PhD Dissertation

Understanding Modes of Dwelling:

A Transdisciplinary Approach to Phenomenology of Landscape

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Declaration:

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

…………………………………… Andrew G. Turk   18th February, 2020

ABSTRACT:

This transdisciplinary PhD addresses the research question: *Can some form of phenomenology provide an effective over-arching paradigm for transdisciplinary research in ethnophysiography?* Ethnophysiography studies the way people within a language community conceptualise natural landscape, including terms for landscape features and toponyms (placenames). Dwelling involves conceptualisations and affects regarding physical, utilitarian, cultural, spiritual and ethical relationships with landscape. A key achievement is development of an enhanced ethnophysiography case study methodology, supporting the Ethnophysiography Descriptive Model (EDM),

Summary phenomenographic tables were prepared from literature reviews of ethnophysiography, transdisciplinarity, phenomenology, concepts of place and relationships with place. The use of tables, summarising key results of literature reviews (via a phenomenographic approach), is integral to the methodology, to operationalize transdisciplinarity. Some tables are utilised in the PTM-ECS, facilitating identification of relevant issues, collection of appropriate data, and hermeneutic analysis processes. To facilitate comparison of landscape terms and toponyms between languages, the EDM was developed and tested.

A key contribution is interpretation of the phenomenological concepts of 'lifeworld', 'topology' and 'habitus'. Creation of landscape, as place, involves synergistic integration, in a non-deterministic and emergent manner, of the physical attributes of an area of topographic environment (terrain and ecosystem) with the socio-cultural characteristics of a group of people (including linguistic and spiritual aspects). This produces a particular topo-socio-cultural-spiritual mode-of-dwelling (topology).

A partial trial of the new methodology is provided, via an ethnophysiography case study with Manyjilyjarra Aboriginal people in Australia's Western Desert (undertaken by this author with linguist Clair Hill). It demonstrates how the adopted approach facilitates understanding of traditional forms of dwelling and how this relates to *Jukurrpa* (The Dreaming), the law, lore and social structure of their society.

Review of research processes indicates they effectively utilised key features of transdisciplinarity. A summary of the findings, their potential application, a statement of research limitations, and proposals for further research, are provided.

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List of Acronyms:

AFOR	Absolute spatial frames of reference
AURA	Aarhus University Research on the Anthropocene
CA	Conversational Analysis (technique used in ethnomethodology)
CIRET	Centre International de Recherches et Eᶜtudes Transdisciplinaires
EDM	Ethnophysiography Descriptive Model
EM	Ethnomethodology
ESF	European Science Foundation
IPA	Interpretative Phenomenological Analysis
KJ	Kanyirninpa Jukurrpa (Martu cultural and land management organisation)
LACOLA	Language, cognition and landscape: understanding cross-cultural and individual variation in geographical ontology research group (Lund University, Sweden)
LGBTIQ	Lesbian, gay, bisexual, transgender, intersex, and questioning (gender)
MPI	Max Planck Institute for Psycholinguistics (Nijmegen)
NSF	US National Science Foundation
PBL	project-based learning
PTM-ECS	Phenomenology-based Transdisciplinary Methodology for Ethnophysiography Case Studies
SCS-MOD	Socio Cultural Spiritual - Mode Of Dwelling
SUNY	State University of New York (USA)
TSCS-MOD	Topo Socio Cultural Spiritual - Mode Of Dwelling

Chapter 1 - Introduction

1.1 Introduction to Chapter

1.1.1 Brief introduction to dissertation

This dissertation documents a transdisciplinary investigation into the ways people conceptualise aspects of landscape, as part of its holistic nature, and express these ideas in landscape language terms and toponyms (place names). The investigation and dissertation were not carried out within any particular discipline, although some disciplines are featured. Hence, it provides an exploration of the way a transdisciplinary approach can be utilised in this complex area of research.

The seven fundamental themes of this dissertation are place, people, perspective, paradigm, phenomenology, provenance and process. At the centre of the investigation is the nature of **place**, which involves the relationships with landscape experienced by different **people**, explored via ethnophysiography case studies. To assist in clarifying landscape as place, there is a particular concentration on investigating the nature of dwelling in landscape of indigenous peoples, as this most clearly elucidates the holistic way physical, utilitarian, social, cultural, spiritual and ethical aspects of their 'lifeworld' are linked to landscape. This leads to the adopted phenomenological **perspective**. The overarching transdisciplinary **paradigm** being investigated to see whether it can provide the linkage between the many relevant disciplines, is **phenomenology**. The purpose and style of the dissertation is to explicitly show the **provenance** (attribution of source) of each particular place concept, which is identified from the literature of relevant disciplines, then analysed and incorporated (as appropriate) into the Ethnophysiography Descriptive Model (EDM). The EDM, and the new contingent, Phenomenological, Transdisciplinary Methodology for Ethnophysiography Case Studies (PTM-ECS), are the key outputs of the PhD research **process**, which will facilitate future ethnophysiography (landscape language) research. This will be achieved by more adequately incorporating consideration of social, cultural, spiritual and ethical aspects of the language community's worldview, especially for indigenous peoples.

This dissertation does not aim to provide a detailed theoretic explication of the fundamentals of phenomenology from a purist philosophical position. Rather, its purpose is to investigate how aspects of phenomenology may be applied to a transdisciplinary investigation, especially at an over-arching, meta-methodological level. As such, it is part of a movement started at least

ninety years ago, by a range of social science researchers, to utilise and augment phenomenology so as to apply its principles to practical real-world issues regarding dwelling in place. The research for this dissertation also draws on the recent surge of interest in application of phenomenology to research fields such as education and health.

Landscape may be briefly defined as 'lived-in terrain'. The meaning of this term is explored further in Chapter 2. Ethnophysiography is a field of study, initiated by Mark and Turk (2003a) that seeks to understand cultural differences in conceptualizations of landscape, via, for instance, comparisons between the meanings of terms that people from different cultures use to refer to landscape and its components (Chapter 2). This research requires an integrated approach by researchers from many disciplines. Research approaches of increasing levels of integration may be termed disciplinary, multidisciplinary, interdisciplinary, transdisciplinary, and postdisciplinary (Section 1.4 and Chapter 3). The last of these is difficult to achieve other than in individual or small group projects, hence the objective of this research is to develop a case study methodology to facilitate a transdisciplinary approach to ethnophysiography research. This requires an over-arching paradigm, spanning the various disciplines involved. Phenomenology is seen as the prime candidate to provide this over-arching paradigm, as discussed in detail in Chapters 4 to 6.

Chapters 4 to 6 also provide an initial discussion of aspects of the nature of landscape as place from the perspective of phenomenology. Brief examples from ethnophysiography case studies of landscape language are used to explore how concepts of culture and topography intersect with 'lifeworlds'. The investigation of landscape as place is extended in Chapter 6, including discussion of the indigenous Australian concept of *Jukurrpa* (The Dreaming) and its role as an organising structure for concepts of place.

A conclusion developed through the dissertation (Chapters 6, 7, 8 and 9) is that, at least in the Australian context, development of a synergistic relationship between phenomenology and ethnophysiography requires a meaningful dialogue between European philosophy and indigenous cultural concepts of place. This is discussed in the context of developments in 'place-based' philosophies. This research investigates commensurability between consideration of aspects of place from a European philosophical perspective and relevant features of indigenous cultures and worldviews. It draws upon this author's previous involvement with Aboriginal Australians (together with various collaborators), including work

on indigenous land tenure, cultural information systems and ethical aspects of collaborative projects with indigenous peoples[1].

This transdisciplinary dissertation was developed to provide a sufficiently detailed and comprehensive discussion of the range of issues necessary to provide a holistic understanding of the thesis being argued. The explanation of the various key aspects is in a manner appropriate for a reader not expert in any of the various key disciplines involved. There are explicit clear explanations of all concepts and examples of their application.

1.1.2 Purpose and contents of chapter

This chapter expands on key aspects of the themes introduced in the subsection 1.1.1, with Section 1.2 discussing the objectives and form of the dissertation. Section 1.3 briefly describes the field of ethnophysiography (landscape language) research. A brief discussion of transdisciplinarity (Section 1.4) is followed by an introduction to key aspects of phenomenology (Section 1.5). An explanation of the correlation between ethnophysiography and phenomenology research topics is provided in Section 1.6. This includes a *prime facie* case for the potential contribution that phenomenology might make as a transdisciplinary paradigm for landscape language research. Section 1.7 suggests that there may also be a reverse direction impact, with ethnophysiography analysis contributing to understanding of phenomenology. This chapter also explains the research questions (Section 1.8), methodology used (Section 1.9) and the contents of subsequent chapters (Section 1.10), before providing brief conclusions in Section 1.11.

1.2 Objectives and Mode of Dissertation

This research explores landscape language and concepts of place, principally from a phenomenological perspective. It also investigates links between phenomenological aspects of place from a European philosophical perspective and relevant features of indigenous cultures and practices.

This research project (and dissertation) has four principal objectives, as follows:

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[1]   In this dissertation, the expression 'this author' is used exclusively to refer to the author of this dissertation; i.e. Dr. Andrew Turk.

1) To investigate the potential for some version(s) of phenomenology to provide an effective over-arching paradigm for transdisciplinary research in ethnophysiography (including the study of landscape language), involving consideration of the physical, utilitarian, social, cultural, spiritual and ethical aspects of the 'lifeworld' of speakers of studied languages. This will facilitate development of an ethnophysiography case study methodology that deals more effectively with social, cultural, spiritual and ethical aspects of speakers' worldview.

2) To provide examples of the potential for results from ethnophysiography case studies to help explain aspects of phenomenology, and to assist in making phenomenology more tractable for use in non-philosophical research.

3) To explicate, to the extent that is practical and ethical, the aspects of worldviews and knowledges relevant to landscape of Australian Aboriginal peoples, utilising the Yarnangu (Central and Western Desert) peoples as the prime example, and to investigate the commensurability of their worldview (*Jukurrpa*) with phenomenology, so as to explore whether using phenomenology as a transdisciplinary paradigm for ethnophysiography research will do justice to indigenous worldviews and knowledges.

4) To explore how a transdisciplinary approach can be applied to complex research domains, such as that investigated in this dissertation, how this is enabled by choice of an appropriate over-arching paradigm, and how the suitability of a chosen paradigm might be evaluated (at least partially).

The results of investigation of these topics (in terms of the research questions listed in Section 1.8) constitutes the contribution to knowledge of this dissertation, commensurate with the necessary limitations of a PhD project (Chapter 9). This will have significance with respect to: facilitating more effective ethnophysiography research; advancing understanding of the role of landscape in concepts of place and hence people's lifeworlds; and assisting to make phenomenology better understood by explicating the way particular language groups experience place. This will aid the use of transdisciplinary approaches to complex research projects and help non-indigenous Australians (and others) to better understand Aboriginal knowledge systems. The research utilises theories from a range of disciplines and seeks to contribute new knowledge to those fields of study. This dissertation explores the potential use results from ethnophysiography studies to aid development of geographical information systems (GIS) which utilize terminology and knowledge appropriate to a particular culture.

Since this dissertation seeks to examine a transdisciplinary approach to ethnophysiography, there is logic in the research itself adopting a transdisciplinary mode, via an over-arching paradigm (Section 1.4). Because it also seeks to link the investigation with indigenous knowledges, this author has decided to adopt a research approach consistent with a particular Aboriginal research paradigm, specifically that used by C. F. Black (2011) in *The land is the source of the law: A dialogic encounter with Indigenous jurisprudence*. Black utilises two words from the Yugumbeh language of South-East Queensland that together describe the process of developing knowledge, *talngai* and *gawarima*. Their meanings provide a good way of describing the mode of this PhD research project; looking for ideas in many disciplines, shining light on them (explication; *talngai*) then discussing their relationships to each other in the context of the research objectives (taking them around the camps; *gawarima*). Thus, this dissertation will incorporate ideas from many sources and provide an approach to their integration, with the understanding that there are many other potentially relevant sources of knowledge (both non-indigenous and indigenous) and that there are very many different ways of combining them to provide alternative conclusions.

As a transdisciplinary dissertation, reviewing literature from a wide range of disciplines, and resulting partly from collaborative research projects, it is important to clearly identify the sources of all material. The results of these reviews are integrated with discussion of previous research on landscape language carried out individually by this author, with his collaborators, and by others. The key components of the dissertation that are the individual contributions of this author include the particular way that transdisciplinarity is applied and evaluated, exploration of literature about landscape as place, and the role of phenomenology as an over-arching paradigm for ethnophysiography research. Other key contributions are the sequential development of an Ethnophysiography Descriptive Model (EDM), and the contingent, Phenomenology-based, Transdisciplinary Methodology for Ethnophysiography Case Studies (PTM-ECS) (Chapters 7 and 8). These particular facets of the research will be progressively introduced (in context) over coming chapters and conclusions concerning each aspect will be presented in Chapter 9.

1.3 Introduction to Ethnophysiography
1.3.1 What is ethnophysiography?
The research field of ethnophysiography seeks to understand cultural differences in conceptualizations of landscape, via comparisons between the meanings of terms that people

from different cultures use to refer to landscape and its components. Further details of the theoretical basis and research results of ethnophysiography case studies are provided in: Mark, Stea and Topaha (2016;2019); Mark, Stea, Topaha and Turk (2006); Mark and Turk (2003a; 2003b; 2004a; b; 2016); Mark, Turk, and Stea (2007; 2010); Turk (2007; 2011); Turk and Mark (2003); Turk, Mark and Stea (2011); Turk, Mark, O'Meara and Stea (2012); and Turk and Stea (2014). A more detailed discussion of these publications is provided in Chapter 2.

Ethnophysiography is, of course, merely a term to designate the focus on a particular research field, many aspects of which have been discussed previously using other terms in different disciplines (as will be discussed below and in later chapters). An alternative term that has been used by collaborating linguistic researchers in this field is 'landscape in language', or simply 'landscape language', however, for the sake of consistency, the (somewhat broader) term 'ethnophysiography' will principally be used in this dissertation to designate this general transdisciplinary field of research, rather than the more linguistically focussed terms.

A set of broad ethnophysiography research questions, raised in the publications listed above, include:
- Do all people, from different cultural/linguistic groups, and different geospatial areas, think about landscape in more or less the same way, or are there significant cross-cultural and cross-linguistic differences in the ways human beings conceptualise their environments at landscape scales?
- How important is the nature of the particular landscape that provides the environment for a speech community, and especially the range of forms in that landscape (hills, rivers, etc.), in the development of the category system (ontology) and lexicon used by a speech community?
- How influential is the culture and lifestyle of the people, that is, the nature of human interaction with the landscape?
- In what ways does the nature of the language itself (its grammar, etc.) contribute to the way terms for landscape are structured (in oral and/or written language) and the relationship of words to non-verbal language (such as gestures)?
- What is the relationship between toponyms (placenames) and generic terms for landscape features?

- Can alternative knowledge systems (worldviews), as expressed in concepts and terminology of landforms, be used in practical ways, for instance, to produce culturally-specific GIS?

A way of making some of these research questions more tractable is to construct a descriptive model of factors relevant to ethnophysiography. There are various ways (dimensions) in which the attributes of places and peoples differ. Also, there are a number of common ways that languages seem to vary in their ways of referring to landscape. Perhaps the first set of dimensions could be thought of (roughly) as independent factors and the second set as dependent factors. Of course, this process is not considered as deterministic and all factors are likely to be interdependent, thus, separating them out is only for the purpose of facilitating further research to try to better understand and explain the differences found between the ways various languages refer to landscape. An initial list of factors, and further discussion of the potential use of the Ethnophysiography Descriptive Model (EDM) is provided in Chapter 2, with successive revisions of the EDM accomplished in Chapters, 6, 7 and 8. The EDM interfaces with the revised methodology (PTM-ECS) to facilitate more effective investigation of social, cultural, spiritual and ethical aspects of the lifeworld of the speakers in the language community.

1.3.2 Early case studies in ethnophysiography

Researchers in ethnophysiography investigate variations in landscape language through case studies of particular languages, describing landscape in specific places. To initiate this field of study, Mark, Turk and Stea carried out case studies with the Yindjibarndi people in North-Western Australia and Navajo speakers in South-western USA (Chapter 2 and Appendix 1).

Ethnophysiography researchers have collaborated with others who have undertaken similar studies. In particular, linguists and cognitive science researchers at the Max Planck Institute for Psycholinguistics (MPI) in Nijmegen have been active in this field. The MPI Language and Cognition Group published a set of case studies of landscape terms (and some placenames) in nine languages in a wide variety of geographic locations, in a special issue of the journal *Language Sciences* (Burenhult, 2008a).

As discussed in Chapter 2, this work extended very significantly the range of case studies in landscape language and strengthened the linguistic basis of ethnophysiography. In the

introduction to the collection of studies, Burenhult and Levinson (2008) discuss the theoretical basis of the work and its relationship to ethnophysiography. The success of this special issue, and subsequent further collaboration with the Ethnophysiography Research Group, led the MPI researchers to join in the organisation of an international transdisciplinary workshop (on the Navajo Reservation in Arizona, USA) on "*Landscape in Language*" in 2008 (Mark, Turk, Burenhult and Stea, 2011) and a European Science Foundation Exploratory Workshop in Spain in 2012 (Appendix 3).

Niclas Burenhult established the *Language, cognition and landscape: understanding cross-cultural and individual variation in geographical ontology* (LACOLA) research group in Lund (Sweden) in 2010. LACOLA researcher (linguist) Clair Hill and this author carried out one of the case studies with Manyjilyjarra speakers in Western Australia (Chapter 8). Each of these developments in the ethnophysiography / landscape language research field are discussed in greater detail in Chapters 2 and 8.

The research to date provides strong support for the basic ethnophysiography hypothesis; *that people from different language groups/cultures have different ways of conceptualising landscape, as evidenced by different terminology and ways of talking about, and naming, landscape features.* However, much more collaborative transdisciplinary research on this topic is required before the cognitive and linguistic processes involved can be understood.

1.4 Transdisciplinarity

The complexity of the ethnophysiography research domain requires an integrated approach by researchers from many disciplines, including Geography, Linguistics, Cognitive Science, Philosophy, Anthropology, Sociology, Information Science, Geology, Environmental Science, Ethno-biology, Environmental Psychology, Archaeology, Indigenous Studies, and also Indigenous Traditional Knowledge (ITK). It is important to include ITK, despite it often not being considered as a formal discipline, since it is the underpinning of the lifeworlds of indigenous peoples and hence their relationships with landscape. These matters are discussed in detail in Chapter 3, however, a brief initial overview is useful here.

The integration of fields of knowledge and research paradigms is necessary in order to address complex, intractable ('messy', 'wicked') research problems. Collaborative research

approaches, at increasing levels of integration, may be summarised as follows (Booth, Rodgers, and AgInsight, Burekup, 2000):

Disciplinary:

Disciplines are a relatively recent phenomena (perhaps only 200 years old). Some (e.g. Information Science) are very recent. Each discipline uses its own particular bodies of knowledge, paradigms, theories, methods and techniques for research, with little or no reference to other disciplines.

Multidisciplinary:

Researchers from more than one discipline work together on a research project. However, each discipline uses its own paradigm and methods to do part of the research. Results from different parts of the research are combined.

Interdisciplinary:

Researchers from more than one discipline work collaboratively on a research project. The disciplines try to integrate aspects of the research by using multiple paradigms and methods for at least some of the research topics. Results from different paradigms and methods of research are combined to the extent practicable.

Transdisciplinary:

Researchers from more than one discipline work on a research project with the maximum possible level of collaboration. The disciplines integrate their research paradigms and methods via some over-arching paradigm and/or meta-methodology. Integration of methods and results is more effective than for lower levels of collaboration.

Postdisciplinary:

A holistic approach is used, which seeks to avoid disciplinary and paradigm divides. Highly reflective practice is adopted.

The last of these (postdisciplinary) is difficult to achieve other than in individual or small group projects. Hence an objective of this PhD project is *to develop a transdisciplinary approach to ethnophysiography research, seeking to maximise the level of research integration.* The evaluation of the utility of this approach is one of the principal research objectives, as discussed in Chapters 3 and 9.

1.5 Brief Summary of Some Key Aspects of Phenomenology

Because of the nature of the field of ethnophysiography, phenomenology (Heidegger, 1962/2007; 1994; 1995; Husserl, 1970; 1973; 1982; 1983; 1988; 1999; Kockelmans, 1994;

Luckmann, 1978; Mohanty, 1997; Moran, 2005; Patočka , 1996a, 1996b/1998; 1999; Schütz, 1967; 1970; 1972; 1977) is seen as a prime candidate to provide the desired over-arching transdisciplinary research paradigm. Casey (1996) and Malpas (1999; 2006) both make a strong case that phenomenology can play a key role in facilitating understanding of the relationship of individuals and communities to the places where they dwell.

Chapter 4 briefly introduces some of the key concepts of phenomenology which will be discussed in this dissertation: being and dwelling; intentionality; lifeworlds, intersubjectivity and communalised intentionality; embodiment, movement and affordance; and essences, meanings and universals. Each of these aspects of phenomenology is directly applicable to ethnophysiography research.

1.6 Using Phenomenology for Transdisciplinary Ethnophysiography Research
1.6.1 The nature of phenomenology and its application to ethnophysiography
As stated above, research in ethnophysiography (Chapter 2) is most effectively pursued via a highly integrated (transdisciplinary) approach (Chapter 3) by researchers from many disciplines. This requires an over-arching paradigm (spanning the various disciplines involved) that is operationalised in a manner that permits theoretic discussions from within the individual disciplines to be integrated in a coherent way. It must also provide a mechanism for the integrated analysis of empirical data from case studies; a meta-methodology. This section introduces the potentially productive relationship between ethnophysiography and phenomenology.

Chapters 4, 5 and 6 explain how phenomenology can assist in understanding how our ordinary everyday activities (in collaboration with others) configure our world and hence our relationship to landscape; what social anthropologist Tim Ingold (1993) calls 'taskscape'. Such activities, and hence relationships with landscape, may change over time for a particular language group, for example, because of colonization by a dominant indigenous or non-indigenous society, or through urbanisation or technological change. See Chapter 6, Section 6.4.3, Table 6.17 regarding Mihaylov and Perkins' (2014) 14 factors relevant to displacement.

Malpas (1999) discusses people's relationship to objects in terms of intentions (more broadly intentionality) and actions. He explains (p. 95) the significance of an agent's relevant beliefs and desires as part of causal and spatial relationships to objects in place. Thus, a

phenomenological approach to ethnophysiography involves identifying sets of individual and communal intentionalites related to landscape.

To non-philosophers, phenomenology can seem complex and difficult to use in practical interdisciplinary applications. However, Ihde (1986, p. 26) contends that "in its essence, Phenomenology is neither obscure nor esoteric and that it holds important implications for a whole range of disciplines." Van Manen (2019) reviews Husserlian and Heideggerian versions of 'foundational' phenomenology and disagreements about the meaning and purpose of phenomenology. He contends: "the mission of modern phenomenology transcends foundational and exegetical theorizing" (p. 3). Some philosophers will want to continue concentrating on "the practice of technical conceptual philosophical argument" (p. 4). However, other philosophers should apply themselves to explicating concrete lifeworld phenomena as part of an applied, practical approach to addressing real-world problems and questions, a phenomenology of interdisciplinary professional practice.

It is important to consider social aspects of dwelling in landscape. Van Manen (2019, p. 5) notes that, towards the end of his career, "Husserl (1970) became more interested in concrete and pragmatic themes such as intersubjectivity and lifeworld". Following on from the work of the 'Utrecht School', and others: "Phenomenology can be practiced as human science (*Geisteswissenschaften*) that remains grounded in its original philosophic sources". Such practical use of phenomenology is legitimate.

There is a long history of utilisation of phenomenology in the social sciences; e.g. the work of Alfred Schütz, starting from the late 1920s (e.g. Schütz, 1972; 1977). Natanson (1970a, p. 122) contends that: "Phenomenology saturates the life of Schütz". There was further development of Schütz's ethnomethodology by Harold Garfinkel in the 1960s (Heritage, 1984; Psathas, 1977). Also of significance is Max Scheler's theory of knowledge: "In his works he has also shown, in an exemplary manner, how Phenomenology and sciences (in his case, biology, anthropology, and sociology) can be blended in one's thinking" (Mohanty, 1997, p. 23). Thus, an interdisciplinary approach to linking phenomenology and social sciences has a long history.

Since the 1980s phenomenology has been increasingly used (though sometimes superficially) within a wide range of social science disciplines, such as education and nursing, often to

provide justification for a qualitative research approach.   Van Manen (2017a, p. 777) is critical of what might be called 'pseudo-phenomenology' research:

> Qualitative researchers are attracted to using phenomenological concepts such as lived experience, intentionality, and thematic analysis to pursue problems, programs, and interests that aim at empirical understandings, problem solutions, comparative determinations, or generalizing empirical findings that lie methodologically outside the reach of phenomenological understanding or knowledge. In other words, not all qualitative research inspired by phenomenology is phenomenology.

The extent to which the work is this dissertation would count as phenomenology (by the tests van Manen lists in his publication) is explored in Chapters 6, 8 and 9. This issue is made more complex because this transdisciplinary dissertation seeks to use phenomenology as an over-arching paradigm, rather that as a research method itself, except to the extent that phenomenology and phenomenography methods (Chapter 4) are utilised (together with the EDM) as part of the transdisciplinary methodology (PTM-ECS) developed through this dissertation.

1.6.2 Establishing *prima facie* correlation between research trajectories

The basic hypothesis underpinning this research is that some form of phenomenology can be used as a paradigm for transdisciplinary research in the field of ethnophysiography. An initial test of this hypothesis is to examine each of the fields of phenomenology and ethnophysiography and identify whether there is a significant overlap in their objectives and programs of research. This comparison is provided in Turk (2007). For example:

Within specific 'regions' (of human experience and endeavour), **phenomenology** describes the nature of the core phenomena and the essential structures. This is an ontological endeavour, regarding basic categories of being relating to sets of phenomena and their relations.

