student feels very grateful that he responded to the gentle voice inside of him which urged him to watch the sunset from the *koppie* above the cave. "What a scene," he whispers admiringly. The view is breathtaking and captivating. He sees nearby human-like defecation and knows he is not the only mammal to utilize this perch. He imagines himself as one of those male baboons on sentry: watchful, raising his nostrils in the direction of the late afternoon breeze, having the occasional scratch, but mainly just being curious with a wide-eyed relaxed vision. To practice expanding his peripheral vision, the Student focuses intently on some vegetation across the other side of the valley. He pays particular attention to the shapes and forms and changing colours and lengthening shadows of dusk.
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As hard as he tries, he finds his mind starting to drift and think about how previous times during this 'owl eyes' exercise, animals sometimes appear, occasionally in the precise direction of his stare. He wonders whether it is random coincidence or a phenomenon in itself. He recalls the title of the book "*The sense of being stared at".* [213] He has never read much about this controversial idea, but considers searching for research articles to enquire about the legitimacy of its scientific premise.

Then, at that moment, a gorgeous large black lizard emerges from out beneath the rock upon which the Student is seated. He struggles to recall if he has ever seen this species before. But it does not matter, because there in its unlabelled 'is-ness' it makes its way over the rock towards him. It bobs its head, as if suddenly bringing the Student into focus. And then in an instant it darts away. The Student marvels at the unexpected joys of quietly sitting. This same kind of scenario had happened previously, in the same spot. The Student reconsiders the question of whose proof counts for more in validating these wondrous life moments: scientific rationalism or earth's experientialism?

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He watches swallows wheel effortlessly above, back-dropped by deepening sky-blue hues and preying on the insects prevalent at this time of evening. He casts his mind back to the previous time he was up here. On that occasion, the swallows had just returned from their seasonal migration. Now, six months later, they would be readying themselves to leave. The magnitude of this migration is something the Student has never been able to grasp. It seems a semi-reasonable - though still extraordinary - feat that large birds could make such a journey. But that these diminutive creatures can make it all the way to northern Africa and even Europe seems impossible. He harbours immense respect for them and wonders what it is about swallows which capture people's imagination in many countries around the world. Is it anthropomorphising in ascribing them a playful nature? Is it their cuteness? What is it? One thing seems certain: many of the wild animals which humans resonate with most are migratory. The Student believes that there is more to that; that there is a quality in that nomadic freedom which stirs something deep within us. But probably not for everybody: maybe it is again just a mirroring - seeking out those traits which we can or want to identify with. Some people love domesticated and territorial animals - for whatever reason - and others long to follow - or be a very part of - a whale or wildebeest migration.

The Student is nudged from these thoughts as the last slither of the luminous fiery crescent dips below the horizon. And at that moment, the cool evening breeze awakens. "It is a strange relationship that…" he muses to himself, "…but I guess there must be some scientific explanation." Nevertheless, he seeks to capture the feeling of that moment in its immediacy.

Gentle sunset breeze
Humbles watchful trees
Nodding, bowing, waving
Revering earth's exhaling

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213 Sheldrake, R. (2005). The sense of being stared at: part 1. *Journal of Consciousness Studies*, 12: 10–31.

In sheer wonder, the Student marvels at the stunning sky spread above. The full moon peeks over the lip of the cave and blankets the scene with a serene silver sheen. He is tempted not to rekindle the fire. But he does - and is gifted a moment of magic: the smoulder from the awakened flames wafts upward and intercourses with streaks of moon shine, as if they were fingers caressing the strings of an ethereal harp.

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The Student feels it is time to return. These days of nature immersion with hidden wonders have deeply nourished him. But now, the duties, responsibilities and obligations of being a householder, companion and researcher urge him to move out of this space. He notes the contradictions in that thought: "Move out of this space? No!" he insists. "This space can be everywhere and I must take its qualities within me." He recalls a passage from the renowned transpersonal psychologist, Abraham Maslow who writes:

> The great lesson from the true mystics, from the Zen monks, and now also from the Humanistic and Transpersonal psychologists- [is] that the sacred is in the ordinary, that it is to be found in one's daily life, in one's neighbors, friends, and family, in one's back yard, and that travel may be a flight from confronting the sacred- this lesson can be easily lost. To be looking elsewhere for miracles is to me a sure sign of ignorance that everything is miraculous.[214]

Indeed this idea is echoed by Marcel Proust who succinctly observes that:

> The real voyage of discovery consists not in seeking new landscapes, but in having new eyes...