The field of **ethnophysiography** was established to investigate a particular aspect of human experience; i.e. differences in human conceptions of landscape and the relevant terms used in particular languages.

There are sufficient commonalities between the research trajectories of phenomenology and ethnophysiography to provide *prima facie* support for the research objectives. Ethnophysiography case studies can help explicate the nature of lived experience of landscape

from physical, utilitarian, social, cultural, spiritual and ethical perspectives, in line with the objectives of phenomenological investigation. More detailed discussion is provided in Chapters 4, 5 and 6.

1.6.3 Ways to use phenomenology in ethnophysiography research

An initial question is: whether all forms of phenomenology and ethnophysiography are sufficiently commensurate to permit the proposed role of phenomenology as a transdisciplinary paradigm, given that ethnophysiography is principally an empirical discipline and some traditional forms of phenomenology are not? Husserl promoted a form of phenomenology that concerns structures that are *a priori* of any lived experience, rather than a set of principles deduced from examining examples of lifeworlds. Phenomenology was seen as providing a fundamental underpinning for practical sciences and, hence, not dependent on their data. This topic is discussed further in Chapters 4 to 7.

There is no one type of phenomenology or universal agreement about the methods to use in phenomenological studies. Van Manen (2019, p. 5) asserts: "At present, most phenomenology scholars would agree that phenomenology has become a complex tradition of movements that are often associated with the names of influential original thinkers". These matters are dealt with in some depth in Chapters 4, 5 and 6. However, it is not the purpose of this dissertation to undertake a detailed review of the many versions of phenomenology. Rather, this dissertation seeks only to provide sufficient understanding of phenomenology to effectively address the research questions.

Van Manen (2019, p. 6) contends: "All phenomenology is rooted in philosophy and language". However, not every form of phenomenology is suitable for use with ethnophysiography. The chosen form of phenomenology also needs to be made tractable to facilitate its use outside of philosophy. By being understandable and being able to be applied, phenomenology can play a wider role as a basis for understanding of dwelling. Seeking explanations of ethnophysiography data through phenomenology, and using ethnophysiography data to help explain phenomenological concepts, both seem to this author to advance this objective.

Schalow (2019) contends that Heidegger developed phenomenology from Husserl's initial approach, suggesting: "Heidegger's breakthrough hinges on recognizing that 'meaning' cannot simply be conceptualized through theoretically derived categories, but must instead originate

through the enactment of lived experience, specifically the significations that accrue to the temporal, lived-through enactment of human facticity." (p. 3).   This is part of a hermeneutic approach to phenomenology; a process of 'looping back', to question the presuppositions, so as to "broaden the horizon of what is understandable and can be philosophically understood" (p. 3).   This shifts phenomenology away from Husserl's 'presuppositionless science'.   It is necessary to collect and analyse examples of "individual experiences to implicate universal, ontological structures" (p. 3). This dissertation contends that, without careful examination of the full range of human experiences, within complex relationships with landscape as 'taskscape', and the language terms that expresses them (based on unique ontologies), there can be no legitimate claim to universalism of relevant phenomenological concepts.

Phenomenology is about place and as Basso (1996b, p. 89) asserts, "For any cultural system, what counts as a 'place' is an empirical question that must be answered ethnographically". As explained in Chapter 2, ethnophysiography uses ethnographic methods to understand the relationships that a language community has with place, which influence, and are expressed by, landscape language.

For there to be an effective consideration of the potential role of phenomenology as an over-arching paradigm for transdisciplinary research regarding landscape in language (ethnophysiography) the investigation needs to consider non-European lifeworlds and knowledges, although phenomenology is essentially a European philosophy. Indeed, many authors contend that there is only one philosophy, derived from Greek philosophers, and developed since that time predominately by European and North American philosophers, and hence, the notion of place-based philosophies (Janz, 1997; 2005; 2014; 2016) is not valid (e.g. Appiah (1989); Bodunrin (1981); Botz-Bornstein (2006); Egbunu (2013); Hountondji (1983); Ikenuobe (1997; 2004); Okafor (1997); Oruka (1990; 1991). This implies that the notion of, say, an Australian Aboriginal Philosophy, is untenable. This topic is discussed briefly below and in more depth in Chapters 6, 7, 8 and 9, especially with regard to recent developments in 'Ethnophilosophy' and 'Placed Philosophy' (Section 9.3.2). Philosophers should consider this topic carefully as it potentially has important ethical and moral consequences (Tabensky, 2017).

This research seeks to test the fundamental research question (at least to a limited extent) with respect to strong non-European examples of lifeworld and knowledge. The languages of two

Australian indigenous peoples (first-nations) have been chosen for detailed review (see Chapters 2 and 8). Early phenomenologists regarded these people as among the most primitive, and hence, those with the least likelihood of having any intellectual notions akin to European philosophy (Lévy-Bruhl, 1935/1983; Moran, 2011a) [2]. The discussion in Chapters 5, 6 and 8 includes the role of *Jukurrpa* as a holistic topo-socio-cultural-spiritual framework; the ontological and epistemological basis for relationship with landscape as place. It is further suggested that the role of such a holistic framework, broadly equivalent to *Jukurrpa*, applies for other indigenous peoples and, indeed, for all people, acting as a fundamental determinate for relationships with landscape. That contention is further explained and explored in Chapters 6 to 9.

While some of the discussion is focussed on attachment to 'country' of Aboriginal Australians (the area occupied by a language group), there is no intention to imply that non-indigenous Australians do not also have deep attachment to landscape, or that this does not apply to virtually all individuals everywhere, whether living in the place of their birth or not. This research project develops an understanding of the synergistic interaction of the configuration of the particular topography and ecosystem with the socio-cultural framework relevant to a specific group of people dwelling there. The nature of dwelling in place is the combined result of these two intertwined structural sources of synergy. Neither is static, as each can potentially change in response to each other and to external factors. These twin structures create, potentially in combination with other forces, non-deterministically, the unique topo-socio-cultural-spiritual mode-of-dwelling (TSCS-MOD) exhibited by those specific people, in that particular place, during a certain time period. This mode of dwelling turns terrain into landscape, as place.

Other researchers have also started using phenomenology to inform landscape language research. In 2019 Camilo Segovia Cuéllar completed a Master's degree in Social

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[2] Moran (2011a) discusses Husserl's phrase "even the Papuan is a man". "Husserl believes there is an essential teleology to Western cultural development; it is committed to the universalization of reason (and furthermore others cultures will embrace Europeanization, and never vice-versa: the European will never feel an urge to 'Indianize' [Crisis, 275/Hua. VI320])" (Moran, 2011a, p. 466). This author contends that, while apparently asserting the unity of humanity, Husserl's phrase is essentially Eurocentric, if not racist, as it involves grouping peoples by genetic/language/location characteristics and entails an assumption of an intellectual, evolutionary hierarchy, with Papuans at, or near, the bottom, and Europeans at the top. This dissertation discusses the complexity of indigenous conceptual frameworks that pre-date phenomenology by tens of thousands of years.

Anthropology, mostly based on theory, fieldwork and data analysis processes from the Ethnophysiography group (Mark and Turk, 2003; Mark, Turk and Stea, 2007; 2010; Turk, 2011; Turk, Mark, and Stea. 2011) and their collaborators (Burenhult and Levinson, 2008; Mark, Turk, Burenhult and Stea. 2011; Mark, Smith, and Tversky. 2013). The project used linguistic fieldwork methods to investigate descriptions of landscape terms and toponyms, for the *Baincoca* language along the Lower Putumayo basin, Columbia. It used phenomenology as a method and overarching paradigm, based on the work of Martin Heidegger. The language speakers' topographic environment and experiences led to a particular type of landscape ontology: "where many of the considered animated entities are not only grouped under categorical concepts with meaning, but also end up connected with the body sharing with it, a set of classifiers that relates every entity by its shape. When it comes to landscape Cuéllar, classification, this shows the interactions of ecotopes in the ecosystem" (Cuéllar, 2019, Abstract [translated to English]). A book chapter describing this research is forthcoming.[3] These topics will be discussed further in Chapter 6.

1.7 Potential Contributions of Ethnophysiography to Understanding of Phenomenology

The principal aim of this dissertation is to establish that phenomenology can be used effectively as an over-arching paradigm for transdisciplinary research in ethnophysiography. This section seeks to explore the potential for the reverse relationship; that is the proposition that ethnophysiography research might assist in explicating aspects of place in phenomenology.

In Feld and Basso's (1996) edited collection *Senses of Place*, Casey (p. 20) suggests a revitalised phenomenological examination of place:

> To reinstate place in the wake of its demise in modern Western thought – where space
> and time have held such triumphant and exclusive sway – one can equally well go to
> the premodern moments described in ethnographic accounts of traditional societies or to
> the postmodern moment of the increasingly non-traditional present, where place has
> been returning as a reinvigorated revenant in the writings of ecologists and landscape
> theorists, geographers and historians, sociologists and political thinkers – and now, in
> this volume, anthropologists.

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[3] Forthcoming chapter by Camilo Segovia Cuéllar called "Ontologías geográficas: nombres de lugar y términos de paisaje en baincoca" in a book called "Ontologías y nuevas perspectivas en la Antropología Latinoamericana" to be published in March 2020 by Universidad Javeriana from Bogotá, Colombia.

This dissertation seeks to integrate these two suggested approaches ('premodern' and 'postmodern'), within the field of ethnophysiography. Other publications by Edward Casey are reviewed in later chapters of this dissertation, together with discussion by others (e.g. Cruz-Pierre and Landes, 2013) of his significant contributions to this area of study.

Malpas (2006) establishes that place is fundamental to phenomenology, as discussed in Chapters 4, 5, 6 and 8. Ethnophysiography case studies can further explicate the nature of landscape as place. Basso (1996b, p. 84) suggests that detailed ethnography is essential to understanding particular notions of place: "Everything, or almost everything, hinges on the particulars, and because it does, ethnography is essential. For any sense of place, the pivotal question is not where it comes from, or even how it gets formed, but what, so to speak, it is made with". These particulars merge into a shared social and cultural experience which acts to attach people to particular places: "Fuelled by sentiments of inclusion, belonging, and connectedness to the past, sense of place roots individuals in the social and cultural soils from which they have sprung together, holding them there in the grip of a shared identity, a localised version of selfhood." (p. 85). Hence, ethnophysiography, through explicating the way particular language groups experience place, can contribute to an understanding of phenomenology.

Van Manen (2019) suggests that phenomenology needs to constantly renew itself. This process needs to draw on understandings of a wide variety of real-life experiences:

> Life meanings cannot be caught in systematic argument and theoretical systems alone. Lived life is complex and requires not only argument but also and especially creative and expressive (evocative) languages and sensibilities to capture what is primal and mature, pathic and cognitive, contingent and routine, rational and irrational, conceptual and inceptual, propositional and poetic" (p. 8).

If an extensive range of social, cultural, spiritual and ethical experiences of landscape is to be considered, ethnophysiography (landscape language) studies from a wide variety of places and peoples are needed. This information can make a significant contribution to renewal of phenomenology, especially given its Euro-centric beginnings.

1.8 Research Questions

The principal research question addressed by this dissertation is:

Can some form of phenomenology provide an effective over-arching paradigm for transdisciplinary research in ethnophysiography?

This overarching research question ten key components (more specific questions), as follows:

Q1: What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be involved in the Ethnophysiography Descriptive Model (EDM) and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?

Q2: Is it possible to build a conceptual model, that integrates definitions and methodological considerations concerning transdisciplinarity from multiple publications, across various disciplines, which can act as an effective guide to the research investigation, and as a mechanism to evaluate the level of transdisciplinarity achieved by the research processes and the dissertation?

Q3: What are the key aspects of phenomenology which need to be commensurate with (or adapted to) ethnophysiography research if phenomenology is to be used as an over-arching transdisciplinary research paradigm, to facilitate enhanced future ethnophysiography research methods, supporting the EDM, to address more effectively social, cultural, spiritual and ethical aspects of dwelling?

Q4: Which form(s) of phenomenology is/are most appropriate to use as an over-arching paradigm for transdisciplinary ethnophysiography research?

Q5: Can phenomenology, as an over-arching transdisciplinary paradigm, be legitimately and successfully applied to indigenous worldviews and knowledges, in the context of relationships with landscape?

Q6: Can a capstone landscape language (ethnophysiography) case study demonstrate how aspects of transdisciplinary research methods may be aided through the use of a form (or forms) of phenomenology?

Q7: Can traditional phenomenology methods (and/or phenomenography) be used effectively within this dissertation and/or to facilitate more comprehensive, contingent ethnophysiography case study methodologies?

Q8: Does this dissertation demonstrate how the effectiveness of use of a chosen paradigm (within a transdisciplinary approach) can be evaluated?

Q9: Does this research project demonstrate that a transdisciplinary approach can be effectively applied to complex research domains, such as that investigated in this dissertation?

Q10: Can integration of models of landscape concepts, progressively developed in dissertation chapters, ultimately produce an effective EDM, and what role can it play in landscape language research, including interacting with a revised, contingent case study methodology?

Q11: Can an enhanced, contingent, phenomenology-based, transdisciplinary methodology for conducting ethnophysiography case studies be developed, supporting the EDM, to more adequately address social, cultural, spiritual and ethical aspects of dwelling, and can it be (at least partially) tested?

The following sections on methodology and the content of the other dissertation chapters demonstrate how these research questions were operationalized within this investigation. The methodology adopts a transdisciplinary approach and uses methods from phenomenology to the maximum extent considered practicable. A response to each of the research questions is provided in Chapter 9, Section 9.4.

1.9 Methodology

1.9.1 Brief dissertation methodology/structure overview

The dissertation methodology consists of the following phases and steps:

Phase 1: Initial literature reviews

a. Introduction to the dissertation (Ch. 1)

b. Review of literature re ethnophysiography (including EDM v4) (Ch. 2; Appendices 1; 2; 3)

c. Review of literature re transdisciplinarity (Ch. 3; Appendix 4)

d. Review of literature re fundamentals of phenomenology (Ch. 4; Appendix 5)

e. Review of literature re phenomenology of place (Ch.5; Appendix 6)

Phase 2: Literature Reviews regarding relationships with place and revision of EDM

a. Review of literature re relationships with place (Ch. 6; Appendix 7)

b. Revision of EDM to v5 (Ch. 6; Appendix 7)

c. Review of indigenous peoples' relationships with place (Ch. 6; Appendices 7)

d. Revision of EDM to v6 (Ch. 6; Appendix 7)

Phase 3: Capstone case study and evaluation of PhD research study

a. Development of new phenomenology-based, transdisciplinary methodology for ethnophysiography case studies (PTM-ECS) (Ch. 7; Appendix 8)

b. Capstone case study of Manyjilyjarra landscape language (Ch. 8; Appendix 9)

c. Review of methodology and Version 7 of EDM for Manyjilyjarra (Ch. 8; Appendices 9; 10; 11; 12; 13)

d. Summary of dissertation findings and limitations (Ch. 9; Appendix 14)

e. Recommendations for further research (Ch. 9)

f. Final version of PTM-ECS and EDM v7 (Ch. 9; Appendix 15)

g. Dissertation conclusions (Ch. 9; Appendix 16)

This dissertation includes numerous appendices. So as not to 'clutter' the chapters most of the appendices contain long phenomenographic tables (conceptual models), as is the approach adopted for many non-humanities PhD dissertations. Other appendices provide detailed explanations of key aspects of the dissertation, each linked to the appropriate section(s) of the main text.

1.9.2 Introduction to methodology phases and steps

The research methodology utilises a transdisciplinary approach. Hence it includes detailed consideration of relevant research carried out in collaboration with colleagues from several disciplines. This provides the context for discussion of the individual contributions by this author.

A detailed process of phenomenographic review of relevant sections of texts was undertaken to identify key concepts regarding particular topics within each discipline, some that were chosen to be relevant to the investigation of landscape and some that were emergent. The key concepts and their provenance were recorded within summary tables. This enabled the preparation, comparison and integration of relevant conceptual models, within and between disciplines, contributing to the development of successively more effective versions of the EDM, and ultimately the PTM-ECS.

The use of summary 'phenomenographic' tables in this dissertation is an application of a technique from phenomenography, where analysis of texts includes transcripts of interviews and other relevant academic or popular literature texts (Andretta, 2007; Cibangu and Hepworth, 2016; Khan, 2014; Marton, 1986; Ornek, 2008; Walker, 1998) [see Sections 4.3.5; 7.4.4; and

8.6.3.7]. The first Table A3.1 presents themes distilled from workshop presentations. The other phenomenographic tables (e.g. Tables A4.6, A6.2, A7.1, A7.4 to 7.6, and A8.1) list details of topics identified in relevant literature. Each entry in a table represents a dwelling in landscape theme, which could, for instance, be included in questions to be asked of landscape language case study participants and/or included in phenomenological writing about landscape. Thus the use of phenomenographic tables in this dissertation is part of a phenomenological approach, contributing to the use of phenomenology as an over-arching transdisciplinary paradigm. The manner of integration of use of phenomenographic tables within the PTM-ECS is outlined in Section 7.5 in Chapter 7.

In this dissertation quotations are used in the manner most appropriate to the objectives of that section, rather than following the tradition of any discipline. Some larger quotes are used, especially to provide un-edited versions of definitions or in the case of text from marginalised peoples, such as indigenous Australians. The use of quotations is deliberately phenomenological and transdisciplinary. This involves ethical considerations as well as concerns about efficient and effective processing of information.

A hermeneutic approach is applied in this dissertation by providing explanation of the context of quotes to assist the reader. There is some explanation of quotes, in the usual manner, however the main analysis is provided in the phenomenographic tables. The phenomenologically-framed transdisciplinary approach is facilitated by distilling the essence(s) of each quoted text, and placing these in a table, that collectively represents a complex, structured, conceptual model of associated ideas from many authors. The next transdisciplinary, phenomenographic step is to concatenate concepts from different authors from various disciplines to provide a second-order summary, structured in terms of categories related to phenomenology of place. This enables the concepts from a host of sources to be presented in an explicit, tractable manner, fit for the purpose of the dissertation, while reliably retaining their provenance. The final step in the literature analysis process involves incorporation of these summaries of concepts into the new phenomenology-based transdisciplinary methodology for landscape language (ethnophysiography) case studies (PTM-ECS). An even more refined and integrated representation of the place concepts from literature analysis is incorporated in the EDM, for comparing results from case studies of various languages.

This innovative dissertation methodology ensures that the best possible use is made of key relevant ideas from a range of academic literatures, in an emergent, non-deterministic and effective manner. The dissertation methodology feeds directly into development of the PTM-ECS and EDM. The purpose is to stimulate future researchers to be aware of a structured set of pertinent ideas, to inspire and inform their collection of relevant ethnographic data, and guide their reflective, hermeneutic interpretation of that information. The methodology ensures that this includes informing them of the provenance of each idea that has been gleaned by this author from the wide range of relevant literature.

The approach taken in this dissertation to analysis of relevant literature could be considered in terms of the literary theory notion of 'intertextuality': "the understanding of a given text in its web of relationships to other texts – relations of influence or rebellion, quotation, parody, plagiarism, etc." (Robinson, 2003, p. 26). The ideas presented by particular authors interact within, and between, different disciplinary (and sub-disciplinary) streams (sequences) of theory. In this transdisciplinary dissertation, 'intertextuality' is foregrounded in a somewhat scientific manner via the phenomenographic tables (conceptual models) summarising aspects of landscape concepts from a wide range of relevant texts, then concatenating them (reordering and combining elements) within disciplines, and then, in a second level process, integrating them between disciplines.

This dissertation uses an extended, abstract concept of 'intertextuality'. Robinson (2003, p. 26) broadens the connotation of 'text' to include place and landscape; "there are geographies that have been so infused with meaning, by history or religion or art, that they have some of the characteristics of a text". The complex relationships that people have with landscape as 'text' is considered at two levels of abstraction. Firstly, the terrain itself is considered as a 'text', with landscape features arranged like words on a page or as a journey narrative, as one traverses a piece of topography.

At a second level of abstraction of landscape as 'text', is the way the dissertation narrative talks about relationships between utilitarian, social, cultural, spiritual and ethical aspects of dwelling (Basso, 1996a; Malpas, 1999; Sheehan, 2003). As discussed in Chapters 5 and 6, some Aboriginal Australians integrate these two levels of landscape narrative within *Jukurrpa*, in terms of (what in English are termed) 'dreaming tracks' or 'songlines' (Benterrak, Muecke and Roe, 1984; Chatwin, 2012), or 'storytracks' (Gill, 1998); traditional narratives describing and

naming 'country'. Discussing Pintupi people (Central Desert, Australia), Myers (1991, p. 59) observes; "One cannot speak of places, as the Pintupi view them, without considering their mythological associations … the metaphor of country as story is particularly appropriate". For these peoples, the land is in a sense a 'text', initially written by 'Ancestral Beings', continually renewed through the timelessness of *Jukurrpa* and being reinforced (and added to) via specific practices/protocols/procedures as part of the flux of everyday life (Chapters 6 and 8). The dissertation narrative is like a 'dreaming track' linking key concepts (landmarks in theory development) from different disciplines. Consideration of each 'landmark' is integrated through, and contributes to, the overall transdisciplinary (*Jukurrpa*-like) conceptual structure. The nature and role of this topology of landscape as place is explicated through the dissertation, and made applicable to future research via the PTM-ESC and EDM.

This dissertation seeks to implement a methodology to uncover, explicate and compare lived structures of meaning, as expressed in landscape language. In each chapter, the research method and style of presentation of results draws from a variety of disciplines, as appropriate to the specific purpose. This means that the dissertation deliberately does not adopt the style preferences or traditions of any one discipline; it is transdisciplinary in form as well as content.

The phenomenographic method of constructing and comparing conceptual models (via tables) operationalises the search for meaning, and emphasises the importance of tracking provenance. This is achieved by combining literature review with analysis of case studies to seek detailed understanding of linguistic aspects of everyday activities involving landscape (Chapters 2 and 8). The case studies reviewed include three carried out by this author and his collaborators (with Yindjibarndi and Manyjilyjarra speakers in Australia and Navajo in SW of USA) and many more conducted by other researchers, principally linguists. Since many of the participants in case studies are indigenous people, it was especially important to understand relevant ethical constraints (Smith, 1999; Turk and Mark, 2011; Turk, Mark, O'Meara and Stea, 2012; Turk and Trees, 1998a).

1.10 Brief Description of Chapters 2 to 9

This sub-section briefly describes the content of Chapters 2 to 9. This is to indicate how they implement the project methodology and address the research questions.

Chapter 2 outlines the key aspects of ethnophysiography as a field of landscape language research, starting with definitions of landscape. It describes the development of the field of ethnophysiography from preliminary work, the coining of the term, through initial case studies, interdisciplinary collaborations, international workshops, theoretic development, and publications. The methods used for case studies are briefly discussed, with reference to a major co-authored publication on this topic (Turk et al., 2012). The chapter includes a review of past ethnophysiography case studies with indigenous peoples and thus contributes to investigation of Research Questions 1 and 4. A key contribution of this chapter is discussion of the draft EDM and its potential role with respect to case studies and development of theory. This specifically addresses Research Question 9. The chapter concludes with identification of the need for a phenomenology-based, transdisciplinary approach to ethnophysiography research, operationalized via a contingent case study methodology (PTM-ECS) to facilitate more effective investigation of social, cultural, spiritual and ethical aspects of the lifeworld of the speakers in the language community (Research Question 11).

Chapter 3 discusses the term 'transdisciplinarity', providing information concerning the history and effectiveness of this approach to research. Transdisciplinary objectives and methods are reviewed. A conceptual model (tabulation) of key attributes of transdisciplinary research is produced. This is utilised in Chapter 9 to evaluate whether the overall research project, and the conclusions contained in this dissertation, can be reasonably described as transdisciplinary; addressing Research Questions 8 and 9.

Chapter 4 provides a brief review of phenomenology, citing and quoting from key authors, including: Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, Michael Foucault, Alfred Schütz, Brian Massumi and Max Van Manen. The principal aspects of phenomenology discussed include: being and dwelling; intentionality; intersubjectivity, lifeworlds and communalised intentionality; embodiment and affordance; and essences, meanings and universals. The chapter also reviews phenomenological methods and their applicability to ethnophysiography case studies. This relates to Research Questions 3, 4, 5, 7 and 11.

Chapter 5 reviews literature relevant to consideration of landscape as place, as discussed in several disciplines, including Geography, Anthropology, Philosophy, Ethnoecology, Landscape Architecture and Indigenous Studies. The application of phenomenology to discussion of place is reviewed, including the work of Edward Casey, Jeff Malpas and Bruce Janz. The detailed

literature review results in phenomenographic summary tables, that are concatenated, then used to revise the EDM, addressing Research Question 10, and in development of the new, contingent, transdisciplinary methodology for case studies (Research Question 11).

Chapter 6 discusses people's relationships with place and indigenous worldviews and knowledges regarding place, using, as examples, Yarnangu (Central and Western Desert Australian Aboriginal people) and Native Americans from the SW of USA. The relationship between generic landscape terms and toponyms is also explored.   Key concepts of landscape as place are summarised and used to revise the EDM, contributing to answering Research Question 10. A key conclusion of this chapter is the need to consider holistic culture-based frameworks of ontology and epistemology (e.g. *Jukurrpa*) when interpreting relationships with landscape and landscape language. The chapter also reviews how the concepts of affect and mimesis can be applied to ethnophysiography.

Chapter 7 reviews the previous methodology used by this author and his collaborators for landscape language (ethnophysiography) case studies (Turk, et al, 2012). This includes developing relationships with participants, and organisations, that represent their interests, so that ethical issues are thoroughly addressed. In order to apply a phenomenological approach, phenomenographic tables assembled in Chapters 5 and 6 are used to develop an appropriate interim methodology for the capstone case study, addressing Research Questions 4, 5 and 11.

Chapter 8 discusses the Manyjilyjarra Landscape Language Case Study, including the role of this author's collaborator, linguist Clair Hill (a LACOLA researcher), as discussed in Chapter 2. It provides an overview of the (capstone) case study, including: objectives, people, history, culture, geography and language. The project phases are described, including the collaboration with the Martu cultural and land management organisation Kanyirninpa Jukurrpa (KJ). Fieldwork and data analysis methods are described and the principal initial findings reviewed, including via discussion of phenomenological interpretations. The interim transdisciplinary methodology and the EDM are reviewed and revised. The chapter concludes with discussion of the significance of the case study findings to Research Questions 5, 6, 7, 9, 10 and 11.

Chapter 9 summarises the dissertation's principal findings and main contributions to knowledge and reviews the specific research questions (listed in Section 1.9). The principal limitations of the research (including methodological issues) are listed and the implications and

applications of the research discussed. The chapter examines the commensurability between relevant indigenous concepts and the basically European philosophy of phenomenology to ensure that indigenous notions are not being 'colonised' or 'appropriated'. The role of the EDM and the PTM-ECS (using selected methods from phenomenology) are discussed, and final versions provided. A detailed evaluation of the effectiveness of the research approach is also provided with regard to key aspects of transdisciplinary methods that are identified in Chapter 3, addressing Research Question 9. The chapter concludes with some recommendations regarding future related research and final remarks.

1.11 Chapter Conclusions

In this chapter it has only been possible to scratch the surface of the potential relationship between phenomenology and ethnophysiography, with the topic explored in greater depth in the subsequent chapters. The dissertation indicates that a version of phenomenology is able to provide an over-arching paradigm for transdisciplinary research in ethnophysiography; or, inverting the spatial metaphor, a form of phenomenology can 'stand under' (Fuchs, 1976, p. 27) the relevant disciplines, providing a firm foundation and scaffolding to support their activities.

The chapter provided an initial summary of ethnophysiography research carried out by this author, his collaborators and other researchers. For Indigenous Australians, such as the Yindjibarndi, Warlpiri, Aranda, Pintupi, Martu and Spinifex People, land and culture are integrated with concepts of time via *Jukurrpa* or its equivalents. This fundamental and holistic framework provides the ever-present flux of ideas, connecting people with their own place and informing both practical and cultural aspects of their lifeworld. Examination of indigenous concepts of place in Australia and elsewhere can provide a rich vein of phenomenological understanding. More details are provided in Chapters 2 and 8.

The nature of phenomenology is explored in this chapter and initial descriptions of its key aspects listed. There is also initial discussion of how best to combine phenomenological methods/techniques with the EDM and the PTM-ECS (Chapters 7, 8 and 9).

The need for a transdisciplinary approach for research on landscape and the nature of transdisciplinarity are introduced in this chapter. Chapter 3 examines transdisciplinarity in more depth, including development of a conceptual model of its main aspects. In Chapter 9,

this research project is evaluated to see how well it incorporates the various aspects of that conceptual model.

Chapter 2 – Ethnophysiography: Landscape Language Research

2.1 Introduction to Chapter

The objective of Chapter 2 is to expand on the brief description of ethnophysiography provided in Chapter 1, in the context of the overall dissertation objectives and research method. This includes the transdisciplinary approach outlined in Chapters 1 and 3. This chapter discusses the key aspects of ethnophysiography as a field of landscape language research, starting with a definition of landscape. It describes the development of the field of ethnophysiography from preliminary work (prior to the coining of the term), through initial case studies, interdisciplinary collaborations, international workshops, theoretic development, and publications. The methods used for case studies are briefly discussed, with reference to a major co-authored publication on this topic (Turk, Mark, O'Meara and Stea, 2012). This topic is addressed in detail in Chapter 7.

Ethnophysiography investigates cultural differences in conceptualizations of landscape via comparisons between the meanings of terms that people from different cultures use to refer to landscape and its components. Landscape is an interesting topic because relationships with land are central to many cultures. Landscape features pose problems for classification, since there is no set way of dividing the continuous landscape into parts. Ethnophysiography also includes the study of toponyms and their relationship to generic landscape terms, and the knowledge systems, beliefs and customs of peoples relevant to landscape.

The chapter includes a list of research topics to be pursued via the transdisciplinary approach to ethnophysiography research and specifically addresses Research Question 1 (posed in Chapter 1, Section 1.8): What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be involved in the EDM and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?

A further key contribution of this chapter is discussion of the EDM and its potential role with respect to case studies and development of theory. The initial EDM version in this dissertation (v4) was produced from review of key aspects of ethnophysiography case studies and discussions at workshops and symposia referred to in this chapter.

One of the objectives of this research is to explore the potential for development of GIS which utilise terminology and knowledge appropriate to a particular culture, as part of a critical approach to mapping and spatial analysis (Crampton, 2010; Frank, 2009; Mark, Turk and Stea, 2007; Turk, Mark and Stea, 2011). For instance, a 'culturally-appropriate' GIS might be based on the indigenous ontology of landscape features. It might also include multimedia links to significant features providing graphical and text explanation of cultural and/or spiritual associations. The GIS may use indigenous toponyms, by themselves, or paired with colonial placenames. Brodnig and Mayer-Schönberger (2000) see such approaches as strengthening the capacity for transfer of traditional information regarding the environment and resource management. Use of culturally-appropriate GIS also relates to colonialism and respect for indigenous knowledge and land (e.g. Palmer and Rundstrom, 2012).

Some researchers working on collaborative projects to produce indigenous GIS are now referencing ethnophysiography research regarding landscape terms and toponyms. For instance, Ingrama, Anonby, Taylor and Murasugi. (2019) discuss using a cybercartographic approach to mapping Kanyen'kéha (Mohawk) ethnophysiographical knowledge. Their qualitative methodology employed both etic and emic approach to data gathering. The project produced atlases conveying geographic and indigenous knowledges.

This author was involved in the first two ethnophysiography case studies with Yindjibarndi (Australia) language (Section 2.4.1 and Appendix 1) and Navajo (USA) language (Section 2.4.2 and Appendix 1), which are briefly described in this chapter. Linguists published accounts of nine other landscape language case studies in the special issue of the *Language Sciences* journal (Burenhult, 2008a) (Section 2.6.2 and Appendix 2). The International Transdisciplinary Workshop on Landscape Language, with 26 participants, was held in 2008, and a book of proceedings published (Mark, Turk, Burenhult and Stea, 2011a) (Section 2.6.3). This included summaries of numerous landscape language case studies. Collaborations have continued via LACOLA, a European Union funded research project investigating cross-culturally how languages categorise and represent landscape (Section 2.6.4). Discussions with researchers from several disciplines occurred at the European Science Exploratory Workshop on landscape language in 2012 (Section 2.7.2 and Appendix 3).

This author has also carried out a study (with LACOLA linguist Hill) of landscape terms and cultural connections in Manyjilyjarra, a traditional Martu language of Australia's Western

Desert. This is discussed in Chapter 8. He is also undertaking (with an old mapping colleague) a case study about landscape language for the Antarctic (Manning and Turk, 2016), discussed in Chapter 7.

This chapter draws heavily on this author's individual publications, and also those with his collaborators, relevant to this topic. Most of the work on ethnophysiography has been carried out collaboratively, hence many ideas expressed here have been developed together with research colleagues and it is thus necessary to include in this chapter substantial quotations from appropriate joint publications, to ensure that proper provenance of concepts is provided. However, some key aspects of this chapter are almost completely the work of this author alone, particularly the EDM and linkages between ethnophysiography and phenomenology.

2.2 Definitions of Landscape Related to Ethnophysiography

2.2.1 Definitions adopted for terrain, landscape and ethnophysiography

As discussed below (Section 2.2.2), the term 'landscape' has been used differently in different historical eras, disciplines and places. To address the difficulty of different interpretations, this dissertation adopts a specific definition. As discussed in Turk (2016c) and Manning and Turk (2016), this dissertation sets out a clear distinction between the use of the terms 'terrain' and 'landscape'.

Terrain is defined as the physical shape and texture of land, including vegetation at landscape scales and the ecology of the area. This definition concentrates on 'natural' features, excluding anything constructed by people, except for large bodies of water and non-natural hills of landscape scale (such as might result from mining activities).

Here the term 'landscape' incorporates the complete set of relationships (physical, utilitarian, social, cultural, spiritual and ethical) that a person (or a group of people; e.g. a language community) has with terrain, turning it into landscape. Landscape, as place, is lived-in terrain. This approach dictates the issues required to be addressed in ethnophysiography research and the mode of investigation, as discussed below.

The Antarctic Landscape Language Case Study, discussed in Manning and Turk (2016), provides a strong example of the consequences of adopting this set of definitions. It starts from the proposition that prior to 1820, when it was first sighted by humans, the Antarctic Continent

had terrain, but not landscape. This case study is also interesting because Antarctica has no indigenous language (something applying to no other large landmass), so terms for landscape features and toponyms are expressed in languages spoken by visitors. Direct (primary) relationships with Antarctic landscape experienced by visitors are partially transferred, via communications, to others, developing (secondary) relationships. The processes of landscape language development and communication are influenced by international agreements more intensively than for any other region, except perhaps the European Union. This case study is discussed further in Chapter 6. It complements the others discussed in this chapter, and Appendix 1.

The origin and meanings of the term 'landscape' have been discussed in earlier collaborative publications pertaining to ethnophysiography, and landscape language research more generally (Section 2.2.2). In those publications, a less specific definition of landscape was used, compared to that above, in the formulation of definitions for ethnophysiography. Since the field of research was given this name in 2003, by David Mark and Andrew Turk, the following definitions of ethnophysiography have been used:

- Ethnophysiography is a new field of study that examines the categories that people use when conceptualizing and communicating about the landscape. Ethnophysiography is an ethnoscience, similar in its aims and scope to ethnobotany or ethnozoology. (Mark and Turk, 2003b, n.p.);

- Ethnophysiography [is] defined as the study of different human conceptualizations of landscape, especially as indicated by differences in the way languages use generic terms and proper names (toponyms) for landscape features. (Turk, Mark, and Stea, 2011, p. 25);

- Ethnophysiography studies how people conceptualize things in the landscape, especially entity types such as hills, rivers, and vegetation assemblages. Ethnophysiography aims to document in detail the terms in a language that refer to the landscape and its parts. It excludes the built environment and administrative units at landscape scale but includes toponyms and cultural and spiritual associations with landscape. (Mark and Turk, 2016, n.p.).

Differences in these examples indicates the refining of the definition over thirteen years of collaborative research. The Mark and Turk (2016) version describes the field of research in the *International Encyclopaedia of Geography: People, the Earth, Environment, and Technology*,

published for The Association of American Geographers, hence, it is the definition of ethnophysiography adopted for this dissertation.

The progression of definitions used in ethnophysiography reflects, in part, this author's contributions regarding the relevance of a phenomenological approach. This is indicated by his publications referenced in this and other chapters.

2.2.2 Discussion of historical use of the term 'landscape'

An example of common (vernacular) definitions is the primary entry for 'landscape' in the Macquarie Dictionary (1985 Revised Edition). Landscape is defined there as: "a view or prospect of rural scenery, more or less extensive, such as is comprehended within the scope or range of vision from a single point of view". Its second entry is: "a piece of such scenery". Once landscape paintings became very popular in the eighteenth century, some people would go into the countryside and hold up small metal or wooden rectangles in front of their eyes to capture specific 'landscape scenes', viewed as if they were a framed painting. As Figure 2.1 illustrates, this tradition is not dead. It shows a large metal rectangle, erected by the local tourist association, on a hillside near the Australian town of Stanley in Tasmania. Its purpose is to facilitate tourists taking an optimum 'framed' photograph of the town and adjacent landscape, automatically incorporating a relevant WWW reference, written on the rectangular frame. Figure 2.1 shows this landscape frame, with two of this author's granddaughters (with dolls) indicating the key landscape feature, a mountain adjacent to the sea, called "The Nut"[4].

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[4] https://www.discovertasmania.com.au/attraction/thenut.
Photograph included here with permission of the children and their parents.

Figure 2.1: Framed landscape scene at Stanley, Tasmania, Australia [Photograph taken by Andrew Turk]

While of historical interest, this 'landscape as scenery' approach is unsatisfactory for defining landscape in the context of this dissertation. Landscape as a scenic view is only one small part of the multiple types of relationships that people have with landscape, including physical, utilitarian, social, cultural, spiritual and ethical aspects. Thus, a more scholarly definition is used here (Section 2.2.1).

Antrop (2000) discusses at some length the history of the term 'landscape' from the Renaissance period in the 15th century, when it was associated with paintings of landscape. Later it became associated more with the study of geography, for instance, via the work of Alexander von Humboldt, who emphasized: "that landscape should be considered as a holistic phenomenon that is perceived by humans" (Antrop, 2000, p. 12). By the 1950s landscape was also being linked to aerial photography, for instance, by Carl Troll, who also associated landscape with ecology. Antrop notes that "During the 1960s and 1970s a deductive and rationalistic approach dominated the new orientation in geography" (p. 12), leading to a more analytical approach to study of the components of landscape, and a

renewed interest in landscape ecology. The chapter by Mark, Turk and Stea (2010), in Johnson and Hunn (2010a), linked ethnophysiography to landscape ethno-ecology. Waterman and Purves (2018b) continued this trend by examining the impact of ecology on landscape perception, ontology and cultural significance for Spanish-speaking Takana indigenous people in the Bolivian Amazon.

In his book, *Pure Geography* (originally published in German in 1929), Granö (1997) divided the human perceptual environment into two zones: the 'proximity' and the 'landscape'. He suggested that the distinction arises from the fact that people interact directly with objects in the proximity, while the landscape remains at a distance, perceived mainly through vision, rather than a tactile sense. The "Introduction" to *Landscape in Language: Transdisciplinary Perspectives*, Mark, Turk, Burenhult and Stea (2011b), citing Granö's (1997) definition, suggest that considering sight as the primary human sense may distort our understanding of landscape: "Feld (1996) has drawn attention to the importance of sound in the nature of some places, and similar claims could be made for odour (e.g. the smell of vegetation types, water) and skin sensation (e.g. temperature, wind)" (p. 1). "They also point to Ingold's (2010) contention that: 'we might do well to return to an earlier understanding of landscape – one that is closer to the ground, more haptic than optical'" (p. 17).   Mark et al. (2011, p. 1) also suggest that Granö's way of thinking about landscape may be culturally biased or dependent on a person's particular relationship with landscape.

Granö's definition is also problematic in that, by dividing 'landscape' from 'proximity', it does not account for the intimate way that people interact with landscape during everyday tasks (like hunting and gathering). A more 'hands-on' definition of landscape, as 'taskscape' (Ingold, 1993), is required in the context of this dissertation, incorporating activities in landscape (Section 2.2.1).

Definition of landscape have been debated for decades, especially in disciplines such as Geography and Landscape Architecture. There are also problems of translation of the term between languages. Seddon (1997, p. 96/97) suggests that there are differences in the way comparable terms are used in English, Italian and French, German and Dutch, with emphasis varying between visual, ecological and land ownership aspects. In the context of ethnophysiography, a review of Seddon (1997) suggests that deeper consideration is necessary to understand the 'mental concept/construct' of an individual (and perhaps culture or language

group) for parts of landscape, and thus the 'linguistic term' used. This needs to account for the fact that terrain (mostly) does not break down necessarily easily into objects/features, except perhaps for cases such as islands or prominent hills/mountains on plains, as discussed in Section 2.3.3.

Drexler (2013) reviews the cultural background of terms for landscape in England, France, Germany and Hungary, including the words *paysage*, *landschaft* and *táj* (from the last three languages, respectively). She contends that differences in meaning arise from cultural history and sociological perceptions of landscape. The German term for landscape, 'landschaft', incorporates the concepts of land ownership and creation of regulated land parcels for social, legal and economic purposes, although it can also relate generally to areas of land with special characteristics or even 'homeland'. Denevan (2006) reviews the work of Charles Mann, including his use of the German term 'kulturland-schaft' for 'humanized landscape', usually rendered as 'cultural landscape'.

United States geographer Carl Sauer's (1925) paper "The Morphology of Landscape" promoted the idea of 'cultural landscape', with human aspects superimposed on the physical landscape. This was in line with Sauer's belief that a phenomenological approach to geography, investigating the often complex relationships between phenomena, was preferable to a positivist one, for understanding the meaning of landscape (Denevan and Mathewson, 2009). Hence, it aligns with the approach adopted in this dissertation.

Consideration of the work of these authors, and others, leads to the definitions of terrain and landscape used in Mark and Turk (2016) and adopted in this dissertation (Section 2.2.1). This enables a more social and cultural perspective on the relationship between physical attributes of land and the meanings attributed to it by those who dwell in that place. Smith (1989, p. 109) wrote: "With a dialectical of social theory and geography increasingly evident, the time has proven ripe for a more serious and long-overdue re-examination of landscape that moves beyond narrow descriptive, aesthetic, and idealistic confines." Landscape is constituted through complex sets of relationships which individuals (and groups) build up with terrain, which are part of the conceptualization of landscape explored in ethnophysiography (landscape language) case studies, as discussed below.

Another very useful work is Antrop (2018) where he provides a brief history of landscape research, from both a scientific (natural and human) and artistic perspective. He discusses various definitions of landscape, including from the World Heritage Convention and European Landscape Convention. A more extensive exploration of landscape as place is provided in Chapters 4, 5 and 6.

2.2.3 Ethnophysiography, landscape language and the Anthropocene

In this dissertation the term ethnophysiography is generally used for the relevant field of research, although, as apparent in later sections, linguistic collaborators prefer the term 'landscape language'. Hence, at times the linguistic term is used to discuss some research activities and sometimes both terms are used.

From the definitions in Sections 2.2.1 and 2.2.2 it is clear that 'ethnophysiography' is a broader term than 'landscape language'. Ethnophysiography research seeks to understand the conceptualisations that people have of landscape, incorporating all aspects of their relationships with landscape; physical, utilitarian, social, cultural, spiritual and ethical. One commonly used way to help understand these conceptualisations and relationships is to examine the semantics of landscape language terms, and also to compare them with toponyms. This conveniently provides an estimation of the language community's relationships with landscape and enables these to be compared with those from other language groups. However, this is not the only possible approach to ethnophysiography research and it may not reveal all aspects of the relationships that a group of people may have with landscape. As examined in Chapter 5, relationships with landscape form a considerable part of the more general concept of place. The discussion in Chapter 6 reveals that another possibility is to focus on communalised intentionality, which may extend the investigation beyond landscape language. This leads to the development of the PTM-ECS in Chapter 7 as a means to provide for more effective investigation of social, cultural, spiritual and ethical aspects of landscape language. This interfaces with the development of ever-more effective versions of the EDM.

Another issue of concern is the changing nature of the general relationships of people to the planet Earth, including terrain, experienced as landscape. As well as particular physical, utilitarian, social, cultural, spiritual and ethical relationships with landscape varying between places and language communities (as summarized in this dissertation via the EDM) they also vary through time as the terrain (including vegetation) changes and also the lifestyles and

activities of people change, including as a result of invention and adoption of new tools, techniques and technologies.   Internal change is emergent, interacting with external forces, such as inventions, colonisation, financial and ICT globalisation, and climate change. Language adjusts to reflect such changes in relationships with landscape.

Researchers have investigated the notion that the rate of change in the physical environment has rapidly increased since about 1950. This followed the commencement of use of nuclear weapons and the post WW2 massive increase in the impact of the industrial revolution, which commenced in the 1780s. This combination of rapid changes has been termed the 'Great Acceleration' (McNeill and Engelke, 2014). Such developments mean that there have been fundamental changes in the global impact of people on Earth, such that it is now appropriate to suggest that the (geological) era of the Holocene has been replaced by the Anthropocene (Bubandt and Wentzer, 2020)[5]. Geologists are understandably difficult to convince that we are in a new geological era, especially since it is so new and still continuing, however, a working group of the International Commission of Stratigraphy have been assessing geological evidence for the existence of the Anthropocene. This involves classic measures of changes in the fabric of the earth's surface, not merely observations of reduction in ice, deforestation, global warming, etc. Although the decision is still pending, it is worth considering the potential impact of these changes on landscape, not just at the physical terrain level, but in terms of the fundamental relationships between that terrain and the people who dwell there; that is fundamental changes in what is termed landscape.

Social philosophers, such as Clive Hamilton and Will Steffen, argue that, whether or not stratigraphers officially declare The Anthropocene Era, from a fundamental ethical perspective, peoples' relationship with planet Earth have changed. We are now exercising the power to change the Earth massively, arguably to an extent that could threaten our very existence (Casey, 2017; Hamilton, 2008; Steffen, Crutzen, and McNeill, 2007; Steffen, Grinevald, Crutzen, and McNeill, 2011).

Can such developments be ignored in our discussion of ethnophysiography? Arguably they cannot, since they represent fundamental changes in our physical, utilitarian, social, cultural,

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[5] Nils Ole Bubandt is involved in the AURA (Aarhus University Research on the Anthropocene) project, headed by Niels Bohr Professor Anna Tsing.

spiritual and ethical relationships to landscape. Some predict that the impending changes in climate and food production are likely to result in considerable changes in lifestyle, large-scale migration and a significant increase in warfare. At a local level, climate change will impact on vegetation, and water in rivers, lakes and ice fields, at a rate far exceeding the previous rate of change in the way languages reference landscape. These matters are returned to in Chapters 6 and 9.

2.3 Development of Ethnophysiography

2.3.1 Preliminary work by this author and colleagues

The purpose of this section is to establish the provenance of key ideas in this dissertation, especially those related to the research field of ethnophysiography. This author's research and consultancy projects and publications (during the 1990s) were especially formative regarding the fundamental concepts involved in this chapter. Topics included: optomisation of cartographic visualisations using GIS; producing GIS-based visualisations of Australian Aboriginal topics (especially regarding Native Title); and collaborative development of indigenous information systems, including ethical issues (Trees and Turk, 1998a; b; c; Turk, 1992b; 1993b; 1994; 1996; Turk and Mackaness, 1994; 1995; Turk, Mackaness and Tinlin, 1995; Turk and Trees, 1998a; b; c; 1999b; c, 2000).

Much of this work was carried out with research colleagues. In the 1990s this author's interaction with US geographer David Mark increased. This led to a collaborative research relationship and development of the ethnophysiography research program.

2.3.2 Other research developments relevant to ethnophysiography

While this author was undertaking the research activities briefly described above, many others were carrying out research that contributed to the development of the field of ethnophysiography. Some of these activities were in collaboration with this author, but most were not. For brevity, the discussion below concentrates on research carried out by Mark, who has been this author's principal collaborator in initiating and developing the field of ethnophysiography, as discussed in Mark and Turk (2016) and Turk and Stea (2014).

There is not space here to detail Mark's extensive research and publications regarding automated cartography and GIS, and his role in the US National Centre for Geographic Information and Analysis (NCGIA). This research included studies related to HCI for GIS

(NCGIA I13), spatial cognition, GIS universality, naive (folk or common-sense) geography and landscape ontologies (Mark and Egenhofer, 1996; Turk and Stea, 2014). It provided the background and firm foundation for his research on ethnophysiography.

Past research on multi-cultural aspects of spatial knowledge, in the context of their potential impact on GIS was reviewed by Andrew Frank (2009). This included discussion of the early work regarding cultural differences relevant to geographical information science by Mark and his collaborators, and of Campari and Frank (1993). Frank (2009) suggests that this prompted questions as to whether a 'universal' GIS is possible or appropriate. He also reviewed research related to cultural differences, including the contribution from Montello (1995) who suggested that cultural differences in spatial cognition are not nearly as substantial as is often claimed. He also criticised the current empiricist framework for understanding the development of cognitive structures and suggested use of an evolutionary framework instead.

A new research approach was adopted by researchers under the rubric of 'naïve geography' (e.g. Mark and Egenhofer, 1996; Mark, Comas, Egenhofer, Freundschuh, Gould and Nunes, 1995), which included human-subject testing (e.g. Gould, Comas, Nunes, Egenhofer, Freundschuh and Mark, 1996; Mark, and Egenhofer, 1994; Mark, Smith and Tversky, 1999)[6]. Frank (2009) mentions the broader ethnophysiography research agenda already being undertaken by Mark, Turk and Stea (2007) and concludes (p. 5) that: "Differences between cultures affect how GIS is used and 'cultural differences' form a major obstacle in the application of GIS […] Differences in the conceptualization of spatial situations – independent from the socio-economic (cultural) context – are not documented, but large differences in language expressions to communicate spatial situations exists". His recommendations for future research included studies of the differences in landscape terms between languages and their meanings; that is the ethnophysiography research program.

In the late 1980s and the 1990s Mark and his colleagues carried out investigations (including human-subject testing) of landscape terms, comparing terms in English, French and Spanish. The results indicated only minor differences in conceptualization of landscape. Further work on colonial languages in Latin America produced similar results, which led Mark to infer that

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[6] Naive geography is the body of knowledge that people have about the surrounding geographic world. The research field of Naive Geography investigates notions and concepts concerning attempts to develop formal models of the common-sense geographic world (Mark and Egenhofer, 1996).

European languages did not demonstrate a significant difference in their sets of landscape terms, with few exceptions, such as the distinction between ponds and *étangs* in English and French (e.g. Mark, Gould and Nunes, 1989; Mark, Comas, Egenhofer, Freundschuh, Gould and Nunes, 1995). This indicated the possibility of strong commonality of landscape ontologies within at least some European languages.