The Student questions whether the lesson is about finding the non-ordinary in the ordinary. In overcoming separation from the natural world, he realizes that we can ill afford to keep perpetuating the divide: "Is it because we are so disconnected that when we have experiences which are non-ordinary that they become profound and meaningful?" [215] Maybe the beautiful is not as uncommon as it may first seem; maybe there are ways to work at unlocking the non-ordinary from within the ordinary.

He wonders which practices may help him rediscover Buddhist notions of "the wisdom of ordinariness", to 'tune' his bodily senses and intuition, and perceive that which reveals the beauty and relevance of nature's manifestations in daily life, and thus unveiling his own true nature. The Student surprises himself when reflecting upon how simply one can sometimes drop into a space of harmony and meaning. It can come with focused attention and a conscious slowing down to be aware and open to the intimacy of the human-nature exchange. Cultivating 'qualities of being' and a presence of mind tend to amplify these processes.

He struggles with the fact that we cannot say that we 'know' this in scientific terms. We can only begin to learn from a growing collection of personal and inter-subjective lived experiences. . From his travels and reading of many traditions and disciplines, the Student notes that that the same trends repeatedly emerge: sensory awareness, curiosity, wonder, awe, gratitude, relatedness, reverence, respect, compassion and empathy with nature are the core qualities of being that cultivate deep connection with nature.[216]

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214 Maslow, A.H. (1970a: 85). New introduction: religions, values, and peak experiences (new edition). In: *Religions, values and peak-experiences*. Viking, New York.
215 Based on a question posed by Nancy Rowe and Adam Heifetz during the Institute of Transpersonal Psychology (ITP) seminar *Nature writing as wilderness: cultivating wonder, awe and presence*. 14/08/11.
216 See also: Young, J., Haas, E. & McGown, E., (2010). *Ibid.*
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But the Student counters his own thought processes: "Maybe I should cease this compulsion of 'needing to know' - maybe I should embrace the mystery of 'not-knowing'". He is reminded of the Tibetan saying: *If you are too clever, you could miss the point entirely.* Indeed, in suspending his logical mind now, he cannot deny the sense of another kind of knowing beginning to flow from a deeper spring of greater wisdom.

This may be part of the art of contemplation: open attentiveness to nature's ebbs and flows, the dynamism of our perceptual and physical interactions with emergent phenomena and the enriched insight that follows open-minded reflection. This would be a markedly different interpretation of contemplation to that which has its roots in the theological idea of 'salvation': something achieved through the accumulation of knowledge through the logical study of texts, but at the tragic expense of direct corporeal experience.[217]

He reminds himself again that he must journey back home. And he notes another contradiction: *home* - where and what is that exactly? Is it only a physical shelter? The Student realizes he does not really know his home. He has no particular attachment to a place, but yet is aware that this is very important to cultivating connectedness with nature. But right now, right here, this feels as home. Now he must move this homely space with him back to his other more material abode.

As thoughts of the return form in his mind, the Student becomes increasingly troubled by his experiences during recent days. He could not relate them scientifically and asks himself sternly, "Is this just not the easy way out? Is this just a form of escapism?" [218] He battles with the realization that his experiences here *felt* real, before he engaged in rational intellectualization.

Don't tell me from
Looking at your screen
Behind your PC
Inside your office
Consumed in your city - trapped

That what I feel here
Listening to our stream
In front of our big tree
Outside in our forest
Immersed in nature - free

Is not real. Don't tell me that.

Don't tell me you told the astronaut that weightlessness is just her perception –
Because I will tell you that, like the astronaut, we are in a different space.

Don't tell me that all you hear is the ranting on Insanity FM –
Because I will tell you that, like the radio, I am tuned to a different frequency.

Don't tell me you cannot accept that.

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217 Kamaldeep pers. comm.
218 Ian pers. comm.: critically reflecting upon his personal experiences.
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As he departs, the Student knows that he is taking much from this space. And like any relationship, whenever you are given something, you feel compelled to give back. The Student finds himself again caught up in the now distant dialogue he had with the black wattle. How do humans give back? He has watched the Khomani San Bushmen of the Kalahari Desert tug a strand of hair from their head and place it at the base of the tree or in an ostrich's abandoned nest. The Student believes that this serves as a tangible manifestation for a much bigger intangible motivation hidden beneath the surface, "much like an iceberg", he reasons. The Student performs a little ritual of thanks and has faith that this intangible dimension - this *ceremonial consciousness* [219]- holds currency in the world of the unseen forces.