This author discussed these research results and potential collaborative studies with Mark at the *EuroConference – Ontology and Epistemology for Spatial Data Standards* (at La Londe-les-Maures, France) in September, 2000. He pointed out that previous language studies relating to categories (e.g. Lakoff, 1987) utilised investigation of Australian Aboriginal languages, which are vastly different from European ones. Because of community development and research work carried out in the preceding decade by this author and his collaborators (principally Kathryn Trees), this author suggested that he and Mark collaborate on extending the investigation of difference between landscape terms in diverse languages via a case study of Yindjibarndi landscape terms. This resulted in Mark visiting Western Australia during his sabbatical in 2002, after he had visited the Max Planck Institute for Psycholinguistics in the Netherlands (see Section 2.6.1). During Mark's trip to Western Australia, he and this author commenced the first ethnophysiography case study, involving the Yindjibarndi language in the Pilbara region (Section 2.4.1 and Appendix 1).

2.3.3 Development of basic aspects of ethnophysiography
Introduction to Section

The development of the field of Ethnophysiography from about 2000, was principally carried out by Mark and Turk, with contributions from David Stea from 2004. There was also considerable input from linguists associated with the Language and Cognition Group at the Max Planck Institute for Psycholinguistics, Nijmegen (Burenhult, 2008a), although they prefer to use the term 'Landscape Language Research' to 'Ethnophysiography'. This collaboration led to an international trans-disciplinary workshop in 2008 and the resulting book, describing studies by about twenty authors (Mark et al., 2011). These topics are covered in Turk and Stea (2014) and Mark and Turk (2016) as well as other publications, as indicated in Section 2.6.

Ontology, Categories and Representation

The nature of categorisation processes (ontologies) are central to the field of ethnophysiography. Considerable work relevant to GIS theory had already been undertaken regarding spatial ontologies (e.g. Guarino and Giaretta, 1995; Kuhn, 2001; 2002; 2005; Mark, 1993; Mark, Smith, Egenhofer and Hirtle, 2004; Smith and Mark, 2001; Winter, 2001). More general literature on categories and ontologies was also reviewed (e.g. Malt, 1995). Mark and his colleagues have since continued this work on spatial ontologies to help explain the categories used in different languages for landscape elements (e.g. Sinha and Mark, 2010).

When categories in natural language are investigated it is necessary to consider different versions of semiotic theory (e.g. Saussure, 1974), that explain the processes by which the meaning of particular words arise for any specific language. Adedimeji (2007, p. 145) says: "Signs are pervasive; they are prevalent in almost all gamuts of human endeavour – from medicine to theology, from geography to agriculture, from philosophy to communication theory itself". He cites Saussure's contention that "Linguistics is only one branch of this general science (of semiology). The laws which semiology will discover will be applicable in linguistics [...] In this way, light will be thrown not only upon the linguistic problem. By considering rites, customs, etc. as signs, it will be possible, we believe, to see them in a new perspective (Saussure, 1983:16 – 17)". The significance for landscape language is discussed in Chapters 6 and 8.

Within a speech community meanings are constructed as part of social reality (Myers, 1986), requiring cultural analysis to reveal the details of semantics, including for landscape terms and representations used in digital technologies, such as GIS and other geographically intelligent systems (Kuhn 2002; 2005; Purves, Winter and Kuhn, 2019). Benjamin Lee Whorf, (1940 p. 213) suggested a fundamental approach to conceptualisation and categorisation of landscape elements: "We dissect nature along lines laid down by our native languages. … We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way – an agreement that holds throughout our speech community and is codified in the patterns of our language". This is especially important for the continuous landscape, which does not naturally have parts with definite boundaries (Smith and Mark, 2003). That is, landscape does not naturally divide into 'objects' with 'crisp' boundaries. Landscape is characterised by vagueness. Hence, 'fuzzy' approaches are needed to dis-embed features if adopting an automated digital method to identification and classification of parts of landscape (Fisher, Cheng and Wood, 2007).

Also of critical importance is how landscape concepts are represented, including in spoken language. Waterton (2019) discusses 'more-than-representational theories' of landscape, in the context of 'affect', 'doing', 'performance' and 'practice' in the lifeworlds of language communities. She references (among many others) Ingold (1995, p. 58) who suggestts that 'the only way to understand our own creative involvement in the world is by taking ourselves out of it' (p.94). A phenomenological paradigm facilitates this perspective. In line with the approach adopted in this dissertation (Chapter 5, 6 and 8), Waterton cites Simpson (2008) as suggesting that a key aspect regarding representational theories of landscape is the relationship between affective aspects of everyday life and the particular topographic environment where people dwell. This demands use of a more comprehensive methodology for ethnophysiography case studies, linked to the EDM.

Jovchelovitch (2007, p.2) suggests that representation "is at the basis of all knowledge systems and understanding its genesis, development and realisation in social life provides the key to understanding the relationship that ties knowledge to persons, communities and lifeworlds". She promotes a "dialogical view of representation" in order to "reaffirm its symbolic and social character and to connect its dynamics to different forms of knowing." This relates to three main propositions:

- "Representational processes are both symbolic and social, expressing subjective, intersubjective and objective worlds."
- "Different modalities of representation enable different forms of knowledge."
- "Understanding the heterogeneity of knowledge involves dismantling the traditional representation that sees knowledge in terms of a progressive scale where superior forms of knowing displace lower forms." (p. 3)

The points made by Jovchelovitch (2007, p.2) highlight why automated approaches to landscape classification can only be partially effective (Fisher, Cheng, and Wood, 2007; Fisher, Wood and Cheng, 2005). Hence, ethnographic research is required to identify the concepts and landscape terms used by any particular speech community. This enables the social aspects of landscape terminology to be understood (e.g. *Jukurrpa,* Chapter 8) and also addresses other issues concerning representation, raised by McHoul (1998; 1999; 2007; 2010) [see Table A6.2 in Appendix 6], and deixis (Ruthrof, 1993; 1997; 2000; 2015; forthcoming) [see Chapter 5, Section 5.4]. Some key issues concerning the validity of ethnophysiography data collection and

analysis (to establish meaning of landscape language terms) are discussed in Section 2.5.3 and Section 7.3.1 in Chapter 7.

Kindedness

When considering conceptual categories, a basic issue is the extent that so-called 'natural kinds' (Churchland, 1985) exist within a particular field of study and how likely it is that different people will arrive at the same set of categories. This topic was investigated in the context of landscape by Smith and Mark (1998; 1999; 2001; 2003) and Turk and Mark (2003). The key issues were also discussed in Turk and Stea (2014, p. 1247/8), as follows:

> One formulation of these ideas suggested that things in the world have (inherent) 'properties' and also 'attributes' assigned to them (by individuals, groups, conventions, fiats, etc.). Discontinuities in perceptible properties lead people to group things into categories (different kinds). This meta-attribute could be termed 'kindedness'. The ability to perceive kindedness may depend on personal attributes of people (e.g. visual acuity; cognitive style), or experience (expertise; prior knowledge), or technical apparatus (e.g. a microscope). Hence, to this extent, the perceptibility of kindedness is only partly in the thing itself, and partly a function of attributes of the observer and the observation process and technology. Things in the world may be classified in terms of their level of 'kindedness'. In Figure 1 [here Figure 2.2], A = maximum kindedness, which leads to 'self-evident categorisation' and perhaps 'non-collusive unanimity' of categorization and even 'universal knowledge' and 'natural kinds'. At the other end of the Continuum is B = minimum kindedness, where kinds need to be assigned as nominal categories. Landforms generally have low kindedness and it is difficult to identify landscape features which could qualify as 'natural kinds'.

                   landforms

B   **v**   **A**

I--I

Low   High

Figure 2.2: Kindedness continuum (from Turk and Stea, 2014).

Landscape forms that could be termed 'natural kinds' might include extensive rocky plains and islands. Such considerations led Mark and Turk to decide that geomorphology could contribute to an understanding of classification of landforms. However, what was necessary was well constructed and executed ethnographic research concerning the landscape domain in diverse languages, given the limited impact of 'natural kinds' on landscape ontologies and language.

Early Presentations and Publications

The reasons for the coining of the term ethnophysiography and the initial results of the Yindjibarndi case study (Section 2.4.1) were presented by Mark and Turk in two papers at the COSIT'03 conference (Mark and Turk 2003a; b). Discussions were also continuing (mostly via email) with other interested researchers. This resulted in a paper by Mark, Kuhn, Smith and Turk at the AGILE conference in 2003. The paper discussed issues concerning ontologies and feature categories for GIS and relevant cultural considerations in developing GIS for different language communities and interoperability of GIS. The paper (presented by Mark) utilised some early data from the Yindjibarndi ethnophysiography case study (Section 2.4.1 and Appendix 1).

2.4 Initial Ethnophysiography Case Studies

2.4.1 Yindjibarndi ethnophysiography case study – Australia

Overview:

This author and his colleagues conducted case studies to explore the key ethnophysiography research questions listed in Section 1.3.1 of Chapter 1. In each case a general dictionary existed for the target language, however, the number of landscape-related terms and their definitions were inadequate to represent the details of relevant landforms for the specific language and the role of landscape for the speech community. By conducting research focused on the landscape domain, it was expected that the results would facilitate a fuller exploration of the ways that aspects of language can help advance understanding of people's relationships with landscape. A key aspect of this work was comparison of landscape language between different communities (in widely separated parts of the world) and to examine how this might be related to the nature of the terrain itself and the particular physical, utilitarian, social, cultural, spiritual and ethical activities that those people undertake in the landscape.

From about 2000, this author and Mark discussed his work on comparison between European languages in the context of 'naïve geography' and this author's work on mapping indigenous cultural mapping and 'Indigenous GIS'. As discussed in Section 2.3.3, Mark worked with this author during 2002 to commence their joint research on what they would term ethnophysiography, the following year.

This author had been working with Kathryn Trees in Roebourne (Western Australia) with Ngarluma and Yindjibarndi and Bangima Aboriginal peoples between 1995 and 1999 on various projects, including: development of cultural awareness courses; collaborative development of a cultural GIS; and assistance with the Ngarluma-Yindjibarndi Native Title case. Hence this author was well acquainted with key Yindjibarndi elders and their cultural organization Juluwarlu and was confident that they would assist himself and Mark with an investigation of landscape aspects of their language.
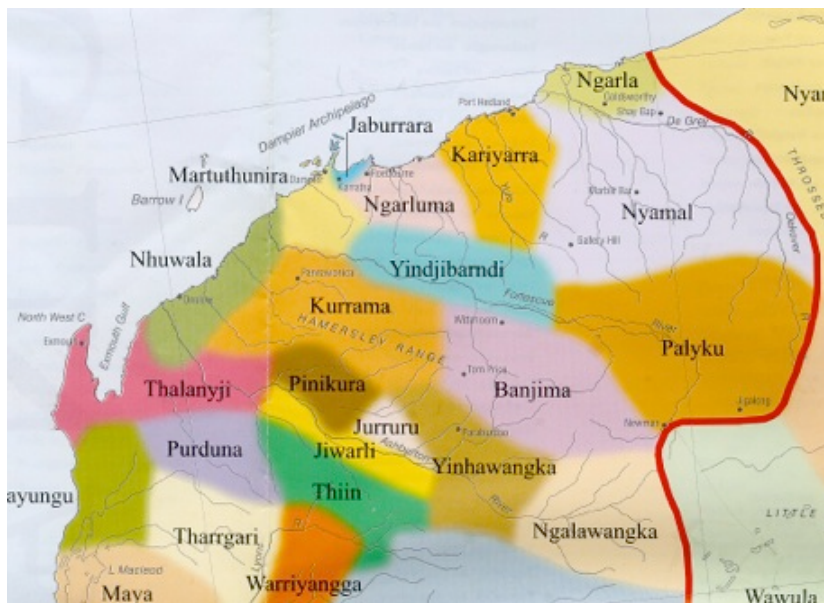
Figure 2.3: Part of Tindale map of Australian Indigenous languages

After obtaining community agreement (via Juluwarlu) and ethics approvals from Murdoch University and SUNY (Buffalo), this author was joined by Mark in fieldwork activities from 2002. During fieldwork in 2006, Stea and Carmelita Topaha (key collaborators in the Navajo ethnophysiography case study; see Section 2.4.2 and Appendix 1) also participated in data

collection for the Yindjibarndi case study. Brief details of the Yindjibarndi ethnophysiography case study are provided in Appendix 1. See also Mark and Turk (2003a); Mark, Turk and Stea (2007); Turk and Mark (2008).

Some cultural, spiritual and affective aspects of Yindjibarndi lifeworld

The Yindjibarndi case study was effective in facilitating development within the Ethnophysiography Research Group of a heightened understanding of the importance of social, culture, spiritual and ethical aspects and affects in relationships with landscape. This applied especially to researchers from a positivist, realist research background.

As noted above, The Yindjibarndi Ethnophysiography Case Study built on previous work with members of this language group by this author and his collaborator Kathryn Trees. During a trip 'on country' with their Yindjibarndi collaborators, they visited *Jindawarrana* (Millstream), a sacred place for Yindjibarndi people and, simultaneously, a beautiful National Park for the non-indigenous inhabitants (Rijavec, Harrison and Soloman, 1995). At a permanent, very deep pool of water an Yindjibarndi elder (Woodley King) explained that each permanent source of water contains a *warlu* (spirit) [Figure A1.11 in Appendix 1]. At another location, Yindjibarndi elders also showed the researchers what looked like an ordinary hole in the ground, less than a meter wide, of unknown depth (Figure 2.4), near a large permanent pool, Deep Reach Pool (*Nunganunna*) (Figure 2.5). Yindjibarndi elders told them that this hole is the place where the *warlu* spirit *Barrimindi* 'poked his head up', during his underground travel from the coast in search of two young men who had broken the *Birdarra* law, in the beginning time, when the world was still soft. One account of what followed that event says: "He finally got up at Nunganunna [Deep Reach Pool, at Millstream] and lifted the law breakers up in the sky in a willy willy [...] when they fell, he swallowed them through his *thumbu* (anus) and drowned the whole tribe in the biggest flood of water. Today Barrimindi lives deep down in the pool he made at Nunganunna" (Rijavec, 1995). Today Yindjibarndi people visit this hole but never allow their shadow to fall on it. When they arrive at the pool, they take a handful of water into their mouth, then spray it out, as a token of respect for *Barrimindi*. During this visit, after doing this ceremonial act, they asked the *warlu* to look after their trusted friends (this author and his collaborator) and then invited these visitors to also perform the same ceremony.

Figure 2.4: Hole where *warlu* spirit *Barrimindi* poked his head up[7].

Figure 2.5: Deep Reach Pool (*Nunganunna*) at Millstream (*Jindawarrana*).

Rijavec (1995) describes *Birdarra* law as:

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[7] Woodley King (now deceased), the Yindjibarndi elder in this photo, expressly asked this author to continue to use photos where he is shown, to help explain Yindjibarndi culture, even after this death, despite the traditional taboo (now diminishing) against using names and images of people who have died.

an infinitely rich, veiled, subtly mutable, mercurial, carnival, intimate skein of elements and influences that derive from, and speak of, the Yindjibarndi conception of creation, their country and the life within it, including living landforms and water, and which embodies and gives carriage to the relationships between the people, creatures, spirits and things that share existence in the creation.

A fuller explanation of the role of *Birdarra* law is provided in Rijavec (2010). For Yindjibarndi people, these *Birdarra* law cultural associations include strong spiritual relationships with permanent water features, as well as other significant landscape elements. . This point was emphasized again in the course of ethnophysiography fieldwork at Roebourne in June 2006. During an ethnographic, audio recording session at the office of Juluwarlu (the Yindjibarndi culture maintenance group) elders examined photos of landscape features. As part of the ethnophysiography case study, the researchers (AT and DM) asked for landscape feature terms and the informants (ED, CC, FV) spontaneously referred to spiritual aspects of the features. The following edited example from the transcripts (concerning a very large pool at Millstream – Figure 2.5) illustrates this:

ED: *Must be, look like Millstream*

[…]

CC: *This is a yinda (permanent pool). This is Deep Reach.*

[…]

CC: *I think we will have bin explained to you what this is (referring to previous discussions with AT)*

ED: *It means a lot to us.*

AT: *yes*

CC: *That's where the two men been taken, you know?*

ED: *And buried - very frightening for us to go and stop there, you know ….*

CC: *You see the hole on top of the bank in Millstream (addressing DM)?*

DM: *I have not seen it.*

ED: *You ought to see it. Maybe more bigger than this (showing size with her hands). Snake got up, got the two men, and come back - this wasn't like this, it was a dry riverbed - 'til that. Camping ground for the old people as well, long ago.*

CC: *In the wundu (river bed), yes.*

ED: *In the Dreamtime, yes.*

[…]

CC: They bin crying, crying, and that warlu got wild, sent the big flood come down.

FV: Made them permanent pools.

This transcript confirms the cultural/spiritual importance of *Jindawarrana*. It includes a good example of the 'atmosphere' (affect, feelings) aspects of landscape. One of the Yindjibarndi collaborators (ED) describes this area, near the hole shown in Figure 2.4, as "very frightening for us to go and *stop there";* that is to camp at that place.

In discussing a chapter by Layton in their book, James, Hockey and Dawson (1997, p. 7) mention that he " bids us address the distinction between representations that carry a direct reference to an external, locally situated material reality – a hole in a rock, a track, a river valley – and representations that are self-referential, which carry meaning only to the extent that they make sense within the framework of a culturally specific knowledge-base. This might be a sacred site which marks the passage of a totemic creature". This applies to the 'hole' in Yindjibarndi country, near *Nunganunna*.

As young Yindjibarndi grow into adulthood they learn, via instruction and modelling by elders, the significance of sacred places, as part of Birdarra Law (their local topology), and the correct protocols associated with approaching these sites. To express the meaning of landscape places for Yindjibarndi people requires the use of a more-than-representational description, e.g. via a culturally-appropriate GIS [see Section 7.3.1 in Chapter 7]. The need to understand cultural significance of landscape features applies to all peoples, everywhere.

Results and discussion:

The Yindjibarndi case study, commenced in 2000, was an excellent beginning to the research project, providing strong support for the 'ethnophysiography hypothesis' by demonstrating considerable differences between how Yindjibarndi and English speakers talk about landscape (Turk et al., 2011). These results encouraged the researchers to undertake further ethnophysiography case studies. It also led to work undertaken in the PhD investigation to broaden the range of methods used, incorporating aspects of phenomenological approaches.

2.4.2 Navajo (Diné) ethnophysiography case study – USA

Overview

The second case study conducted by the ethnophysiography research group was with Navajo people in Southwestern USA. Although the term Navajo is used in most English-speaking and government contexts, in their own language, the people refer to themselves as 'Diné'. This case study was initially carried out from 2004 to 2012 by Mark and Stea, with considerable assistance from their principal Navajo collaborators Carmelita Topaha and Larry King. Field trips of a few weeks duration were undertaken during most years of that period and a couple of times since; the most recent in 2019 involving LACOLA project leader, linguist Niclas Burenhult. This author assisted with some fieldwork and analysis of data in 2005 (Figures 2.6 and 2.7) and in 2008 (during his visit to the SW of USA for the International Transdisciplinary Workshop, discussed in Section 2.6.2).

Figure 2.6: Andrew Turk and Larry King at Red Rock Trading Post, Arizona, September, 2005[8].

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[8] Photographs of participants in Navajo ethnophysiography case study used with their permission.

Figure 2.7: Loretta Holyan, Andrew Turk, Carmelita Topaha, Larry King at Blue Canyon, Arizona, September, 2005

Some details of the Navajo case study are provided in Turk et al. (2011), Klippel, Mark, Wallgrün and Stea (2015) and Mark and Turk (2016). An *Illustrated Dictionary of Navajo Landscape Terms* was published by Mark, Stea and Topaha in 2019. This book documents the vocabulary, and provides photographic illustrations, of many of the landscape language terms in Navajo language (Diné bizaad). This dictionary will assist language preservation activities in schools and elsewhere, and is also valuable for use by linguists, anthropologists, geographers, earth scientists, planners and others, who interact with Navajo speakers and seek to understand the ontology and complexity of their relationships with landscape. A brief summary of this project is provided in Appendix 1.

Results and discussion

Not all data from the fieldwork (mainly conducted before 2010, but occasionally on-going) has been fully transcribed and analysed. However, preparation of an illustrated landscape dictionary for community use was commenced in 2009 and published in 2019 (Mark, Stea and Topaha, 2019).

The Navajo ethnophysiography case study built on the project with Yindjibarndi people to provide further support for the ethnophysiography hypothesis that conceptualisations of landscape are expressed differently in languages in different places. It also stimulated further research collaborations, including the Transdisciplinary Workshop on Landscape in Language, held on the Navajo Reservation in 2008 (Section 2.6.3).

2.5 Case Study Methods and Ethical issues

2.5.1 Need for enhanced methodology

The range of methods used in landscape language (ethnophysiography) case studies has been briefly described in Section 2.4 (and Appendix 1) and is discussed in detail in Turk et al. (2012). This publication concentrates on the Yindjibarndi and Navajo case studies and also the landscape language project undertaken by linguist Carolyn O'Meara (SUNY Buffalo) with speakers of the Seri language of Sonora, Mexico (O'Meara and Bohnemeyer, 2008). This topic is also discussed in Chapter 7, regarding the new transdisciplinary methodology, in Chapter 8, with respect to the Manyjilyjarra case study, and in Chapter 9.

Taken together, the Yindjibarndi and Navajo ethnophysiography case studies indicated that an ethnographic approach to landscape language case studies is required. This entails use of a detailed, comprehensive and ethical methodology,. This dissertation seeks to extend the methodology, via inclusion of aspects of phenomenology to produce a contingent, integrated, transdisciplinary ethnophysiography case study methodology (PTM-ECS), to be used in conjunction with a revised EDM (Chapters 7 to 9).

In relation to a general discussion of the affordance of aspects of the topographic environment, it is useful to consider the maxim Kant (1790, p. 259) identifies (in translation) as 'the principle by which we teleologically judge nature in general as a system of purposes': "Everything in the world is good for something or other; nothing in it is gratuitous; and the example that nature offers us in its organic products justifies us, indeed calls upon us, to expect nothing from it and its laws except what is purposive in (relation to) the whole". Hence, if an ethnophysiography case study seeks to understand the relationships of a language community to its landscape, it needs to use a methodology capable of revealing how any landscape feature participates in the physical, utilitarian, social, cultural, spiritual and ethical purposes entailed in the whole topographic environment and the lifeworld system of the speakers. This is a very demanding

task, which can be facilitated by adopting a phenomenological approach. This is discussed in greater depth in Chapters 4 to 8.

The desire to produce an enhanced ethnophysiography methodology, supporting the EDM, was discussed by this author in his presentation "Exploring Topology of Place: Potential for Synergy Between Phenomenology and Ethnophysiography" (Turk, 2007) at the Australian Society for Continental Philosophy conference "Dialogues in Place". In his paper this author said "Phenomenology has the potential to assist in understanding the way that landscape terms may incorporate cultural and spiritual aspects of the worldview of the speech community", and related this to concepts of 'The Dreaming' (e.g. *(T)Jukurrpa*) for Australian Aboriginal peoples. The paper also noted: "It is impossible to adequately interpret ethnophysiography data without striving to comprehend (to the extent that an outsider ever can) this cultural structure which provides the logic of these peoples' 'lifeworld' and the way that landscape is place".

This author also presented a similar, though extended, paper (Turk, 2007) titled "A Phenomenology Basis for Trans-disciplinary Research in Ethnophysiography" at the 26th International Human Science Research Conference, hosted in Rovereto, Italy. Again this emphasised the importance of incorporating social, cultural, spiritual and ethical aspects in ethnophysiography investigations. It provided a prima facie case for commensurability between ethnophysiography and phenomenology research agendas.

Together with colleagues, this author presented a paper at the 2008 International Transdisciplinary Workshop (Section 2.6.3) on ethnophysiography research up to that date. He also presented his own paper on his PhD research. These papers were each included as chapters in the 2011 book resulting from this workshop (Turk, Mark and Stea, 2011; Turk, 2011). Each of these presentations discussed social, cultural, spiritual and ethical aspects of ethnophysiography case studies and the consequential need for an enhanced methodology supporting the EDM.   Turk, et al. (2011) included (p. 25):

> Like all peoples, especially indigenous ones who have lived for tens of thousands of years in the same place, land is absolutely central to the culture of Yindjibarndi people. Hence, terms for parts of landscape play an important role in their language. Terms for landscape features relate to practical activities of Yindjibarndi life and also to deep cultural/spiritual associations with ngurra (country) from the earliest time, Ngurra Nyujunggamu 'when the world was soft' (Ieramugadu Group Inc., 1995).

Turk's paper at the 2008 Transdisciplinary workshop, entitled "Exploring philosophy of place: potential for synergy between phenomenology and ethnophysiography" (Section 2.6.3), made the case that an intrinsically transdisciplinary inquiry like ethnophysiography requires an over-arching and unifying paradigm (Turk, 2011). In another paper at that workshop, this author discussed development of the EDM, suggesting that the initial version will stimulate discussion and lead to more effective analysis of generic issues, which underlie the results of individual landscape language case studies.

These four individual and one joint presentation in 2007 and 2008, and feedback received from other international, interdisciplinary conference/workshop attendees, were influential for the PhD investigation. They occurred at the beginning of the project and established enhanced ethnophysiography research methods, and their interaction with the EDM, as primary objectives of the research and dissertation.

The topic of enhanced data collection and analysis techniques is linked to discussion of more-than-representational approaches, raised in Section 2.3.3 (Waterton (2019); etc.), and discussed further in Chapter 6. This addresses issues concerning integrated representation of the place concepts concerning cultural, spiritual and affective aspects of everyday life related to the particular topographic environment where people dwell.

McHoul and Rapley (2005) suggest that an effective approach to investigating 'socio-cultural being' is via an examination of dwelling activities, since everyday lifeworld activities involve individuals and groups assigning meaning to things involved in their activity. Anderson and Harrison (2010) note that non-representational theories have had an increasing impact within Human Geography, including in terms of ethics and politics. They "describe how and why non-representational theory has a practical and processual basis for its accounts of the social, the subject and the world, one focused on 'backgrounds', bodies and their performances" (p. 2). This includes new ways of engaging with social aspects of landscapes (Thrift, 2008). They cite (p. 4) Duncan's (1990, p. 17) characterisation of landscape as "a signifying system through which a social system is communicated, reproduced, experienced, and explored". This discussion demonstrates why it was important to develop, through the PhD investigation and dissertation, an enhanced ethnophysiography case study methodology and a progressively more

effective EDM to facilitate comparison of the results of case studies of different languages, in various types of topographic environment.

2.5.2 Ethical issues

Ethical issues are a key aspect of any ethnographic research project, especially where studies are undertaken with indigenous peoples (Turk and Trees 1998b). These issues were discussed with participants (including several members of indigenous nations) in a session at the Transdisciplinary Workshop on Landscape Language conducted on the Navajo Reservation in 2008 (Turk and Mark, 2011) (Section 2.6.3). This matter is also dealt with in detail in Turk et al. (2012). A shorter list of key ethical issues is included in Mark and Turk (2016). The rights of collaborators and language communities must be respected by: ensuring permission is obtained for all fieldwork; making appropriate payments to collaborators; using both male and female researchers to handle gender-sensitive issues; not eliciting, recording, storing, or publishing secret or sacred information; only using photographs of collaborators with their consent; and acknowledging collaborator contributions in publications.

2.5.3 Managing threats to validity of interpretations of language data

Some example threats to validity

Turk et al. (2012) and Mark and Turk (2016) list potential threats to validity of ethnophysiography case study research results, which may arise from methods of data collection and/or interpretation (Appendix 8). These are briefly:
- Terms used in different languages may relate to reasonably equivalent landscape concepts, but the range of landscape feature examples, fitting the concepts, may differ for the locations where the languages are spoken. For instance, one location may have much larger mountains than another.
- The actual physical extent of a feature, covered by a term, may vary from one language to another. For instance, the term for mountain may or may not include the foothills.
- Different whole-part concepts may apply. For instance, the term for river would include the channel, but may or may not include the water; as for Yindjibarndi (Section 2.4.1 and Appendix 1) and Manyjilyjarra (Chapter 8 and Appendix 9).
- Terms may refer primarily to the shape of a landscape feature rather than the landscape features as an entity. For example 'burbaa' in Yindjibarndi meaning any rounded shape (Section 2.4.1 and Appendix 1).

- The physical point of view may influence feature conceptualization and hence term used. For instance, in Navajo a different term appears to be used for a canyon wall depending whether it is viewed from the top or the bottom (Appendix 1).

- Terms (and/or toponyms) may refer to spatial areas (places) rather than individual features (objects); e.g. a term for a mountainous area. This can also apply for 'ecotopes', such as areas of a certain type of vegetation.

- Participants responding to landscape photographs may misinterpret the scale, focus of attention, or content of the photographs. This could lead to them inadvertently providing misleading information with the interviewer being unaware that this has occurred.

- Cultural and spiritual aspects of place may be misinterpreted, or not discussed. This may be because the interviewer has no right to know about the spiritual information because it is secret or sacred. The restriction may be gender based as well as a general restriction on sharing information with strangers.

- Rare or exceptional landscape features may be referred to only by proper names (toponyms) and not by generic terms. This can mean that very important features (e.g. an isolated high mountain or an island) may not actually have a generic term in that language or the informant may choose to only use the toponym during the interview.

- Generic parts of landscape terms (and toponyms) may have different meanings in different contexts (e.g. different terms may apply in different seasons). There may also be different types of terms/names used in different circumstances; e.g. in Navajo a plant may have three names: the real name, the way-in-which-it-is-used name, and a descriptive name (Vestal, 1952).

It is important that ethnophysiography case studies use methodologies that address these threats by reducing risks of misinterpretation of linguistic data. The way particular techniques are used, and the extent of depth and comprehensiveness of analysis, can also impact on the authenticity of results.

Some ways to address threats to validity

It is important to develop the particular methodology for each stage in an ethnophysiography project, which is appropriate for the specific circumstances. Threats to validity of

interpretation of landscape terms can be reduced through the techniques and/or procedures briefly described as follows:

- Use a comprehensive, flexible and detailed methodology, based on sound theories. For example, the contingent, transdisciplinary methodology (PTM-ECS), discussed in Chapters 7, 8 and 9.

- Multiple methods and techniques of data collection can be used. This is sometimes termed a 'triangulation' approach, because results are arrived at via consideration of different perspectives, achieved by addressing the research question in different ways.

- Use of iterative procedures where initial interpretations are repeatedly tested and revised. This can preferably be done with different types of informants; e.g. men and women; old and young people, and also interviewing informants from different parts of the geographical area covered by the language.

- It is important to not 'lead the witness' when asking questions of research participants. Both the interviewee, and the interviewer, should be as open as possible to different ways of breaking the continuous landscape into parts and different types of interpretations of relationships with landscape.

- Researchers should become as intimate as possible with the lifestyle and social structures of the language community with which they are working. This means that responses are more likely to be correctly understood in terms of the interviewee's lifeworld context. A range of different sorts of questions should be asked to reveal physical, utilitarian, social, cultural, spiritual and ethical aspects of relationships with landscape.

- The researcher should be as knowledgeable as possible about the history of the language group. This is especially useful for being able to recognize 'loan words' and to be aware of community cultural or lifestyle changes over time; e.g. as a result of colonisation.

- Researchers should always be open to alternative interpretations and be reflective about the utility and ethics of methods and techniques. This is especially important when dealing with a language used by a community living in an extreme landscape and/or with an unusual lifestyle.

- Using a diverse range of research project collaborators (from appropriate disciplines) aids the validity of results. This can raise the likelihood that adequate expertise and different research perspectives are brought to bear on the analysis of data, although it requires a high level of research collaboration. This is supported via a transdisciplinary approach.

The researchers developed their methods for ethnophysiography case studies in collaboration with experts from various disciplines, especially linguists, ethnoecologists and cultural studies experts. This facilitated collaborative multi-disciplinary projects and the effective exchange of research results, including at specifically organized symposia and workshops. These aspects are addressed in Section 2.6 and Appendices 2 and 3.

2. 6 Collaboration with Linguists and Cognitive Scientists at MPI

2.6.1 Introduction to section

This section, and Section 2.7, describe the development of international, interdisciplinary collaborations concerning landscape language. These developments were crucial in developing this PhD research project and preparing this dissertation. The history of these developments of types of collaboration provides a good example of how a new field of research can be consolidated and extended, leading to the possibility of truly transdisciplinary international research activities.

From the beginning of the development of the field of ethnophysiography, the researchers collaborated with linguists and cognitive scientists working at the Max Planck Institute for Psycholinguistics (MPI) in Nijmegen, The Netherlands. Mark had been collaborating with these researchers before the ethnophysiography work commenced. This author followed his lead, with joint visits to MPI in 2005 and 2007 to discuss landscape language theoretic issues, case study methodologies and locations, and the results so far. Collaborations with this group became more intensive from about 2006, especially with Niclas Burenhult, Nick Enfield, Gunter Senft and Stephen Levinson.

The Max Planck Institute for Psycholinguistics (MPI) in Nijmegen's *Categories Across Language and Cognition: Language and Landscape* project was being undertaken within the *Space Project,* in the *Language and Cognition Group*. The objectives of that project overlapped strongly with those of the ethnophysiography research group.

Relevant researchers from MPI (and collaborating institutions) and their key language of study included: Penlope Brown [Tzeltal language]; Niclas Burenhult [Jahai language]; Gaby Cablitz (University of Kiel) [Marquesan language]; Nick Enfield [Lao language]; Stephen C. Levinson [Yélî Dnye language]; Loretta O'Connor (Radboud University) and Peter Kroefges (Universidad Autonoma San Luis Potosi, Mexico) [Lowland Chontal language]; Carolyn

O'Meara and Jürgen Bohnemeyer (State University of New York) [Seri language]; Gunter Senft [Kilivila language]; and Thomas Widlok (Radboud University) [≠Akhoe Hai//om language]. It was decided that reports from each of these projects would be brought together in a special issue of the journal *Language Sciences*. This would aid clarification of the key landscape language issues, progress to date on resolving them and the future research agenda on this topic (Section 2.6.2 and Appendix 2).

2.6.2 Collaboration on special issue of Language Sciences journal

The collaboration with MPI led to the ethnophysiography researchers assisting the MPI linguists in their preparation of a special issue of the journal *Language Sciences* (Burenhult, 2008a; Burenhult and Levinson, 2008) as part of the research work undertaken within the Space Project in the Language and Cognition Group. Members of the Ethnophysiography Research Group (Mark and Turk) assisted with the editing of the articles. This publication included an introduction and case studies of landscape terms and toponyms in nine languages from topographically, geographically, culturally and linguistically diverse places (Figure 2.8). Some details of the articles are presented in Appendix 2, with the diversity of the case studies illustrated by the summaries in Table A2.1 in Section A2.2, summaries of issues in particular articles (Tables A2.2 to A2.11) and a summary of the concatenated key issues, for use in the EDM, in Table A2.12. This appendix demonstrates how the phenomenographic method is used to review literature and develop lists of key concepts, that can be concatenated and used to inform the research products (EDM and PTM-ECS).
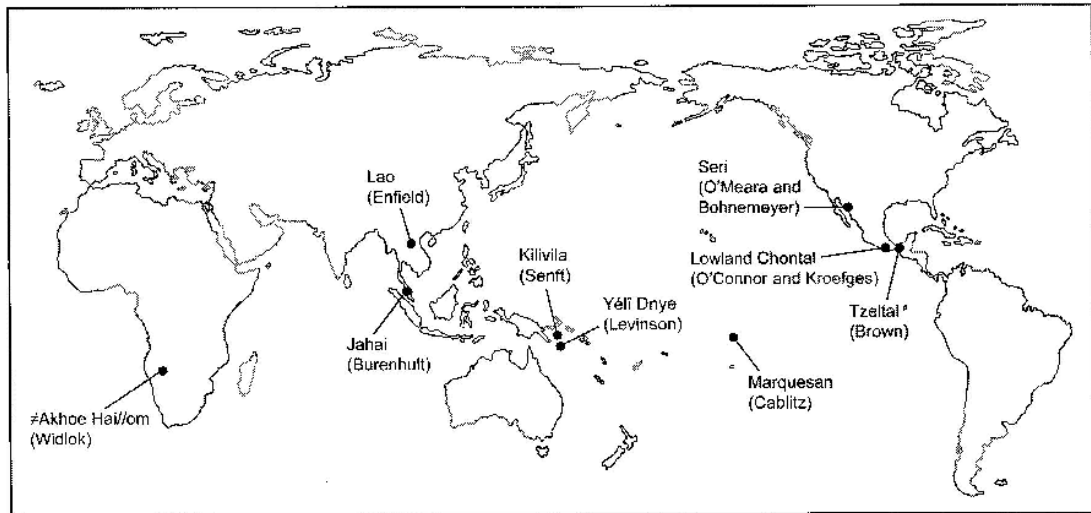
Figure 1. Languages represented in this special issue.

Figure 2.8: Map of languages (from Burenhult and Levinson, 2008)

As detailed in Appendix 2, this analysis confirmed the importance of lifestyle, cultural and spiritual aspects of peoples' lives in interpreting and discussing language terms associated with physical landforms (Tables A2.2 to A2.11 in Appendix 2). As listed in Table A2.12 in Appendix 2, this analysis identified 11 key aspects of landscape language for inclusion in the EDM, discussed in Section 2.8.

The input of this author and Mark into the detailed editing of the articles also helped cement their relationships with the key MPI researchers. This enhanced the possibility of deeper collaboration in running workshops and joint landscape language case studies.

2.6.3 International transdisciplinary workshop and publication

The strong collaboration developed between the MPI linguistics and cognition group and the ethnophysiography researchers led to a successful application for NSF funding to hold an *International Transdisciplinary Workshop on Landscape in Language* in late 2008. This meeting sought to investigate relationships that people have with landscape, individually and collectively, building on a history of relevant publications in a range of disciplines, including geography, anthropology, linguistics, information science and philosophy. The principal

themes for the workshop (Table 2.1) reflected the recent research activities of the members of the Steering Committee and their research colleagues.

Table 2.1: Topics for Transdisciplinary Workshop on Landscape in Language

Topic 1	Theoretical basis for investigation of landscape language, including ways of integrating approaches from different disciplines.
Topic 2	Results of empirical studies of representation of landscape in particular languages and cultures.
Topic 3	Critical discussion of existing research methods, including ways of eliciting information from informants and storage and analysis of data in digital (multimedia) formats.
Topic 4	Philosophical and psychological issues and perspectives on the topic, including but not limited to, ontology, phenomenology, and cognitive science.
Topic 5	Ethical issues regarding research methods and feedback to participants and the value of research activities to (e.g. Indigenous) communities.

The week-long workshop was held in two locations in New Mexico and Arizona (USA), from October 26 to November 1, 2008. It was attended by 26 researchers from many countries and disciplines.

The key issues raised in papers by this author (which are especially relevant to this dissertation) are discussed in Section 2.5.1. The general issues discussed at the workshop were similar to those in articles in the special journal issue edited by Burenhult (2008), a to k, listed in Appendix 2, Table A2.12. This workshop enriched and consolidated understanding of the issues relevant to ethnophysiography (landscape language) research and indicated a broader range of methodologies for data collection. The discussion of ethical issues regarding case studies (Turk and Mark, 2011) was especially important. The extensive work necessary to organize, and run the workshop, then edit and publish the resulting book (Mark et al., 2011), served to further cement the collaborative relationships between key researchers in this field of study. It also emphasized the need for a transdisciplinary approach to this field of research.

2.6.4 Collaboration with LACOLA research group

The *Language, cognition and landscape: understanding cross-cultural and individual variation in geographical ontology* (LACOLA) research project was based at the Centre for Languages and Literature at Lund University in Sweden. The five-year project (2011 to 2016) was funded by the European Research Council and led by linguist Niclas Burenhult (who is also part of the MPI research group on landscape language). It investigated cross-culturally how languages

categorise and represent landscape**,** via a set of case studies in eight locations in North America, South America, Europe, Southeast Asia and Australia (Figure 2.9)[9]. This included the case study for Manyjilyjarra, a Martu language (Chapter 8) involving LACOLA linguist Hill, in collaboration with this author, who was a listed collaborator on the LACOLA project, together with his ethnophysiography research colleagues Mark and Caroline O'Meara. These collaborators attended LACOLA research meetings in 2011, 2013 and 2016.
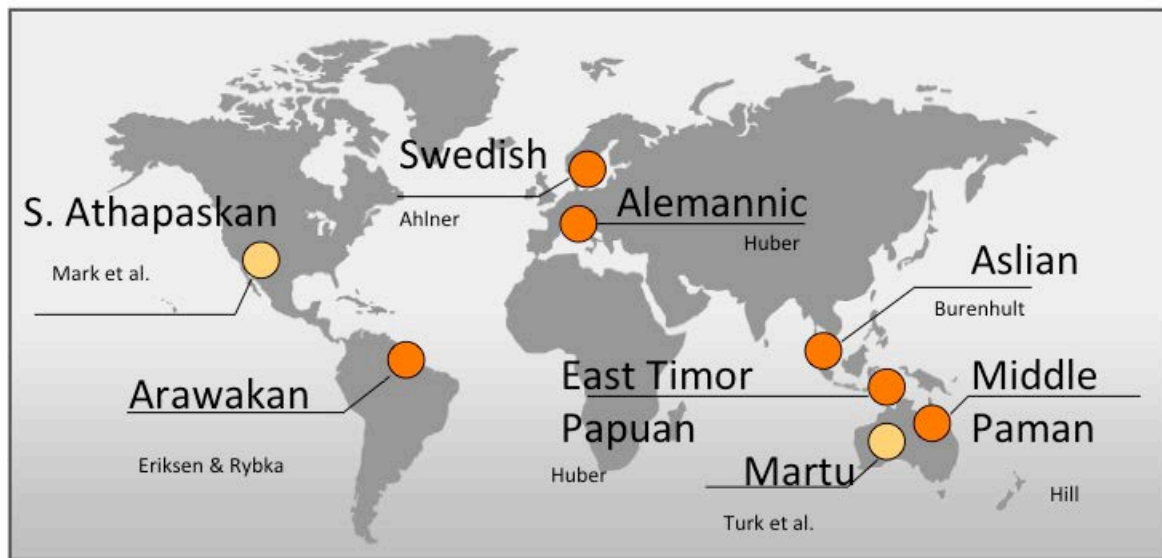
Figure 2.9: Map of field sites locations and languages for LACOLA case studies (from LACOLA website).

In February 2016 a symposium was held at the conclusion of the LACOLA research project. It was titled *Interdisciplinary Approaches to Landscape Representation* and was held at the University of Amsterdam. The proposal for the meeting summed up its objectives[10]:

> A major goal of the symposium is to discuss how the newly gained insights into the linguistic and conceptual structure of the domain can be related to the larger picture of research on landscape. *In particular, the symposium targets the relationship between observed categorical strategies and the actions performed on/with/by/for/about landscape—that is, practices relating to domains such as ritual, subsistence, habitation, mobility, navigation, identity, ownership, emotion, preference, and so on.* [emphasis

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[9] See: http://www.lu.se/lacola
[10] Email from Niclas Burenhult in January 2016.

added]

These symposium objectives highlighted the stage of development of this area of research. The focus had turned from concentration on language terms for physical landscape features to investigation of the relationships which peoples have with landscape, via their physical, utilitarian, social, cultural and spiritual activities. This aligns strongly with the phenomenological research perspective of this author over the last twenty years, and within this dissertation.

Participants at the symposium were drawn from collaborating researchers and experts from relevant disciplines. Each of the 19 participants presented on their work (including the LACOLA case studies) and there was general discussion regarding ways to integrate contributions from relevant disciplines in the ongoing development of understanding regarding language about landscape, including transdisciplinary approaches. The key issues were verified through detailed discussion with leading researchers from multiple disciplines, including linguistics, geography, information science, cartography and philosophy. Again, the key landscape language themes listed in Appendix 2, phenomenographic Table A2.12**,** were emphasized. This provided a sound basis for ongoing collaboration regarding landscape language research.

2.7 Landscape Language and European Peoples

2.7.1 Introduction to section

Most of the ethnophysiography (landscape language) studies discussed above have been undertaken with non-European languages, although Mark's early work on this topic compared English, French and Spanish, including papers at Latinamericanist and Latin American GIS meetings discussing differences between Spanish and English (e.g. Mark, Gould and Nunes, 1989). Most linguistic work is carried out in remote locations (especially with endangered languages). In some ways the relationships of indigenous peoples with landscape are more explicit, than those for peoples in urbanized, industrialised cultural settings, especially if the indigenous peoples continue to live hunter/gatherer and/or subsistence agriculture lifestyles.

However, it is important to emphasise that all people have complex relationships with landscape, although in some cases this tends to be dominated by urban landscapes (which have been defined here as outside of ethnophysiography and the main interests of this dissertation).

Thus, especially if one wishes to pursue the issue of potential universality of aspects of landscape language, it is important to also consider case studies of languages that may be termed 'Non-indigenous', 'Western' or 'European'.

The case studies reported in the Burenhult (2008a) journal special issue, the International Transdisciplinary Workshop on Landscape in Language in late 2008 (and the subsequent book: Mark et al., 2011) and the LACOLA project, mostly concentrated on non-European locations. In 2012 the collaborating researchers, including the MPI/LACOLA linguists, Ethnophysiography Group members and other associated researchers, turned their attention towards Europe.

2.7.2 European Science Foundation Exploratory Workshop

For the reasons discussed in subsection 2.7.1, an important step in developing the ideas and processes included in this PhD investigation and dissertation involved detailed collaboration with European researchers. Representatives from different disciplines researching relationships with landscape were brought together to provide a European perspective on landscape language issues. It is important to provide details of those involved in organizing this meeting, and the processes used, so that the provenance of key ideas is appropriately acknowledged.

The European Science Foundation (ESF) Exploratory Workshop: *Conceptualising European Landscapes Across Languages, Cultures, and Disciplines* was held at Las Navas del Marqués, Spain (in the hills near Madrid), from the 2nd to 4th of May, 2012. This workshop was organized by Burenhult (MPI linguist and leader of the LACOLA research group at Lund University, Sweden), Mark (SUNY Buffalo, USA), Werner Kuhn (University of Münster, Germany) and María Cátedra (Universidad Complutense de Madrid, Spain). It was attended by about thirty researchers (including this author) from many related fields of research and also included landscape artist Deirdre O'Mahony from Ireland to provide input from outside the usual academic disciplines of linguistics, geography, ecology and information science, from which most participants were drawn.

Workshop participants presented papers regarding conceptualisations of landscape and activities relating to use and protection of landscape, as place. There was a concentration of papers discussing European issues, especially those related to European Union regulations. Participants discussed the state of play with respect to transdisciplinary landscape language

research, potential themes for future research and ways to enhance collaboration.   A detailed phenomenographic set of emergent research themes, developed during this workshop, is provided in Appendix 3, Table A3.1. This discussion of themes is organised under the following key topics:

 A. *Definitions and Ontologies:*
1. Definitions of landscape;
2. General fuzziness of landscape domain;
3. Temporal dimension;
4. Ontologies of landscape;
5. Representations of landscape.

B. *Ways of thinking about landscape:*
1. Perspectives on landscape;
2. Landscape understood with respect to a set of functions;
3. Forms of landscape (terrain).

C. *Social and political dimensions:*
1. Attitudes towards landscape;
2. Social, political and policy dimensions;
3. Globalisation issues;
4. Economic issues.

D. *Specifically linguistic issues and need for transdisciplinary approach:*
1. Landscape in Language;
2. Toponymy (placenames.

E. *Methods for landscape language studies:*
1. Methods of investigating landscape and culture;
2. Diversity of places and languages demands diversity of methods;
3. Transdisciplinary approach to Europe Landscape Research.

This set of themes serves as a checklist for ethnophysiography research topics and methods. This phenomenographic list of topics, together with the EDM discussed below, and the summary regarding landscape as place in Appendix 2, Table A2.12, provides key elements of the answer to Research Question 1: *What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be*

involved in the Ethnophysiography Descriptive Model (EDM) and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?

2.8 An Ethnophysiography Descriptive Model

2.8.1 Possibility of an etic grid for landscape language case studies

Since it was established as a specific field of research, ethnophysiography (landscape language) has involved an increasing number of case studies, usually focussing on a specific language community, living a particular lifestyle in their topographic environment. A key research requirement is to develop an effective approach for comparing the results of different case studies. This is achieved via the EDM, as discussed in subsection 2.8.2. This current subsection describes the processes leading up to development of the EDM.

As discussed above, the field has been characterised by interdisciplinary collaboration and analysis of case studies to identify common themes and ways to compare results cross-linguistically. This endeavour is similar in some ways to other ethnographic social and cultural studies (e.g. in anthropology), some of which make a distinction between so-called 'emic' (participant defined) and 'etic' (researcher determined) data and information.

Harris (1976) discusses the history and significance of the emic/etic distinction (especially as it relates to Cultural Anthropology). He notes that cultural materialism ideally demands data gathering in a manner that is fully replicable. However, this is always threatened when collecting data from individuals who may do or say things in ways that are idiosyncratic and which could differ from one day to another. The ideas behind their utterances may often be subject to changes over longer periods of time and/or in different prevailing circumstances. Methods of data collection and analysis for socio-cultural studies should take this into account. Harris contends that cultural 'insiders' (participants) and 'outsiders' (researchers) are equally capable of producing both emic and etic accounts of a particular culture.

Other research traditions (e.g. cultural anthropology)[11] use 'etic' to refer to objective or outsider accounts (with the structure and definition of topics specified by the researcher), and 'emic' to refer to subjective or insider accounts (the way that study participants think and talk

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[11] E.g. see https://courses.lumenlearning.com/culturalanthropology/chapter/two-views-of-culture-etic-emic/ [accessed 17th Dec 2019]

about the issues/actions/relationships/beliefs being researched). This is important for this dissertation since at this stage of development of the field, researchers poorly understand all the relevant factors related to ethnophysiography, for all types of language groups. Hence, methods used in case studies should be as open as possible to collection of different types of data relevant to relationships with landscape, and a hermeneutic approach to interpretation of data is needed.

Helfrich (1999) discusses the relationship between emic and etic approaches (from a psychology research perspective). He emphasises the importance of considering the dynamic relationship between culture, communities, individuals and everyday utilitarian, social and cultural tasks, and the differing rates of change of any socio-cultural phenomena, at differing levels of investigation. This can encourage socio-cultural researchers to try to tie down data variability by establishing an 'etic grid' of factors (and definitions of issues, actions, relationships and beliefs) that are determined or defined as those seen to be of importance to that particular study. Etic factors are thus almost certainly likely to be generalisations which are supposed to be 'culturally neutral', in order to minimize observer bias.

It is tempting perhaps to take these approaches from cultural anthropology or psychology and apply them to landscape language case studies. Thus, a review of all available case studies could try to identify the common factors (and their generalized definitions) to provide an 'etic grid' for the common collection of data. Indeed, this is an approach that MPI researchers have adopted (at least to some extent), via standard questionnaires and/or other elicitation instruments, in large-scale studies of other linguistic domains (e.g. body parts). Although this may seem attractive as a means of collecting as much data as possible in a replicable fashion, the findings of the ethnophysiography (landscape language) case studies to date indicate that caution should be exercised in adopting an etic grid approach.