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The Student creates mental verse and rhymes to the rhythm of the crunching grass beneath his feet. With the cave out of sight, he focuses his attention on re-tracing the path back out of this micro-world. He remains troubled by the internal justification battles he has between his rational scientific statistical mind and his intuitive emotional sensing. By the stream, he notices many dragonflies hovering and weaving. It triggers a powerful memory: "Ah - there you go," he announces, "here is an example." With a self-conscious reluctance, he recalls the story as if about to debate a sceptical natural scientist:

"Around seven years ago, at the conclusion of my Master's degree, I had my first truly meaningful – synchronistic - nature experience. One of my best friends had tragically passed away in a hiking accident and, in my grief-stricken state, I escaped with my bicycle into the woods at the edge of the city and desperately sought solace and answers. I pleaded to the sickening vacuum enveloping inner and outer reality about how I could know if my friend's soul was okay. Within 30 seconds, three dragonflies settle upon me: one on my left arm, one on my right shoulder and one on my forehead. In that moment, I felt an enormous emotional release and was moved beyond description. It was extraordinary." The Student waits for his inner scientist to refute this personal account:

"Well, dragonflies can do that sometimes. I mean with a large enough sample, anything can happen - especially near waterways. It is normal that they might land on you occasionally."

"I was kilometres from water and I had not seen dragonflies upon sitting down."

"Maybe there was a hidden cause: they were likely attracted to your shirt's bright yellow colours. Plus remember that what we consider notable depends on what we are sensitive to."

"Possibly. But why did they stay for so long… motionless? Why did normally skittish dragonflies allow me to reach into my backpack, grab my camera and take photos of myself?"

"Consider how many dragonflies are flying about the world and how many people are moving around the world. Statistically, we are dealing with the law of truly large numbers. It is inevitable that the cumulative interactions of people and events over time allows for outrageous scenarios to occur. Probability dictates such; in this case, it just so happened to be with you.[220] It is nothing special.

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219 *Art of Mentoring* program, Santa Cruz Mountains, 14-19th August 2011.
220 The rebuttals of *hidden cause*, *psychological sensitivity* and the *law of truly large numbers* are based on: Diaconis, P., and F. Mosteller. (1989). Methods for studying coincidences. *Journal of the American Statistical Association* 84: 853– 861.
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"Ok, but at *that* moment?! Notwithstanding the philosophical and practical issues in calculating probability for unique events[221], this could have been at any time in my life – but it happened *then*. And guess what? I have never had dragonflies land on me since, even when in their usual habitat!

The Student is suitably satisfied with the impassioned arguments presented to his self-created mental opponent. He waits for this obstinate inner scientist to respond. There is no answer. But instead, the outer speaks: a dragonfly lands on the brim of the Student's hat. The debaters are dutifully silenced. The Student continues his walk, giving reverential thanks to the humour of this Trickster who mystifies the life-world.[222]

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The Student ascends the steep path which marks his departure away from the valley and the life-sustaining stream. Dark icy blue clouds roll in and the smudged grey on the distant peaks indicate rain is imminent. He is reassured by his decision to return. A troop of baboons scamper across toward the ravine and the direction of the cave. He knows from previous visits that the ravine is a popular roost for these baboons. They seem a little discontent, shrieking louder and eerier than usual, but maybe it is just the ominous ambience of the approaching weather and that the Student is now more attuned to the surrounding environment. He glances down at the path underfoot and freezes: fresh leopard spoor – unmistakable.

The Student does not feel any anxiety at this time, quite the opposite. This print feels like a stamp of approval from an observer unknown. At some level, he knows that this synchronicity confirms this is where he is meant to be at this point in time. There is a profound realization that this particular journey has come full circle. From here begins a new journey of reintegrating the myriad insights gained back into daily life. It will require sustained reflection to plumb the essence of these encounters.

It will require contemplation.

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In the ensuing days, weeks and months, the Student reflects on the meaning which can be drawn from his experiences. He is not akin to over-analyzing any archetypal significance, but delights more in how such insights can be used for his personal development and expanded through contemporary education. It is challenging and requires significant changes in institutional structures and systemic mindsets. However, the Student reasons that given the potential importance of such experiences, these barriers are insufficient in themselves to prevent him from trying. The art of reconnecting with nature though meaningful experience is multi-faceted and requires time to lucidly conceptualize all its implicit and explicit dimensions.