It is critical not to constrain data collection or interpretation, as the results of the Yindjibarndi case study demonstrate (e.g. meaning of *burbaa*, in Appendix 1). We can expect that the conceptualisations of landscape for any particular language community may well differ from that which might seem 'normal' to a researcher from a different language/culture and/or diverge from any generalisations formed from review of previous case studies. It seems that little in the domain of landscape can be considered universal. Indeed, as one moves various levels of abstraction away from the shape, size and material composition of even fairly

common features of terrain, the differences between languages and cultures become more extreme. This is the very core of ethnophysiography research.

To try to control these problems, this author and Mark discussed the possibility of employing a set of ethnophysiography etic grids (EEGs), perhaps as follows: a) based on *terrain* geometry (physical properties of landscape features; b) based on *affordance* of landscape features; and c) based on *intentionality* involving landscape features. This would perhaps provide a more effective means of defining the issues/aspects to be covered in an etic grid for options a) and b). However, as will be discussed in Chapters 5 to 8, this is much more problematic with respect to option c), since relevant intentionality is often at a group, rather than individual, level and difficult to ascertain.

The meaning of the terms 'terrain' (Turk, 2016c), 'affordance' (Gibson, 1977) and 'intentionality' (Fuchs, 1976) will be discussed further in Chapters 4 and 5. This relates to the viability of an approach via EEGs. More collaborative work would be required to define and test this approach to development of an etic grid. Hence, the usual approach to ethnophysiography case studies is to define a set of landscape and lifeworld domains for construction of interview questions, and to concentrate more on surfacing emic categories.

At least initially, an alternative option for increasing the efficiency and effectiveness of cross-linguistic comparisons of landscape language case study data has been suggested by this author (in discussions, presentations and publications) since 2005. This involves what he terms an EDM which would be less constraining than an etic grid, and hence less likely to impose inappropriate ways of considering landscape conceptualisations and terms in any target language. However, it is crucial not to be 'captured' by such a formalism. It should remain open to constant critical review and change, and be seen as just one 'window' on the interpretation of complex language data. One of the key themes of this dissertation is to examine the proposition that the EDM formalism can help to operationalise a transdisciplinary approach to ethnophysiography research.

2.8.2 Ethnophysiography Descriptive Model (EDM)

This section discusses ways of investigating research questions relating to ethnophysiography (landscape in language) case studies with the aid of an EDM. A way of making this research question more tractable (similar to the approach used by this author and many others in diverse

fields of research) is to construct a descriptive model of factors relevant to ethnophysiography. There are various ways (dimensions) that landscape is dealt with in languages (perhaps dependent variables) and also the attributes of places, peoples and languages differ in another set of ways (perhaps independent variables). The descriptive model seeks to develop an increasingly complete and viable model of the relationship between these two types of factors. It has been progressively developed by this author as more landscape in language case study reports became available.

All factors are likely to be interdependent and separating them out is only for the purpose of trying to understand and explain the differences we find between the ways various languages refer to landscape. For each of these factors, variables or dimensions it should be possible to: explain what the variable means; give a first principles explanation or justification of why it could be an independent or dependent variable; and give concrete examples (for specific languages) to support inclusion of the variable in the EDM and to explain (to some extent) how it seems to operate.

Perhaps some variables are of a simple yes/no type while others might have quantitative values, and others different categories/levels. So, for any particular language to be classified by an entry for each of the variables, it would be necessary to decide on the categories for each variable (at least for a draft version). For instance, for a variable concerning the terrain in which the speakers live, a standard set of terrain and/or ecology types could be defined, such as: arctic; desert; steppe; rolling woodland; tropical rainforest; etc.

It would be possible to arrange a matrix (a spreadsheet perhaps) with a row for each language and a column for each factor (independent or dependent variable) with a value or category listed in each matrix box. Thus it would be possible to sort using different factors and to examine correlations, etc. This would assist in trying to understand possible causal relationships. This field of research is approaching the number of case studies, and level of maturity, which might make this approach viable. This is the motivation for examining the concept of an EDM in some detail within this dissertation.

Increasingly effective versions of an EDM can be utilised in a collaborative approach to a detailed summary of case studies (including adding extra factors as they became apparent and/or eliminating or concatenating some existing factors) so that case studies can be more

meaningfully compared. This author's approach to such analysis utilised the review of the Yindjibarndi and Navajo case studies (discussed in Section 2.4 and Appendix 1) and the nine case studies and the introductory article (by Burenhult and Levinson) in Burenhult (2008a), which identified key aspects (a to k) of landscape language (ethnophysiography) case studies (Appendix 2, Table A2.12). It was also informed by the summary of discussions at the International Transdisciplinary Workshop in 2008 and the ESF workshop in 2012 (Appendix 3). Increasingly valid versions of the EDM have been progressively developed by this author, through review of relevant theory and ethnophysiography (landscape in language) case study reports, workshops etc., as listed in Table 2.2.

Table 2.2: Initial Versions of the EDM

Version 1	Published after main fieldwork for Yindjibarndi, and initial phase of Navajo, ethnophysiography case studies (Turk, 2007).
Version 2	Revised after review of the Burenhult (2008a) *Language Sciences* Special Issue, discussing nine case studies.
Version 3	Revised after review of case studies presented at the International Transdisciplinary Workshop on Landscape Language (2008) and published in chapter in the subsequent book (Turk et al., 2011).
Version 4	Revised after further review of Burenhult (2008a) articles and results of the ESF 2012 workshop and presented is this chapter.

The EDM is useful for recording meta-data (regarding the factors) for completed landscape language case studies and to guide decisions regarding which languages/locations are most appropriate for future case studies. After sufficient development, the EDM could be used as an Ethnophysiography Predictive Model (EPM) to generate hypotheses (to be tested) about key aspects of other languages, based on particular values for a subset of the independent variables. However, much more research and analysis would be required to reach this stage. This topic will be explored further in later chapters. It represents a key research contribution by this author as part of his PhD investigation.

2.8.3 Summary of the EDM

The EDM includes two sets of dimensions (factors). The first set of dimensions could be considered independent variables and the second set dependent variables. The current list of variables is based on Version 3 of the EDM, re-worked using a subset of the key research aspects, a to k (listed in Appendix 2, Table A2.12). It also includes input from the six factors

identified at the ESF workshop in 2012, highlighted in bold type face in Table A3.1 (Appendix 3). Version 4 of the EDM is summarized in Tables 2.3 and 2.4.

It is important to emphasise that the EDM represents a complex and non-deterministic system, with one-way, two-way, etc. interactions between independent and dependent factors. At this stage of development, it is deliberately a descriptive, rather than a predictive model.

Table 2.3: EDM *Independent Variables* (things which might influence a language to refer to landscape differently)

A	The topography of the region occupied by the language group; whether mountainous, hilly or flat; and the presence or absence of particular landscape features, such as, volcanic cinder cones, sand dunes, coral reefs, etc.
B	The climate of the region; the strength of seasons (e.g. does it snow in winter); its variability (e.g. does rainfall come only from seasonal cyclones/hurricanes); etc.
C	Definitions of urban vs rural vs natural (wild) types of landscape and which types are considered for a particular case study.
D	Role of conventions, laws, agreements, guidelines, etc. regarding landscape (local, regional, national or international).
E	The vegetation in the region; its density and variability in space and time.
F	The lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc.; including significance of landscape as a source of food (for consumption and/or sale).
G	Religious beliefs and spiritual concerns linked to landscape; e.g. creation beliefs, presence of spirits in landscape features, and cultural practices (e.g. ceremonies; taboos) which accompany such beliefs.
H	Historical factors such as: movement of the people into their current region; colonization of the people by outsiders with a significantly different culture/language; major changes in lifestyle and economy; etc.
I	The structure/grammar/syntax of the language – the roles played by nouns, verbs, adjectives, compound words, noun-phrases, suffixes, etc.
J	Impact of new technologies (including social media) on individual or group relationships with landscape and language used.

Table 2.4: EDM *Dependent Variables* (the differences in the way landscape is treated in the language – perhaps influenced by one or more of the independent variables)

1	Set of landscape terms for different landscape feature types.
2	Whether landscape terms include vegetation assemblages (at landscape scale) and/or vegetation types used as resource (e.g. medicine; food; wood), its affordance re travel, blocking long views, etc.
3	Relative significance of key factors (salience, etc.) that motivate categorization of landscape features

4	Use of compound words and phrases instead of (or as well as) simple generic landscape terms.
5	Role of nouns, verbs, prepositions, suffixes, etc. in landscape terms.
6	Role of non-verbal language and/or graphics/art in communication about, and representation of, landscape.
7	Whether different landscape terms are used by different genders, during different seasons, in different social settings (e.g. during ceremonies), etc.
8	Role of loan-words from neighbouring language groups and/or colonisers in landscape terms and toponyms.
9	Role of frames e.g. semplates (Burenhult and Levinson, 2008; Levinson and Burenhult, 2009) or metaphor for structuring sets of landscape terms (e.g. family relations as metaphor for hydrology).
10	Whether any landscape terms relate to religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features.
11	Role of toponyms vs generic landscape terms in landscape language.
12	Structure of toponyms; whether they are descriptive; if they include generic landscape terms; and how they arise and are constructed.

More work is required to make this model more complete and effective. However, it provides an indication of the key issues involved in ethnophysiography, and could be useful for comparing data from review of previous case studies, and for planning new case studies which fill a gap in the range of variables already examined in previous studies.

The descriptive model has so far been developed based on a range of 'non-Western' societies, mainly from North America, Mexico, Africa, Asia, Australia, and the Pacific Islands. Although it has been influenced by discussion of European languages at the 2012 ESF meeting (Section 2.7.2 and Appendix 3). It will require extensions and additions if it is to be appropriate for the full range of European languages and cultures, both traditional and modern.

The process of development of the final version (v7) of the EDM (for this dissertation) is outlined briefly in Section 1.9 and in more detail in Chapter 2, Section 2.8. Subsequent chapters examine the ways Version 4 of the draft EDM has been revised. They discuss the potential relationship between the EDM and phenomenology (Chapter 4), and how to better incorporate key additional aspects of landscape as place (Chapters 5 and 6). Key issues regarding how to make the best use of the EDM, in combination with the PTM-ECS, are reviewed in Chapter 7. Discussion of the Manyjilyjarra Case Study (Chapter 8) is used as a way to re-examine the content and role of the EDM and its potential relationship to a phenomenological approach to data collection and analysis. Version 7 of the EDM, and proposals for potential future research related to the EDM, are included in Chapter 9.

2.9 Chapter Conclusions

The discussion in this chapter has concentrated on the development of the research field of ethnophysiography, building on earlier work by this author, Mark and other researchers. This led to the Yindjibarndi and Navajo case studies, which are briefly described. Discussion of the results of these case studies leads to the identification (Sections 2.4.1; 2.4.2 and 2.5.1) of the need for ethnophysiography case studies to deal more effectively with social, cultural, spiritual and ethical aspects of dwelling. This led to further development of the EDM and ultimately the PTM-ECS (Chapter 7).

This chapter also included a chronicle of the extensive collaborations between the Ethnophysiography Research Group and linguistic and cognitive science researchers at MPI. This included this author and Mark assisting with publication of nine case studies (by MPI associated linguists) in the Burenhult 2008) journal special issue, the *International Transdisciplinary Workshop on Landscape* in late 2008 (and subsequent book in 2011), and the ESF Exploratory Workshop: *Conceptualising European Landscapes Across Languages, Cultures, and Disciplines* in 2012. The chapter also discussed the LACOLA project from 2011 to 2016, concluding with the *Interdisciplinary Approaches to Landscape Representation* symposium in 2016.

These and associated research activities have generated in the region of forty landscape language case studies. Analysis of the theoretic discussions (in the literature cited above) and review of the case studies has strongly confirmed the importance of this field of research. It has also reinforced the contention that an interdisciplinary approach to research is required. Indeed, the need for deep integration of theory and practical research findings across many disciplines demands that, if at all possible, the research collaboration be undertaken in a transdisciplinary manner; hence the need for an overarching paradigm, which has motivated this PhD investigation and dissertation.

After all the studies and workshops discussed in this chapter it may seem that this field of research has reached a 'mature' stage. However, this is far from the truth and more fundamental work (informed by many more case studies) is needed.

This author has continued to be involved in landscape language case studies and has sought to always adopt a critical and open approach to research methods. Chapter 8 discusses the Manyjilyjarra (Martu) Landscape Language Case Study with LACOLA linguist Hill, completed in 2016, with the Final Report prepared in early 2017. An additional on-going case study concerning Antarctic Landscape Language (with surveyor/cartographer John Manning) is discussed in Chapter 7.

The key contribution by this author included in this chapter was the development of the EDM and comparison of the lists of issues emanating from publications and international meetings. The chapter includes a research agenda (emerging from the ESF 2012 workshop) that lists the wide range of research aspects (in five groups) that need to be addressed in order to support research that implements the above definition of landscape (Appendix 3). This, together with Version 4 of the EDM, provides an initial answer to Research Question 1: *What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be involved in the EDM and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?*

The transdisciplinary approach to research is discussed in Chapter 3. Key aspects of phenomenology are discussed in Chapter 4, in the context of phenomenology being used as the transdisciplinary paradigm for ethnophysiography research. To facilitate discussion of how best to undertake that research, and the theoretic implications, it is necessary to first review publications from researchers in relevant disciplines regarding the concept of landscape as place. This is undertaken in Chapters 5 and 6.

As discussed above, much of the ethnophysiography research was conducted with collaborators. The research discussed in the remaining Chapters 3 to 9, was conducted by this author, unless specifically indicated, except for the Manyjilyjarra case study in Chapter 8, carried out with linguist Hill. Phenomenological interpretations of landscape language data from that study are from this author alone.

Chapter 3 – Transdisciplinarity

3.1 Introduction to Chapter

The topic of transdisciplinarity was introduced in Section 1.4 of Chapter 1 and an initial case was made for a transdisciplinary approach to be utilised for ethnophysiography research, because of the large number of disciplines that are potentially involved. Also in Chapter 1, a *prima facie* case was made for the proposition that a version of phenomenology (Chapters 4 and 5) may be able to provide an over-arching paradigm for transdisciplinary research in ethnophysiography; or, inverting the spatial metaphor, a form of phenomenology can 'stand under' (Fuchs, 1976, p. 27) the various disciplines. Since transdisciplinarity is a key feature of this research, it is useful to explicate this approach early in the dissertation.

This chapter provides on overview of the key features of transdisciplinarity, demonstrating why transdisciplinarity is adopted in this dissertation. It seeks to provide an appropriate answer to Research Question 2: *Is it possible to build a conceptual model, that integrates definitions and methodological considerations concerning transdisciplinarity from multiple publications, across various disciplines, which can act as an effective guide to the research investigation, and as a mechanism to evaluate the level of transdisciplinarity achieved by the research processes and the dissertation?* The method used is to review a cross-section of relevant literature and summarise key aspects in successive Transdisciplinary Conceptual Models (Kerlinger, 1979). Definitions of conceptual models include:

- A conceptual model is a representation of a system, made of the composition of concepts which are used to help people know, understand, or simulate a subject the model represents. The term conceptual model may be used to refer to models which are formed after a conceptualization or generalization process[12];

- A descriptive model of a system based on qualitative assumptions about its elements, their interrelationships, and system boundaries[13]; and

- Designing a conceptual model begins with conducting a thorough review of the literature[14].

Guimarães Pereira and Funtowicz (2006) review ways to represent transdisciplinary concepts

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[12] https://en.wikipedia.org/wiki/Conceptual_model [Accessed 25 Dec 2016]
[13] http://www.businessdictionary.com/definition/conceptual-model.html [Accessed 25 Dec 2016]
[14] http://web.stanford.edu/group/ncpi/unspecified/student_assess_toolkit/conceptualModels.html [Accessed 25 Dec 2016]

to facilitate peer review of 'plural narratives', mediation between approaches and enhanced 'co-production'. They emphasise the need for integration between disciplines, and different versions of transdisciplinarity, and suggest that this requires effective representation of concepts. A phenomenological approach to research, supported by integration of 'natural' and 'social' sciences, is advocated by Van Manen (1990), citing Dilthey (1976).

Specific aspects of the issues raised in this chapter are discussed further in later chapters to show how transdisciplinarity can be applied to ethnophysiography research. Chapter 9 and Appendix 16 utilise an integrated conceptual model of features of transdisciplinary research approaches (identified in the phenomenographic review of literature in this chapter and Table A4.6 in Appendix 6), to evaluate the effectiveness of the use of transdisciplinarity in this PhD investigation and dissertation.

3.2 Development of Transdisciplinarity

3.2.1 History of transdisciplinarity

Transdisciplinarity is not a recent approach to research, having been discussed for more than forty five years. Nicolescu (2007, p. 1) states that: "The word itself first appeared in France, in 1970, in the talks of Jean Piaget, Erich Jantsch and André Lichnerowicz, at the international workshop "Interdisciplinarity – Teaching and Research Problems in Universities". He quotes Piaget as saying: "Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be 'transdisciplinary' (Piaget, 1972, p. 144)". This was a very prestigious meeting, indicating the perceived importance of the topic. The account is supported by Albrecht, Freeman and Higginbotham (1998, p. 56): "Complex systems, philosopher Erich Jantsch argued, require a transdisciplinary way of thinking to interpret and understand dynamism and interaction (1972: 215–241)." [See also Bernstein (2015) ; de Freitas, Morin, & Nicolescu (1994); Janz (1998; 2006)].

Transdisciplinarity then went through a quiet period, except for work by authors such as Kockelmans (1979) (whose work on communalised intentionality features in other parts of this dissertation). The approach had a resurgence in the 1990s, as a better way to tackle increasingly important complex problems (Brown, 2010a; b; Brown, Harris, and Russell, 2010), such as climate change.

From the beginning, those advocating transdisciplinarity have sought to instigate relevant

changes in teaching and research practices at universities. This dissertation follows in that tradition, which is now more than forty five years old. Hence, it is strange that the transdisciplinary approach to research is still often met with surprise, misunderstanding and opposition, demonstrating that disciplines often bind minds in powerful ways.

3.2.2 Definitions of transdisciplinarity

Nicolescu (2007, p. 2) defines transdisciplinarity as concerning: "that which is at once between the disciplines, across the different disciplines, and beyond all discipline. Its goal is the understanding of the present world, of which one of the imperatives is the unity of knowledge" (p. 2). This involves an up-graded consideration of 'the subject' in research, removing any distinction between 'subject' and 'object', which provides for an integrated consideration of active agents undertaking tasks within their environment. Thus, it can be considered a phenomenological approach and appropriate for ethnophysiography research. This conclusion was strongly supported by participants at the International Transdisciplinary Landscape Language Workshop in 2008, discussed in Section 2.6.3 in Chapter 2.

Another category of collaborative research is inserted by Max-Neef, (2005, p. 8) between 'multidisciplinary' and 'interdisciplinary', termed 'Pluridisciplinarity'; which he says: "implies cooperation between disciplines, without coordination. It normally happens between compatible areas of knowledge, on a common hierarchical level. Examples could be the combination of physics, chemistry and geology, or history, sociology and language. The study of each one of them reinforces the understanding of the others". He goes on to distinguish between 'weak transdisciplinarity' "based on a practical and simplified approach, addressed toward the applicability, for research purposes, of a method that tends to be transdisciplinary" and 'strong transdisciplinarity', that "goes much deeper into the realms of reality" (p. 8) via investigation of epistemological aspects. These matters will be addressed in Chapter 9, when an evaluation of the research processes will indicate whether the dissertation utilises either a 'weak' or 'strong' form of transdisciplinarity.

 The 'cornerstones of transdisciplinarity' are discussed by Montuori (2005, pp. 154-157). He identifies and explicates each of the five aspects that are key to his approach. They are listed in Transdisciplinary Conceptual Model A in Table A4.1, Appendix 4.

Transdisciplinary research requires adoption of an overarching paradigm (meta-methodology)

in order to successfully integrate contributions from different disciplines (items M-1 and M-2 in Table A4.1). The effectiveness of this approach relies on the suitability of that overarching paradigm and how it is applied via the methodology used for any particular transdisciplinary research project. Montuori (2009, p. 130) contends that:

> Transdisciplinarity cannot demand exhaustive knowledge of all disciplines. Indeed, it is increasingly difficult to stay abreast of the developments even in one's own specialization, so exhaustive knowledge is not possible or necessary. The focus here is rather on *understanding how knowledge is created and organized*. This requires a radical approach that goes to the roots of every perspective on an issue and explores its fundamental underlying assumptions, what I call a *meta-paradigmatic* approach, rather than an intra-paradigmatic one where inquiry proceeds without a questioning of the fundamental assumptions guiding it (Montuori, 2005).

The investigation reported in this dissertation provides a good example of the points made in this quotation from Montuori (2009, p. 130), particularly in terms of "*understanding how knowledge is created and organized*". The transdisciplinary approach he advocates, of course, relies, in part, on existing (discipline-based) knowledge, language and conceptual frameworks. Power relations affecting transdisciplinarity are both acknowledged and hidden. Investigation of all these aspects is part of the suggested *meta-paradigmatic approach* advocated by Montuori.

Literature reviews incorporate an overview of key aspects of the various disciplines involved, however, it is impossible to cover all facets of each discipline. In addition, investigations relevant to Research Questions 2, 3, 7, 10 and 11 seek to advance understanding of how to choose and utilise an appropriate overarching paradigm (meta-methodology) and then operationalize it via practical research processes.

Aboelela, Larson, Bakken, Carrasquillo, Formicola, Glied, Haas and Gebbie (2007) review definitions of interdisciplinary research and propose a theoretically based definition for use in the health care and health policy field. Their method involved interviews with researchers from various disciplines, and a review of relevant literature from 1980 to 2005. This involved discussion of qualitative approaches, the method of synthesis of findings between disciplines and the desired outcomes. Aboelela et al. (2007) concluded that interdisciplinary research

occurs along a continuum from low to higher degrees of synthesis across disciplines. This culminates in a transdisciplinary approach.

Brown, Dean, Harris and Russell (2010) outline the dire problems facing humanity, such as over consumption and climate change, and how these produce local issues. They say that current methods for solving such problems are inadequate and a new approach is required. Such complex socio-technical problems can be termed 'wicked' (after Rittel and Webber, 1973): "A wicked problem is a complex issue that defies complete definition, for which there can be no final solution, since any resolution generates further issues, and where solutions are not true or false or good or bad, but the best that can be done at the time. Such problems are not morally wicked, but diabolical in that they resist all the usual attempts to resolve them" (p. 4). They go on to suggest that the way to tackle such problems is: "Rather than limiting the focus to any single avenue of inquiry, the requirement here is to be open to different ways of thinking, to use imagination to the full and to be receptive to new ideas and new directions that match the times" (p. 4). This requires the integration of research from multiple disciplines, in a manner which meets the needs of "the individual, the community, the specialist traditions, and influential organizations, and allows for a holistic leap of the imagination" (p. 4).

Brown et al (2010, p. 4) offer the following definition, which emphasises the need to utilise various levels of abstraction, including both local and strategic perspectives. They emphasise that "'Open' transdisciplinarity includes the disciplines, but goes further than multi-disciplinarity to include all validated constructions of knowledge and their worldviews and methods of inquiry". This definition of 'open transdisciplinarity' is adopted as the desired approach for this dissertation. It facilitates the incorporation of indigenous worldviews and Indigenous Traditional Knowledge; potentially including concepts from Yarnangu *'Jukurrpa'* (Chapters 6 and 8).

Lawrence (2010) reviews the history of transdiciplinarity and the variety of definitions; noting that Thompson Klein (2004) optimistically sees these developments as belonging to the new era of 'post-normal science'. Lawrence suggests that: "Open transdisciplinarity inquiry goes a step further – it includes the knowledge held by civil society, and recognizes the necessary role of the imagination among the diverse contributions" (p. 29). He contends. that to overcome the many barriers to this approach, researchers need to "integrate the point of view of many actors, including those from the affected communities and organisations" (p. 16); a broadly emic

approach. He supports a 'human ecology' perspective, explicitly dealing with people-environment relations, to provide a conceptual framework for transdisciplinary inquiry that spans both the 'natural' and 'human' sciences; which accepts "divergent constructions of knowledge" (p. 28). Lawrence concludes by suggesting that: "Concepts such as comprehensiveness, complementarity, participatory research, transcendence and transformation, inherent in open transdisciplinary inquiry, need to be examined in theory and practice" (p. 29).   This reinforces the suitability of 'open transdisciplinarity' to the purpose of this dissertation.

In line with the approach adopted in this dissertation, Russell (2010) advocates using a conceptual framework to advance theoretic and practical aspects of transdisciplinarity. This should help to cope with new and divergent interpretations of knowledge and uncertainty, to assist in being able to "respond flexibly to the ever-changing and unfolding circumstances in which we find ourselves" (p. 31). We need to acknowledge "the value-laden nature of our ways of knowing" (p. 35) and limitations on what we can know; the problems of under-determination, partiality, plurality and provisionality, which defeat a positivist approach to research (i.e. a closed systems view based on physical things detectable by the senses). When investigating wicked problems there is a need for greater consideration of epistemological and ethical issues.

What is needed for such research is a critical approach utilizing a 'systemic intervention' account of existence (Midgley, 2000) with 'openness' "across the ontological, epistemological and ethical commitments" (Russell, 2010, p. 52). A conceptual framework should incorporate all three rationalities (instrumental, practical and critical), and be "capable of reflecting critically on the underlying interests and values that influence its principles of inquiry, its investigative processes, and the outcomes and consequences for those affected" (p. 52). It should also be "able to comprehend the interactions between humans, and between humans and their cultural interactions with the environment" (p. 53). This fits well with the approach taken to the study of relationships with landscape adopted in this dissertation. The conceptual framework proposed by Russell (2010) includes the principles involved in an open and critical approach to transdisciplinary inquiry listed in Appendix 4, Table A4.2.

3.3 Review of Transdisciplinary Approaches

In recent years there has been considerable discussion of the utility of transdisciplinary approaches to research. Barry, Born and Weszkalnys (2008) discuss the differing attitudes to interdisciplinarity (a term they use in a general way, to include transdisciplinarity). They cite Marilyn Strathern (2004, p. 5) writing in support of a disciplinary approach: "the value of a discipline is precisely in its ability to account for its conditions of existence and thus [...] how it arrives at its knowledge practices". Detailed understanding of context is critical to the success of any research project. However, they note that other researchers suggest that disciplines are: 'inherently conventional', 'artificial holding patterns of inquiry' "sustained by historical casts of mind that cannot imagine any alternatives to the current [disciplinary] regime" (p. 26). They also note that, sometimes radical, differences exist between sub-groups of some disciplines, such as geography and anthropology; as has been apparent in the research for this dissertation. However, the emerging methods for bridging between competing approaches within disciplines can be helpful for aiding inter-disciplinary collaboration.

Transdisciplinarity needs to find effective ways of interpreting and integrating multiple paradigms for relevant disciplines, while maintaining the coherence and validity of each contribution. Clearly disciplines have played, and will continue to play, a crucial role in building detailed and coherent bodies of knowledge. However, these virtues, and the dense organisational and social structures that support disciplines, should not be used to inhibit transdisciplinary approaches to complex problems. This dissertation utilises, and advocates, a synergistic relationship between research approaches; between science, social investigations and arts, choosing subjectivity or objectivity as required, bridging positivist and phenomenological approaches, and using both quantitative and qualitative data gathering and analysis techniques in mutually supporting (synergistic) ways.

Albrecht et al. (1998, p. 57) discuss the nature of transdisciplinarity and arguments for and against use of this approach: "Transdisciplinary thinking operates through an intellectual milieu comprising diverse theories of knowledge which span traditions of positivism to postmodernism. A sharply contested argument is whether such paradigms can (or should) be integrated. While recognising the tensions between paradigms, we concur with Greene (1994: 537) that it is possible to achieve 'dialectically enhanced inquiry benefits through a pluralistic acceptance of multiple ways of knowing'". The ethnophysiography research program has from the very beginning sought to integrate positivist and interpretivist (even postmodern) approaches to research.

Carrying out research in a transdisciplinary manner that promotes a 'knowledge society', may well require a modified approach to the way knowledge is understood, especially if Indigenous Traditional Knowledge (ITK) is included (as in this dissertation). Rancière (2006, pp. 10-11) contends that it is necessary for researchers to consider the aesthetics of knowledge in order to advance thinking between disciplines, via a 'poetics of knowledges', claiming that "they must borrow their presentations of objects, their procedures for interaction and their forms of argument from language and common thought".

Janz (2006), reviews the *Charter of Transdisciplinarity* (de Freitas et. al., 1994), suggesting that: "while providing an initial basis for conversation, it could certainly be taken as an ideology, or in this case, a set of generally positive claims drawn from a variety of other ideologies. There is a little liberalism in here, a little environmentalism, a general sense of holism, and a kind of metaphysics that informs the whole project. Each of these seems to be appropriated without the requisite theoretical foundation for them" (p. 6). He asks for a better linkage into the philosophical basis for each of these wholesome proposed foundations of transdisciplinarity and a critical conversation (critique and dialogue) about the issues, rather than adoption of theoretical propositions as assertions. For instance, he suggests (p. 7) that a deeper examination of hermeneutics would be helpful for rooting propositions in the lifeworld and that "meaning shows itself forth in the discussion of difference and similarity" (p. 7). Janz notes (p. 8) that "Boehme believed that reality was expressed through signatures (at least, this is the image he uses at one point in his writing). These signatures both showed the individuality of the thing in question, as well as showing the eternal nature of that thing, and of all other things"[15]. However, he later notes that "Boehme does not give us as much as we want in a theoretical framework for the critique of disciplinarity" (p. 9). He asserts that the type of genuine reflective dialogue that transdisciplinary research needs is not just between disciplines, but also within transdisciplinarity itself; about its nature and internal coherence. To do this he says it needs to develop from its metaphysical tendencies and become more attached to reality: "Transdisciplinarity, despite all its declarations, manifestos, and charters, cannot yet subject itself to a philosophical critique" (p. 12). The practical application of transdisciplinarity in this dissertation, and the use of phenomenology as the overarching paradigm, should contribute to

[15] For material on Boehme, Janz uses his own PhD dissertation (Janz, 1993).

Janz's objective.

Wickson, Carew and Russell (2006) review the history of transdisciplinarity, summarise its key characteristics, note some challenges and provide advice regarding research projects. The challenges include integration of research processes and findings, implementing adequate processes of reflection and dealing with inevitable paradoxes when seeking to integrate different knowledges and epistemologies, theories and methods. They emphasise the importance of evaluating how well transdisciplinarity is implemented in any research project (see Chapter 9, Section 9.5.2).

Barry, Born and Weszkalnys (2008) review the recent history of interdisciplinary studies and discuss their own 18 month investigation across three different fields of research, including: environmental and climate change research; ethnography in the IT industry; and art-science. An important consideration is the types of disciplines whose research is to be integrated: "Our study focused on those forms of interdisciplinarity that cut across the boundaries between the natural sciences or engineering, on the one hand, and the social sciences, humanities or arts, on the other" (p. 22). Thus their study is very relevant to the research discussed in this dissertation.

Barry et al. (2008) note the recent development of interest in interdisciplinary research approaches and examine the different logics (including accountability and innovation) that operate in collaborative research: "One characteristic of the contemporary inflection of this logic is the increasing importance given to the social sciences in fostering links between scientific and technological development and the market" (p. 24). Interdisciplinary approaches can produce more effective results, with greater accountability; making research results easier for industry/business to understand, assisting adoption of innovative ideas and methods. They note the important role of ethnography in helping to understand social aspects relevant to science/engineering fields such as Information Technology. This approach is adopted in the case studies discussed in this dissertation (Chapters 2 and 8).

McGregor (2015) reviews the desirable plurality of transdisciplinary approaches and suggests that, although the full range of transdisciplinarity has not yet been fully grasped and tabulated, "two approaches to transdisciplinary tend to prevail: (a) the Nicolescuian approach and (b) the Zurich approach" (p. 1). She goes on to provide numerous references and a detailed review of

each approach, and contends that researchers should be familiar with both approaches so that can choose the best one for their project: "Nicolescu's conceptualization of transdisciplinarity is grounded in the tenets of metaphysics, quantum physics, and complexity science […] and, epistemology (knowledge as complex and emergent)"

The other dominant approach to transdisciplinarity stems from a March 2000 congress in Zurich, Switzerland, co-organized by Roland Scholz. It involves "integration of the imperatives of science, democracy, humanities and economy (du Plessis et al., 2013, p. 55)" (p. 1). The second approach is described as less theoretical and more phenomenological, seemingly making it more applicable to this dissertation. However, McGregor cites Nicolescu (2006, p. 144) as suggesting that the Zurich approach is "characterised by the refusal to formulate any methodology" (p. 3), which may make it more difficult to operationalize. McGregor also states: "The Zurich approach uses Gibbons et al.'s (1994) conceptualization of transdisciplinarity (Klein et al., 2001)" (p. 3), which provides some indication of how to proceed. Further methodological details of the two approaches are provided in Gibbons (2000a; b) and Section 3.4 below.

3.4 Transdisciplinary Methods

The transdisciplinary approaches discussed above need to be operationalized via methodologies which implement the particular research objectives. Nicolescu (2007, p. 4) discusses what he considers the differences between a *'theoretical transdisciplinarity'*, a *'phenomenological transdisciplinarity'* and an *'experimental transdisciplinarity'*; a topic of significance for this dissertation. He contends: "The word theory implies a general definition of transdisciplinarity and a well-defined methodology […] The word phenomenology implies building models connecting the theoretical principles with the already observed experimental data, in order to predict further results. The word experimental implies performing experiments following a well-defined procedure allowing any researcher to get the same results when performing the same experiments" (p. 4). He goes on to assert: "Transdisciplinarity, in the absence of a methodology, would be just an empty discourse and therefore a short-term living fashion" (p. 5). The approach termed 'phenomenological transdisciplinarity' is obviously of particular importance to this dissertation, especially in the context of the EDM, a key contribution of this research. Methodological issues were introduced in Chapter 1 (Section 1.9) and will be discussed in detail in Chapters 4, 5, 6, 7 and 8, resulting in a summary of the proposed new

contingent, integrated, phenomenology-based, transdisciplinary methodology for ethnophysiography case studies (PTM-ECS), in Chapter 9.

A critical aspect of transdisciplinary research is evaluation, which is challenging because of the different methods traditionally used within particular disciplines. Rouxa, Stirzakerb, Breenc, Lefroyd and Cresswell (2010) discuss the emerging role of transdisciplinary research in addressing complex socio-technical environmental problems. However, there are challenges in evaluating the effectiveness of such research because it crosses traditional disciplinary boundaries. They contend that project participants need to be involved in consideration of the potential role of factors such as the "different expectations, values, culture, language and reward structures of the main participating groups, the funders, researchers and end users" (p. 733). This requires that all participants understand what transdisciplinarity means and the way it is implemented in any particular project. Then it is possible to design a suitable set of evaluation criteria. The authors present a framework to facilitate the approach: This requires development of good relationships between all of the participants in a project and early efforts to define appropriate evaluation criteria. This will "ensure rigor and build confidence and capacity in transdisciplinary approaches" (p. 733). Enabling such approaches is a key objective of this dissertation.

Stauffacher, Walter, Lang, Wiek and Scholz (2006) discuss the role of transdisciplinary case studies as an aid to project-based learning (PBL) about application to research of a functional socio-cultural constructivism. They conclude that this is a demanding task but important in the context of helping students to learn about practical societal contexts to enable them to tackle complex, real-world problems. Ethnophysiography case studies are included in this dissertation to demonstrate practical approaches to relevant research. This should aid in its potential use for teaching.

Transdisciplinary approaches need to operate at different levels of abstraction and modes of analysis (Bernstein, 2015). They must also involve a high level of integration of analysis of data, as part of a methodology suitable for a complex research domain; not only working on modelling processes but also on meta-modelling (to be able to explain the utility of individual models in different situations and how to choose between them) and particularly the integration of models (covering the different facets). The purpose and design of the EDM, and the manner used in this dissertation to build successively more effective versions, is an example of this sort

of approach (Chapters 2, 6, 7, 8 and 9).

Albrecht, Freeman and Higginbotham (1998, p. 64) discuss ways of developing a generic 'Transdisciplinary Framework'. This involves a dynamic way of integrating disciplinary paradigms in a two step process (via an integrating conceptual stage involving Complexity Theory) to produce: "a framework that can give multi-level explanations which encompass 'emic' (subject generated) and 'etic' (researcher- imposed) perspectives and qualitative and quantitative assumptions and methodologies". Emic and Etic aspects of approaches to ethnophysiography research are discussed in Chapters 2 and 7. The use of a hermeneutic-phenomenological approach to deal with the inherent complexity of human experience, is discussed by da Silva Rego Ravagnoli and Braue (2018).

Sandford (2015) contends that many feminist researchers are adopting a transdisciplinary approach. She explores problems in linking transdisciplinary concepts, as analytical tools, to Feminist Theory, including the potential for terms for concepts to be used across disciplines, but with different actual meanings in each discipline. She suggests that potential impacts of 'gender' should be an issue pursued in transdisciplinary ethnographic research. This position is adopted in the case studies discussed in this dissertation. For instance, when considering semantics of landscape terms (and toponyms) from Australian indigenous languages, gender plays a key role with respect to traditional landscape-related hunting and gathering activities, meaning that men and women may conceptualise aspects of landscape (as 'taskscape') differently[16]. The differences are even greater with respect to spiritual associations with parts of 'country', usually divided into areas specifically related to (what is called in English) either 'men's-business' or 'women's-business'. This requires researchers to be careful to interview participants from both genders. Almost always it also means there should be researchers of both genders, even if there is a strict policy not to enquire into secret/sacred matters pertaining to either gender. Much previous anthropological work in Australia has suffered from this problem, leading to 'men's-business' receiving greater attention and/or prominence than 'women's-business'. [See also Sections 9.5.4 and 9.8.1]

As discussed in Section 3.2.2, a comparison between the *Nicolescuian* and *Zurich* approaches

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[16] See Bird et al. (2005) for recent research concerning hunting and gathering activities of Martu people.

to transdisciplinary is provided by (McGregor, 2015): "Nicolescu was concerned with the rate at which disciplinary-bound knowledge was being produced with no connection to the world. Janz (1998) described this "as contextless and meaningless knowledge" (p. 5). Nicolescu "read widely and deeply the ideas of key philosophers like Husserl, Heidegger, and Cassirer." (p. 3); thus his approach is influenced by phenomenology.

McGregor (2015, pp. 4-7) cites (Nicolescu, 2014) as suggesting that, for the transdisciplinarity approach to be effective, new methodologies are required: "Nicolescu proposed that transdisciplinary (TD) ontology encompasses at least 10 different Realities (disciplinary and sectoral perspectives and view points), aside from just the physical, material reality of conventional science". These 10 Realities are organized along three levels, where no "one level of reality (perspective, discipline, world view) constitutes a privileged place from which to understand everything. Instead, while each of the 10 Realities is characterized by its incompleteness, in unity, they generate new, infinite transdisciplinary knowledge (Nicolescu, 2005) […] Transdisciplinary knowledge is emergent, complex, embodied, and cross-fertilized". This model of transdisciplinarity fits well with the phenomenological approach advocated by this dissertation, as discussed in Chapters 7, 8 and 9. This includes review of the extent to which the research in this dissertation addresses each of Nicolescu's '10 Realities' (and four meta-aspects), which are listed in Transdisciplinary Conceptual Model C, in Appendix 4, Table A4.3.

McGregor (2015, pp. 8-9) also summarises the *Zurich* Approach to Transdisciplinarity: "The Zurich congress concluded that transdisciplinary research is just another type of research that falls within the spectrum of research; that is, it is not a methodology with axioms. Key to the Zurich approach is the assumption that, without question, "the science system is the primary knowledge system in society". Transdisciplinary research simply serves the role of making sure science "increases its unrealized intellectual potential (Häberli, Bill, Grossenbacher-Mansuy, & Klein, 2001, p. 4)". This involves a scientific approach to universality, partly implemented in this dissertation via the EDM (discussed in Chapters 2, 6, 7, 8 and 9) although scientific rigor is unattainable without an appropriate approach to universality in landscape language (discussed in Chapters 7and 9). Hence, the Zurich approach to Transdisciplinarity is not primarily adopted here, except to the extent that it interfaces effectively with a phenomenological approach.

This author's development of the EDM seems to be in accord with what McGregor (2015)

describes as the six characteristics of 'Mode 2 Knowledge'. These are listed in Transdisciplinary Conceptual Model D, in Appendix 4, Table A4.4.

The applicability of transdisciplinarity across sciences is emphasised by Alvargonzález (2011): "Transdisciplinarity claims to provide holistic schemes that subordinate disciplines and look at the dynamics of whole systems" (p. 394). He notes, however, that this is not without its problems, and discusses three of these. Firstly he notes issues about merging or comparing terminology to ensure clarity of meaning, including for the term 'discipline' itself, and its cognates. Secondly, he argues that ensuring specificity of particular sciences no longer requires them to be termed 'disciplines'. Thirdly he focuses on the relationship between sciences themselves, and between sciences and technologies.

Alvargonzález (2011) also discusses the different meanings of transdisciplinarity, especially when applied to sciences, and the resulting four trends in approaches. The first trend he identifies focuses on systematic integration of knowledge, in line with historical and current philosophical positions relevant to the unity of science; e.g. Klein (2010) and activities of the Centre International de Recherches et E ́tudes Transdisciplinaires (CIRET). The second transdisciplinarity trend "puts its focus in 'transgressiveness': transdisciplinarity is 'pushing boundaries of class, gender, race, ethnicity, and other identities' (Klein 2010, p. 25)" (Alvargonzález, 2011, p. 394). The third trend uses some holistic framework as a mechanism for transcending the scope of particular disciplinary views. The fourth trend focuses on solving particular problems or issues related to lifeworlds, focusing on aspects of the research question, rather than on the theories and practices on any of the relevant disciplines. While not restricted to integration of concepts from sciences, this dissertation adopts aspects of each of these four transdisciplinary trends identified by Alvargonzález (2011); 'integration', 'transgression', 'holism', and 'problem-solving'.

Transdisciplinary is applied in practical ways for real-world problems at the intersection between science and social issues. Fry (2001) advocates a transdisciplinary approach to planning regarding agricultural landscapes. He suggests that this will be advanced by development of a code of practice and a set of criteria for evaluating the effectiveness of interdisciplinary / transdisciplinary research.

A transdisciplinary approach has already been applied to practical, cross-cultural investigations

of peoples' relationships with place. For instance, Konkoly-Gyuró, E., Balázs, P. and Tirászi, A. (2019) used a transdisciplinary approach to investigate Austro-Hungarian transboundary landscape. The researchers encountered difficulties integrating quantitative and qualitative data from different disciplines. They used statistical and GIS methods and narratives from in-depth interviews (emic data) to identify characteristic landscape types and aspects of historical landscape change, from both sides of the border. Participant responses were recorded in audio files and transcribed into MS Excel files, for quantitative and qualitative content analysis. This type of phenomenographic approach is discussed in Chapter 7.

Marc Antrop and Veerie Van Eetvelde, (2017, Chapter 4, p. 61) advocate a transdisciplinary approach to understanding the complexity of landscape and how this knowledge should influence urban and regional planning processes and outcomes. For instance, in an earlier study, Antrop and Rogge (2006) evaluated of the process of integration, in a transdisciplinary landscape study, in the Pajottenland (Flanders, Belgium). Antrop also makes an important contribution, via his chapter in Trees, B., Trees G. Fry, G. and Opdam, P. (Eds.) (2006), by providing a diagram (Figure 1, p. 32) explaining the multitude of factors influencing any landscape system and hence relevant decision-making procedures.

Transdisciplinary research is very hard to carry out within the traditional structures, especially at universities. This author's development of the PTM-ECS and the EDM v7 seems to be in accord with what McGregor (2015) describes as the characteristics of 'Mode 2 Knowledge'. These are listed in Transdisciplinary Conceptual Model D, in Appendix 4, Table A4.4. Mode 2 Transdisciplinarity is also discussed by Scholz and Steiner (2015), who provide detailed information about how it can be utilized to meet the current challenges of researching complex problems. The specific matters raised in these two articles (including use of 'check-lists' of transdisciplinary attributes) apply to the transdisciplinary use of phenomenology within this research project.

3.5 Application of a Transdisciplinary Approach to Study of Indigenous Conceptions of Place

In this sub-section the issues related to application of transdisciplinary research methods to study of place are briefly introduced, with deeper treatment in following chapters. Kuhn (2012) discusses transdisciplinary approaches to geographic information science. He proposes a set of ten core concepts to facilitate interaction between disciplines on the topic of spatial

information, intended to be meaningful to scientists who are not specialists of spatial information: location, neighbourhood, field, object, network, event, granularity, accuracy, meaning and value. He emphasizes the need to define these concepts in a manner that facilitates mapping between the meanings attributed to them by different disciplines. This emphasises the importance of semantics in transdisciplinary work and the need to make the adopted approach clear from the beginning of a project.

Transdisciplinary projects involving indigenous people require careful consideration of sources of knowledge and surfacing of potential biases in previous information. In this dissertation, key discussion concerns Aboriginal Australians. Michael Christie (2006) contends that transdisciplinary research in Australian Aboriginal knowledges presents problems and opportunities. It has a broader set of sources than disciplinary research and hence raises a wider range of issues regarding methodologies that are capable of dealing with Indigenous Traditional Knowledge (ITK), ethics and intellectual property, for example, relating to ecological issues (Christie, 2008; 2013; 2015; 2016; Christie et al., 2010; Christie and Verran, 2010; Holmes and Jampijinpa, 2013; Mauroi and Hardison, 2000). Such approaches are needed when seeking to incorporate indigenous knowledge in development of culturally-appropriate GIS (Dobbs and Louis, 2015).

Christie (2006, p. 78) notes "Indigenous knowledge traditions resist definition from a Western academic perspective – there are Indigenous knowledge practices which will never engage with the academy, just as there are some branches of the academy which will never acknowledge Indigenous knowledge practices". Hence, it is important to use an open, flexible and thorough transdisciplinary approach to investigation of these issues. He goes on to discuss issues that emerge when transdisciplinary research practice involves Australian indigenous communities. His own work on collaborative transdisciplinary projects in indigenous contexts involves careful investigation of diverse knowledge practices and methods. He believes that a key part of collaborative transdisciplinary methodology is avoiding simplification into received categories, always seeking emic ontologies.

Christie (2006) discusses these issues in terms of one of his projects from his own non-indigenous perspective. In a later publication (Christie, 2013), he suggests that it is important to work from 'the ground up' and that the project be 'generative' (i.e. resulting in changed practices) and provides examples from his own health services project called *Making Collective*

Memory with Computers.

The approach of Holmes and Jampijinpa (2013) is similar to that of Christie. They worked with elders from the Warlpiri in the Tanami Desert region of central Australia, and note that "Indigenous Ecological Knowledge (IEK) is deeply encoded in social processes. … IEK is a way of living whose core aim is to sustain the healthy functioning of people and country through relationships of reciprocity" (n.p.). Investigation of such knowledge requires a sophisticated multi-faceted approach across many disciplines. They operationalize their approach via a model (framework), called *ngurra-kurlu*, which facilitates appreciation of indigenous perspectives on IEK: "Ngurra-kurlu facilitates cross-cultural understanding by distilling, from a complex cultural system, the five distinct conceptual categories that comprise IEK: law, skin, ceremony, language, and country" (n.p.). Of particular relevance to this dissertation, especially the notion of topo-social-cultural-spiritual modes of dwelling, they contend that "The framework enables engagement with nuanced environmental knowledge because it synthesizes, for cross-cultural audiences, all the key areas of knowledge and practice in which IEK is located. In particular, the framework highlights how social systems mediate the transmission, deployment, and regulation of environmental knowledge in on-ground situations, including collaborative natural resource management" (n.p.).   Further review of these concepts is included in the list of future research proposals in Chapter 9, Section 9.8.1.

This approach by Holmes and Jampijinpa (2013) addresses the complex web of physical, utilitarian, social, cultural, spiritual and ethical considerations, which interact with IEK, via seeking to model the numerous relationships between people and 'country'. This is similar to the approach adopted in this dissertation, including use of the Central and Western Deserts Aboriginal concept of *Jukurrpa*, as an integrative model, as discussed in Chapters 6 and 8.

Australian Indigenous Studies researchers emphasise that today most indigenous Australians live in cities and towns, with few continuing to live anything like a traditional lifestyle. However, some indigenous Australians, living in remote communities, continue to give high importance to their social, cultural and spiritual traditions, and still undertake some hunting and gathering activities, while mostly being dependent of non-traditional food sources. For instance, Fiona Walsh (2008), in an extended ethnoecological study, examined land uses by modern Martu Aboriginal people on their country. They occupy the very remote settlements of Parnngurr, Punmu and Kunawarritji, in the Great and Little Sandy Deserts. It is important not

to misrepresent or de-value the lifeworld of indigenous people who do not have the opportunity, or choose not to follow their people's traditional belief system or activities.

The caution issued above, needs to be linked to recent re-invention of the literary character 'noble savage' (Hobbes and/or Rousseau), as an 'ecologically noble savage' (Rowland, 2004). While seeking to understand and respect IEK (Boyce, 2010; 2012; Gammage, 2012; Griffiths, 2018; Pascoe, 2014), it is important not to place current indigenous peoples, especially in Australia, inappropriately in the mythical position of 'noble savage'. Explication of traditional indigenous lifeworlds, including their intimate relationship with local ecology and landscape, is emphasised in later chapters. However, this is carried out in a manner, which, hopefully, avoids the ethical traps indicated by Rowlands. See also Peters-Little (2003).

The case studies (Chapters 2 and 8) and general discussion (Chapters 4, 5 and 6) in this dissertation examine the lifeworld of traditional indigenous societies, so as to clarify the role of topo-social-cultural-spiritual frameworks. For many indigenous peoples, in Australia and elsewhere, their lifeworld and belief system has become much more integrated with that of the dominant colonising peoples, in a host of complex ways. Using a transdisciplinary method facilitates investigation of the variety and complexity of indigenous lives.

As discussed in Chapter 1 (Section 1.4), the various aspects of a transdisciplinary methodology discussed earlier in this section will not be effective unless an appropriate overarching paradigm (meta-methodology) is adopted to integrate the data gathering and analysis undertaken in the various facets of a research project (Booth, Rodgers, and AgInsight, Burekup, 2000; Fuchs, 1976). In Section 3.2.2, Montuori (2005; 2009) was cited as emphasising the importance of studying how best to implement the role of an overarching paradigm in transdisciplinary research. This is one of the research objectives of this dissertation (Research Questions 3 and 7). The utility of adopting a form of phenomenology as the overarching transdisciplinary paradigm for ethnophysiography (landscape language) research is discussed in Chapters 4 to 9.

3.6 Integration of Conceptual Models of Aspects of Transdisciplinarity

In the sections above the ideas of key authors concerning transdisciplinarity have been summarised in Conceptual Models A, B, C and D. There is also important information in the cited work of other authors. Thus, Conceptual Model E (Appendix 4, Table A4.5); summarises the key points raised by various other authors cited above.