The Student is certain of some things. He knows these experiences are of immeasurable learning value – possibly transformational. He knows that they can deepen an individual's connectedness with their

221 Combs, A., and M. Holland. (1996). *Synchronicity: science, myth, and the trickster*. 2nd ed. Marlowe & Company, New York. See Appendix 11: Synchronicity and Probability, pg158: "Frequency theory runs into serious trouble if, as is usually the case with synchronicity, the event in question never happened before."
222 *Ibid*. The antics and parodies of the archetypal Trickster are found within and across various cultural mythologies and personified through, e.g. the Greek god Hermes and the Coyote in Native American lore.

environment, with their community and with themselves. He knows the experiences, whilst unique, possess common themes and structures. But he knows that whilst they cannot be manufactured, they might be cultivated. He again finds metaphor in nature and recognizes that good cultivation requires fertile soil which is to be nurtured and nourished. This is the role of the gardener; in education it is the role of the mentor to provide the experiential ground where seeds of connection may be planted. The student is the searching, reaching, growing vine and requires support and guidance to establish. Specifically, the student needs a carefully designed lattice of mental concepts upon which to 'hook' their experiences and thus frame and support fruitful learning.

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The Student recognizes another pattern from his and others' experiences. And it comes from an unlikely arena. During the past decade or more, increasing recognition has been given to the value of *Theory U* in guiding profound change and innovation in organizations and communities.[223] However, increasingly the Student recognizes the archetypal *U* pattern in wild nature immersion and it now provides a frame for understanding these experiences.

The Student sits outside for a moment and gathers his thoughts. "Open mind, open heart, open will," he recites, "– three key qualities of the *U-process*" He recognizes that the journey through the *U-process* is characterized by a number of distinct phases. In extended nature journeys, one initiates the 'severance' – positioned at the top-left of the *U* – and characterized by the initial anxious departure from a familiar environment. As one lets go with an open mind, one finds themselves initially plagued by mental thoughts and chitchat, but at the same time sensing and absorbing the novel stimuli in the surrounds.

As harmony with nature grows, one then enters a state of openness where sensory abilities are awakened, enlivened and expectant. Yet conversely, the senses withdraw and begin to merge with the deepening experience of nature, what might be understood as *pratyahara* in *yoga* philosophy. Here, an individual descends or 'drops' into the bottom of the *U*. In this phase, one's consciousness starts to shine inwards toward self. One feels embedded and *received by place,* with the sense that one may be known and remembered by this corner of the earth.[224]

One sits poised before a blank canvas as the artist of the unconscious readies to paint its soul portrait. During this extended contemplation and mental absorption (*dharana*), one feels compelled to creatively express the authentic inner self: through journaling, poetry, art, song, dance, imagination. These expressions emanate a touch of *Yūgen,* that is, the Japanese concept which alludes to the subtlety, mystery and profundity of worldly experience but simultaneously conveys something beyond that which can be said.

One edges toward a harmonious state of presence where all that *is* - in this precious moment of now - is carried on the breeze and captured in its immediacy by the sensation of breath as it softly and silently froes

223 See: www.presencing.com [http://presencing.com/tools/u-browser] and www.ottoscharmer.com.
224 Judy pers. comm.: on the notion of "being received and remembered by place".
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athwart one's upper lip. The mind, open and meditative, meets and merges with the symphonic pulse, and rhythm of nature. Synchronicity manifests. This flow state of *dhyana* is a beautiful space to be in.[225]

As the journey draws to a close, one moves out of the bottom of the *U* and up to the right-hand side. In this state, one reflects with gratitude that which nature has gifted the intellect, the body and the spirit. One relishes the value of experiential learning and, in receiving insight, feels obliged to give back. The individual performs a personalized ritual of thanks, offering something tangible or intangible and accompanied by a renewed conviction to strengthen one's will and to co-create to the tune of their soul's eternal song.

Finally, one moves up and out of the *U-process*, to the top-right arm. Emerging from this wilder, deeper space, there is a need to assimilate back into 'normal life'. [226] One reflexively feels the nudge to integrate insights from nature back into embodied practices aimed at evolving one's character and, above all else, to simply live better.[227] Whether it is renewed connection or conviction, one desires to test this newfound resolve in daily life. The urge and need to reflect persists.

The educator knows that an array of situational and personal variables shape students' direct experience of nature. However, for the educator-cum-mentor, there remains an impetus to co-create a space for the student to 'drop into' – and where nature contemplation and connection are sought rather than taught. An intervention which allows the learner to awaken to their spiritual purpose and profound sense of connectedness with all life [228] is the most meaningful gift an educator can give. After all, education is not the amount of information that is put into one's brain, undigested and running riot; no, it is the character-building assimilation of ideas. [229] Yet the Student realizes that the intervention is usually only as effective as the interior condition of the intervener.[230] The educator himself is therefore obliged to aspire tirelessly toward refining the art of contemplation and nature connection as an evolving pedagogy.

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The Student is heartened by these realizations but yet finds himself lamenting the status of his own efforts in improving his condition as an aspiring educator and intervener. He is again an eco-illiterate man of the Australian suburbs and the power, realness and insight of these nature experiences wanes. He is a commuter pacing the streets, a researcher typing ten hours a day in front of an electronic screen. He glumly gazes through the window, nursing aspirations of a late afternoon walk along the foreshore. It will

225 The *yoga* terms referring to the process of finding oneness through *pratyahara, dharana, dhyana* and *samadhi* are sourced from: De Rham, C. and M. Gill (2001). *The Spirit of Yoga*. Thorsons, London.
226 Boy pers. comm.: the application of *Theory U* to wilderness experience.
227 Alice pers. comm.: "How do we integrate all of these parts of us, all of these abilities and sense abilities, into something that really does bring the best out of us … into a way of living differently?... Not necessarily trying to solve a problem, but to live better."
228 Bruce pers. comm.: "… the purpose at least in this life for me is to come to this realisation of this connection, of this profound connection that we have with every single thing…"
And paraphrased: In the end…it is through the spiritual evolution of the human soul that allows everything else (e.g. a commitment to nature conservation) to fall into place.
229 Based on a quote by Swami Vivekananda (1863-1902) from Vivekananda, S. (2001). *Education for character*. Vivekananda Institute of Human Excellence, Hyderabad.
230 Based on a quote by William O'Brien in: Scharmer, O. (2009b). *Theory U presentation.*
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be nice, but it won't be the same. He will not be engaged with nature in the same way, even though he reminds himself of the need to find the sacred in the ordinary. Nature again feels a separate entity; observing one another at distance - not interacting, participating nor reciprocating. There is space here for contemplation, but with the things preoccupying his mind, he opts not to make the time. He eschews the need to devote focused attention toward co-creating that 'space' found at the base of the *U*.

And he knows he is immeasurably poorer for that.

But occasionally, if the Student's emotions pique or his mind unexpectedly stills, an instant of numinous beauty emerges – the brahminy kite meaningfully appears on cue as it angles its soaring patrols along the coastline, scattering the screeching rainbow lorikeets and provoking the noisy miner birds to respond with harassment. These moments whisper the sacred dialogue which has been with humanity the 'whole' time; but, paradoxically, is a dialogue which, when named or described, is no longer the real eternal dialogue. [231]

Aimlessly wandering the nondescript foreshore, something interjects at the margins of the Student's sight. He slowly turns peering toward the murky windswept bay and identifies the shape with poetic delight.

Caught inside my periphery
Breaking the surface of the sea
A rock on the ebbing tide?
Gone. By turtle, I've been spied.

Weeks later, on his final morning at this bayside location, the Student meditates on the shoreline and concludes by giving thanks for the nourishment he received from this place. Satisfied with his gesture, he rises and turns to walk, squinting hesitantly toward the sparkling waters in the hope that his offering has been recognized. A shadowy silhouette suddenly shows itself amidst the sea's silvery shimmer. The turtle raises a flipper and the Student humbly raises a hand to return the fitting farewell salute.

These seemingly innocuous encounters serve as potent reminders of the enticing and enduring mysteries which patiently swirl, sway and play behind the veil of visible reality. These meaningful experiences provide a mouthpiece for the great voice that resounds through the sacred *Upanishads*: "Oh Man, remember..." [232]
The Student resolves to continue engaging with these experiences.

And he knows and *feels* he is infinitely richer for that.

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231 David pers. comm.: insight and interpretation on the 'whispering dialogue' and the *Tâo Te Ching:*
"The Tâo that can be trodden is not the enduring and unchanging Tâo.
The name that can be named is not the enduring and unchanging name."
232 Based on a quote from Sir Laurens van der Post in: Junkin, E. D. (1987) (ed). *South African Passage: diaries of The Wilderness Leadership School*. Fulcrum Incorporated, Colorado.
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