An evaluation of the effectiveness of this dissertation's use of key aspects of transdisciplinarity in conducted in Chapter 9. To facilitate that phenomenographic process, the conceptual models (A, B, C, D, and E) produced in this chapter have been concatenated. The various aspects are combined, with duplicated and/or overlapping concepts integrated in Table A4.6 (Appendix 4). The code number(s) from each original model (A to E) are included so that there is an explicit provenance trail.

The primary purpose of this concatenated conceptual model (phenomenographic table) is to guide the development of a transdisciplinary approach to ethnophysiography research over the remaining chapters. It also facilitates the evaluation in Chapter 9 and Appendix 16 of how well this research has followed the key aspects of transdisciplinarity. However, the model is useful also as a way to explicate the definition of transdisciplinarity in this and future research projects. It is, of course, subject to revision as more literature concerning transdisciplinarity is published and reviewed.

3.7 Chapter Conclusions

This chapter has addressed Research Question *2:*

> *Is it possible to build a conceptual model, that integrates definitions and methodological considerations concerning transdisciplinarity from multiple publications, across various disciplines, which can act as an effective guide to the research investigation, and as a mechanism to evaluate the level of transdisciplinarity achieved by the research processes and the dissertation?*

The phenomenographic analysis of transdisciplinarity has confirmed its appropriateness to this dissertation. It reflects the requirements of ethnophysiography research (introduced in Chapter 1 and discussed further in Chapter 2). The concatenated conceptual model of transdisciplinarity provides the basis for implementing, and evaluating, the way transdisciplinarity is implemented within this dissertation.

Summaries of key aspects/dimensions/factors of transdisciplinarity, as represented by Conceptual Models A to E, in Tables A4.1 to A4.5 (Appendix 4), have been produced from analysis of key literature. These concepts, including a total of 69 aspects/dimensions/factors of transdisciplinary research (derived from review of 24 publications), have been integrated into the Concatenated Conceptual Model for Transdisciplinarity, in Table A4.6 (Appendix 4). This includes 28 key attributes of transdisciplinarity and 11 methodological considerations. This integrated model will be utilised in developing the approach to transdisciplinarity applied in this dissertation. It is also used in Chapter 9 to provide at least a partial evaluation of how well this PhD investigation and dissertation apply fundamental aspects of transdisciplinarity, by discussing how well each component of the concatenated model has been addressed (Appendix 16).

This chapter has provided a phenomenographic explanation of key aspects of transdisciplinarity and its application in complex research projects, answering Research Question 2. It also provides the detailed understanding of transdisciplinarity necessary to addresses Research Questions 6, 8, and 9. This chapter also facilitates discussion in Chapters 4 to 7 of the potential use of phenomenology as an overarching transdisciplinary paradigm for ethnophysiography research.

Chapter 4 - Fundamentals of Phenomenology

4.1 Introduction to Chapter

4.1.1 Purpose and structure of chapter

The topic of phenomenology was introduced in Chapter 1 (Section 1.4) and a *prima facie* case was established regarding the potential for phenomenology to provide an over-arching paradigm for the transdisciplinary study of ethnophysiography. The purpose of further reviewing phenomenology in this chapter is to provide a more detailed introduction to key aspects of this form of philosophy, so that it can be used effectively in revision of the ethnophysiography case study methodology.

This chapter does not aim to provide a theoretic explication of the fundamentals of the phenomenological tradition from a purist philosophical perspective. There are no insightful examinations or interpretive exegesis of seminal phenomenological texts by Husserl, Heidegger, Merleau-Ponty, etc. Rather, its purpose is to investigate how aspects of that philosophical tradition can contribute to a transdisciplinary approach to understanding landscape language, and especially whether aspects of phenomenology can provide an over-arching paradigm, at a meta-methodology level. The publications of respected secondary sources are used to explicate the aspects of phenomenology most relevant to this investigation and dissertation. Section 4.1.3 provides discussion of a wide variety of definitions of phenomenology, reflecting the vast range of approaches adopted.

Section 4.2 is structured to review the following key aspects of traditional phenomenology: being and dwelling; intentionality; lifeworlds, intersubjectivity and communalised intentionality; embodiment, movement and affordance; and essences, meanings and universals. This discussion provides a general description of relevant aspects of the work of traditional phenomenologists Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, and Jan Patočka, and links them to aspects of ethnophysiography.

Within the context of this dissertation, it is impossible to provide a comprehensive summary of phenomenology. Rather, this chapter concentrates on the aspects most relevant to the research questions. It references most of the key figures, but also is deliberately eclectic, so as to provide ideas from a broader range of sources. Because this is not a philosophy PhD, rather

than providing extensive quotes from, or summaries of, the primary sources, this chapter mostly relies on authoritative secondary sources, such as those provided by Françoise Dastur, Don Ihde, Aron Gurwitsch, Jitendranath Mohanty, Dermot Moran, Maurice Natanson and Gilbert Ryle.

Section 4.3 discusses more recent developments in phenomenology. There is a methodological emphasis on the social science interpretations of phenomenology by Alfred Schütz and Don Ihde, however, other methods are discussed.

In accordance with the transdisciplinary approach adopted by this dissertation, the basic objective is to evaluate the different forms and methods of phenomenology to determine if they might form part of the new transdisciplinary methodology for ethnophysiography case studies (Chapter 7) and/or apply at an over-arching paradigm level. While some specific phenomenological analysis techniques might be useful within such a methodology, there is no attempt to paste them into a scientific approach in an inappropriate manner. Rather, a coherent, flexible, integrated, methodology is desired.

As explained in this chapter, place is central to phenomenology. Dwelling in a specific type (or types) of terrain turns it into landscape, incorporating relationships reflecting the particular qualities of the lifeworld (Husserl, 1970) of those who live there. Casey (1997) advocates a phenomenological approach to the study of place. He discusses how a place is a "*kind of something*, rather than a definite sort of something […] a given place takes on the qualities of its occupants, reflecting these qualities in its own constitution and description and expressing them in its occurrence as an event: places not only *are*, they *happen*" (p. 27). Casey goes on to indicate that interaction with place determines how particular places, or regions, are designated in the local language: "They are named or nameable parts of the landscape of a region, its condensed and lived physiognomy" (p. 28). This is very akin to the basic thesis of ethnophysiography, thus supporting the examination of phenomenology as a potential over-arching paradigm for the transdisciplinary investigations of ethnophysiography, as discussed in Section 4.4.

The analysis of phenomenology in this chapter leads to identification of the five key aspects relevant to ethnophysiography case studies, explored in Chapters 5 and 6. These are: physical

aspects, embodiment and perception; utilitarian aspects and actions; social structures, culture, knowledge and language; spiritual and ethical considerations; and structural systems.

4.1.2 Development of phenomenology

Dastur (2017, p. xiii) notes that Husserl suggested that, although the term 'phenomenology' first appeared in Lambert's *Nouvel Organon* (1764), Husserl's form of phenomenology was not just another branch of philosophy but "a new concept of what philosophy must be". Dastur discusses how this led to Heidegger's proposal (in *Being and Time*, 1962/2007, pp. 77-83) for a project of 'phenomenological deconstruction', with the goal "to elucidate the derivative character of philosophical propositions and to show that the phenomenon of language can be generally understood only within the larger framework of an analysis of existence" (p. xiv). This aligns exactly with the thesis of this dissertation, in that it suggests that language about landscape can only be understood in the context of the language group's lifeworld, including social structures, culture and spirituality.

An explication of key aspects of phenomenology and their ongoing variations ('movements') is provided by Dastur (2017). She analyses the publications of multiple phenomenological thinkers, contrasting their positions and highlighting the strengths and limitations of specific lines of argument. Her approach is to see phenomenology as a way of thinking through particular problems and providing a toolbox of methods and techniques. Hence, meta-analysis is needed to determine which philosopher's ideas and methods to utilize, within a particular type of investigation, and how to combine them in a coherent way. This dissertation seeks to adopt this approach, and, in a sense, also follows that of Heidegger (1944/1990), where he suggests concentrating not on understanding philosophy as such, but rather investigating "thought that pursues a certain path", while also permitting a thoughtful wandering yielding 'reflection' and 'awareness' (p. xiv).

Phenomenology has been very effective at informing theoretical developments in a wide range of disciplines. For instance, Mohanty (1997, p. 23) discusses Max Scheler's Theory of Knowledge: "In his works he has also shown, in an exemplary manner, how phenomenology and sciences (in his case, biology, anthropology, and sociology) can be blended in one's thinking". Thus, phenomenology is applicable to a transdisciplinary approach, as discussed in Chapters 1 and 3.

Heidegger (1944/1990, p. 1) seeks not to separate philosophy (and hence phenomenology) from the 'human essence': "In truth, historical humans always already stand within philosophy because they do so essentially" (p. 1); "humans already move everywhere within this thinking, which has been called 'philosophy' since antiquity" (p. 2). This accords with the view taken in this dissertation that a wide variety of ways of thinking, including indigenous worldviews such as *Jukurrpa* (Chapters 6 and 8), can potentially be commensurable with phenomenology.

It is important to recognize that phenomenology was not only traditionally discussed in Europe and North America. Links between phenomenology and Asian thought are discussed in Graham Parkes (1987/1990). An example is the contribution of Kitarō Nishida (discussed in chapters by Yasuo Yuasa, Kohei Mizoguchi and Hwa Yil Jung). Nishida (1870-1945) was perhaps the most influential Japanese philosopher of the twentieth-century, founding the Kyoto School, and bringing to his country an appreciation of philosophy as practiced in Europe and North America. However, Yuasa (1987/1990) notes: "Nishida did not go to Europe to study, nor did he have an association with Heidegger" (p. 159). He read philosophical books that made their way into Japan during the 1920s and 1930s, including the work of Husserl and Heidegger. His contributions to phenomenology are summarized in Section 4.2.2.

Stefanovic (2014) suggests that phenomenology has always defied definition, being interpreted in many different ways and appropriated by various disciplines. It has also been employed as a way of bridging between disciplines, including "reflecting on the meaning of place, embodiment, building, dwelling, and home" (p. 58). Such researchers have taken "the *philosophical* dimensions of phenomenology and *enlarged* those concepts through interdisciplinary dialogue" (p. 58). This is despite key phenomenological texts being dense and difficult to interpret, "challenging to even the most sophisticated student of philosophy" (p. 58). This dissertation seeks to extend this dialogue, despite the inherent difficulties, by concentrating on an applied approach, specifically targeted on ways to utilise key aspects of phenomenology to facilitate investigations of landscape as place.

4.1.3 Definitions of phenomenology

The diversity of phenomenological approaches is evidenced by the wide variety of definitions of phenomenology listed in Seamon (2019, pp. 44-46). These twenty three definitions (and details of references) are provided in Appendix 5, with the eleven definitions most applicable to

this dissertation shown in italics. A selected subset of the four most significant definitions follows:

A. Phenomenology is the study of experience, particularly as it is lived and as it is structured through consciousness. "Experience" in this context refers not so much to accumulated evidence or knowledge as to something we "undergo." It is something that happens to us and not something accumulated and mastered by us. Phenomenology asks that we be open to experience in this sense (Friesen, Henricksson, and Saevi 2012, p. 1).

B. The aim of phenomenology is to describe the lived world of everyday experience [...] Phenomenological research into individual experiences gives insight into, and understanding of, the human condition. Sometimes it "languages" things we already know tacitly but have not articulated in depth. At other times, quite surprising insights reveal themselves. (Finlay 2011, p. 26).

C. Phenomenology is best understood as a radical, anti-traditional style of philosophizing, which emphasizes the attempt to get to the truth of the matters, to describe phenomena, in the broadest sense as whatever appears in the manner in which it appears, that is as it manifests itself to consciousness, to the experiencer. As such, phenomenology's first step is to seek to avoid all misconstructions and impositions placed on experience in advance, whether these are drawn from religious or cultural traditions, from everyday common sense, or, indeed, from science itself. Explanations are not to be imposed before the phenomena have been understood from within (Moran 2000a, p. 4).

D. Phenomenology: The excavation of human experience, first, in terms of particular persons and groups in particular places, situations, and historical moments; and, second, as this excavation engenders a self-conscious effort to make intellectual and emotional sense of what that experience reveals in terms of broader lived structures and more ethical ways of being, willing, and acting (Seamon 2008, p. 15).

Definition A emphasizes that the phenomena involved are part of our current every-day lived experiences. Definition B indicates the role of language in expressing insightful meanings of experiences. Definition C highlights that phenomenology is a 'radical, anti-traditional style of philosophizing'. It notes the need to understand the essences of experiences 'free from impositions placed on experience in advance'. However, that does not mean that a full understanding of thoughts and actions does not need to be based on 'religious or cultural traditions, from everyday common sense, or, indeed, from science itself', as another phase of phenomenological understanding. Definition D emphasises that it is important to study a comprehensive sample of particular examples of experiences before trying to intuit some (perhaps universal) 'broader lived structures and more ethical ways of being, willing, and acting'. The significance of each of these aspects of phenomenology are discussed in later sections of this chapter, and expanded upon in Chapters 5 and 6.

4.2 Discussion of Key Aspects of Traditional Phenomenology

4.2.1 Introduction to section

A brief introduction to key aspects of phenomenology in Chapter 1 (Section 1.5) highlighted the following five topics: being and dwelling; intentionality; lifeworlds, intersubjectivity and communalised intentionality; embodiment, movement and affordance; and essences, meanings, ontology and universals. This section provides a brief introduction to how each of these aspects of phenomenology relate to ethnophysiography. These ideas are expanded upon in Chapters 5 and 6.

Phenomenology can also be applied to various aspects of artwork and aesthetics (Steeves, 2017; Lau and Nenon, 2020). This topic has some relevance to this dissertation, including analysis of artworks made by indigenous peoples, such as in association with their form of spirituality. However, there is not space here to explore phenomenology of aesthetics, except for occasional references, in the context of the five principal aspects of phenomenology listed above.

4.2.2 Being and dwelling

Martin Heidegger (1889-1976), a student of Edmund Husserl, played a key role in the early stages of the development of phenomenology, especially regarding the nature of being in the world. In his best known book, *Being and Time* (1927/1962), he developed theories concerning the way individuals can exist authentically among other people, and things, in their environment. The nature of space and place was one of his key concerns, including the way that people dwell in place and broader notions of 'homeland' for large groups of people (such as nations).

For Heidegger (1962/2007) phenomenology starts with being. Although an investigation of being cannot be expected to reveal the 'horizons' of knowledge (spatial; temporal; thematic) about being from the beginning, a "vague average understanding of Being is still a fact" (p. 25). Heidegger continues his process of definition: "This entity which each of us is himself and which includes inquiring as one of the possibilities of its Being, we shall denote by the term *'Dasein'*" (p. 27), which is more literally translated as 'being-there' (Footnote 1). Because the being of *Dasein* is inherently in-the-world, "the way the world is understood, is […] reflected back ontologically upon the way on which Dasein itself gets interpreted" (p. 37). This includes

the relationships with landscape as place; people dwell in landscape and concepts of landscape dwell within people.

Blattner (2006) explains Heidegger's fundamental notion of 'being-in-the-world': "We do not just exist or live in a world, but rather *reside* or *dwell* there; that is we are fundamentally *familiar with the world*" (p. 42). Nancy (2008) notes phenomenology's essential concern for dwelling in community: "Heidegger's *Dasein*, also known to the English speaker as 'being-there', entails by its definition the constitutive, or primordial, property of being at the same time 'Being-with' (*Mitsein*)" (p. 2). [See also Hornsby (2010)].

Stolorow (2014) discusses how McMullin (2013) 'fleshes out' Heidegger's approach to the concept of 'Being-with' (Mitsein), which Stolorow and others have previously found to be somewhat 'thin', despite being the underpinning of relationality and intersubjectivity. He notes that McMullins account stresses "Heidegger's account of Dasein's originary or ecstatic temporality […] individualized interpersonal encounters entail the mutual recognition of the particularity of each participant's temporalizing way of Being-in- the-world, and, controversially, that such mutual recognition occurs even within the mode of everydaynes" (p. 161). Each person, within their own way of being in the world, recognises the unique way of being of each other person, providing the basis for intersubjectivity, as a 'heedful accommodation' and recognition of 'shared world time'. Communities also interact within a shared dwelling place.

Jan Patočka based his phenomenology on that of Husserl and Heidegger (e.g. Patočka, 1999), but not uncritically. Ucnik (2007) notes the 'crisis' in European thought due to defining the natural world scientifically. She discusses Patočka's comparison of the phenomenological approaches by Husserl and Heidegger to that crisis. She concludes that Patočka saw our responsibility as engaging with the problem of present society being "defined by the mode of having as opposed to being" (p. 297). This is a continuous struggle, in which formal knowledge is inadequate. It requires "a never-ending pursuit of meaning as a way of life" (p. 297) via philosophical reflection.

Discussing Heidegger's notion of place, Malpas (1999, p. 22) notes that: "A place in which one can dwell is a place that provides a space in which dwelling can occur – 'it gives space' to the possibility of dwelling – and yet a place to dwell must be more than just a 'space' alone." That

dwelling place usually includes landscape, and the condition of dwelling involves a complex set of relationships with landscape. Basso (1996b, p. 54) suggests that: for Heidegger "the concept of dwelling assigns importance to the forms of consciousness with which individuals perceive and apprehend geographical space." This entails consideration not only of geographical features (objects in the terrain) but also the role that landscape plays in the people's lifeworld. Phenomenology seeks to explicate the nature of dwelling; a concept central also to ethnophysiography.

Jung (1987/1990, p. 219) notes that Hannah Arendt (a one-time student of Heidegger) adopts the term 'human plurality' (in her seminal 1958 work *The Human Condition*):

> According to Arendt, human plurality is the basic condition of both speech and action, and it has the twofold character of equality and distinction. The first refers to the existence of commonality among human beings and human cultures, without which we would not be able to understand one another, whether they be 'primitive' and 'modern' or 'Western' and 'Eastern'. On the other hand, without distinction we would need neither speech nor action to make ourselves understood.

This approach to the role of language and culture, contrasting universal with particular aspects, is central to the ethnophysiography project. Ways to facilitate understanding relationships with landscape will be pursued in later sections and chapters.

4.2.3 Intentionality

Husserl defines intentionality as the directedness of experience towards things in the world; the property of consciousness that it is of or about something (Smith, 2009). Husserl's ideas regarding intentionality, developed between the late 1890s and the 1930s, were based on earlier work by Franz Brentano (e.g. his 1874 publication *Psychology from an Empirical Standpoint*) (Moran, 1996; 2000b; 2013; Ryle, 1971). However, the notion of intentionality has even deeper historical roots, going back to Descartes and Aristotle. Brentano used landscape, which in his view, exists only phenomenally, as an example subject of intentionality (Mohanty, 1997). Thus, using a phenomenological approach to help understand the way landscape language expresses aspects of individual and communalised intentionality is neither new, nor radical.

Moran (2000b, p. 39) notes that Heidegger, who was Husserl's assistant from 1919 to 1923, "dropped all reference to intentionality and consciousness in Being and Time (1927)". This is

usually seen as a break with the tradition of Brentano and Husserl, via a critique of their epistemological, representationalist approaches to intentionality (e.g. Carman and Hansen (2005); Klaskow, 2011). However, Moran (200b) argues that Heidegger was merely developing Husserl's concept by focusing on the ontological dimension of intentionality. Moran (2013) reviews more recent discussion of this topic by authors such as Roderick Chisholm, Daniel Dennett, John Searle, Tim Crane, Robert Brandom, Shaun Gallagher and Dan Zahavi. He contends that the phenomenological approach of Husserl and Heidegger "can still offer insights for contemporary philosophy of mind and consciousness" (p. 317). Books and articles continue to be published discussing the works of these fundamental phenomenologists, including discussion of intentionality and the relationship between phenomenology and hermeneutics (e.g. Apostolescu, (Ed.) 2020; Geniusas and Fairfield, (Eds.) 2018).

Smith (2007) asserts that the study of consciousness, via phenomenology, can explain how it is directed towards things in the world. He notes that phenomenology "studies the structure of various types of experience ranging from perception, thought, memory, imagination, emotion, desire, and volition to bodily awareness, embodied action, and social activity, including linguistic activity" (p. 2). A phenomenological approach to our relationship with landscape assists us to address the potential ambiguity between 'objects' and 'places', which is sometimes found in landscape language (Burenhult and Levinson, 2008; Lyons, 1977). This is discussed further in Chapters 5 and 6.

Chelstrom (2013) notes that, for Husserl, intentionality is directed towards social or cultural phenomena, as well as physical objects in the environment. Chelstrom also suggests that, for Husserl, intentionality is not merely about "what is immediately given to consciousness" but also can potentially relate to a myriad of other concerns, including "the temporal-, spatial-, and bodily-dimensions of experience, the social horizons, linguistic horizons, and generative and genetic dimensions of experience, as well as the variant perceptual modalities, and perhaps other possibilities" (p. 7). This list includes many of the issues involved in dwelling with others in landscape as place. Intentionality is our relation to aspects of our environment, in our lifeworld context. When we are interacting with landscape features they are, then, for us, the 'intentional objects' of our actions and their meaning for us is configured by that relationship, whether physical, utilitarian, social, cultural, spiritual and/or ethical (Patočka, 1996b).

Not all researchers of place concepts adopt an approach linked to intentionality. For instance, Tim Ingold (2014, p. 26) states: "I have long held doubts about the fundamental postulate of phenomenology, namely that consciousness must always be consciousness *of* ". Instead, he suggests we should consider how people live together *with* the natural world: "I would start from the postulate, then, that consciousness is always consciousness *with*, before it is ever consciousness *of*. Whereas '*of*-ness' is intentional, '*with*-ness', I would argue, is attentional. And what it sets up are relations not of intersubjectivity but correspondence […] We have been so concerned with the interaction between ourselves and others that we have failed to notice how both we and they *go along together* in the current of time […] If interaction is about othering, then correspondence is about togethering. It is about the ways along which lives, in their perpetual unfolding or becoming, answer to one another" (p. 26). Thus it is critical to interrogate communal relationships with landscape in terms of objectives, scenarios, tasks and actions.

In this dissertation, the term chosen to describe how people 'go along together' is 'communalised intentionality' (Section 4.2.4), in line with the traditional approach to phenomenology. Chapters 5, 6 and 8 also discuss the many fine contributions of Ingold to our understanding of dwelling in place.

4.2.4 Lifeworlds, intersubjectivity and communalised intentionality

People have different sorts of relationships (physical, utilitarian, social, cultural, spiritual and ethical) with landscape features as 'things', which can be explained from a phenomenological perspective (Patočka, 1996b, pp. 172). Our relationship with aspects/parts of landscape is dependent on how we exist/dwell within it, in terms of the particular nature of our lifeworld (*lebenswelt*).

Husserl's concept of lifeworld is explained by Moran (2014) as relating to "habitual life in the familiar world", where meanings are "always already there" or "pre-given" (pp. 28-29). This means that a person usually experiences their world as possessing "a deep degree of stability, commonality, normality, familiarity, and even comfort" (p. 29). This shared experience is within the everyday 'horizon' of concerns, which is why it is taken for granted (unreflective) and hence not readily open to scientific investigation. However, it is important, in the context of this dissertation, to examine to what extent people's ordinary thoughts and activities are actually unreflective, and in which ways they may differ, or be the same, within a community

with a common culture and language. Does what Moran terms 'hidden intentionality' translate to an unreflective uniform 'communalised intentionality', to support closely aligned conceptualisations of aspects of the world (e.g. landscape features), reflected in robust meanings in a shared language?

Moran (2014) suggests that, for Husserl, "the life of habit […] can also be a matter of perceptual tendencies, desires, feelings, emotions, even peculiar moods" (p. 29). This makes 'habitual life' difficult to interrogate [see also Moran, 2011b]. Such a very wide variety of inclusions within the concept of lifeworld seem to exceed what could today be considered as automatic, unreflective responses. It also implies a level of commonality of thought within a community, which seems untenable, given variability between individuals' history, personality, cognitive style, etc. One can agree that something like 'place attachment' might at some basic level operate as an 'abiding style', however, in its totality, it must involve much more than what we normally think of as 'habit'.

Moran (2014, p. 30) explains that Husserl employs an extensive version of habit:

> Habit is thereby intimately connected with powers, capacities, disposition, the ability to exercise a skill, execute routines, embody successfully a range of activities, such as playing a musical instrument, dancing, driving, reading, and so on. Habit, for Husserl, is also connected with higher activities of the ego involving knowledge, moral practical wisdom and the formation of a stable character, as well as the overall achievement of a stable intersubjective life with others.

These sorts of habits can also be considered as a product of 'mimesis', the passing on or reinforcing of knowledge or preferences. This is discussed in Chapters 6 and 8, in the context of socio-cultural structures. Moran (2014) notes the importance of social structures: "Husserl is deeply aware of and attempts at least to sketch in outline […] some of the collective social practices that contribute to the constitution of custom and culture […] the overall capacity to belong to a 'sociality' (*Sozialität*), the capacity to recognize, appreciate and follow the norms and values of one's culture". For Husserl, all these are aspects of 'habituality'. Such communal processes need to involve complex interactions, making them far from basic.

It seems impossible to meaningfully consider these aspects of life as being carried out without conscious reflection, especially since Moran notes that, for Husserl, these aspects of the

"psychic subject" are in "constant flux", by virtue of the impact on them of "every lived experience"; such that it is constantly "in flow in its totality and interconnection with other subjects" (p. 31). As discussed in later chapters, an alternative approach is to think of many of these aspects that Husserl terms 'habits' as belonging to a person's fundamental overarching cultural framework and community behaviours.

For ethnophysiography, ontologies (of landscape) are culturally-specific, arising not just from the nature of the terrain in which members of a language group dwell, but also from the nature of the people themselves, their culture and their activities; their lifeworld. Mohanty (1997, p. 60) explains Husserl's concept of lifeworld (*lebenswelt*) thus: "The lifeworld is a world of *practice* (of action, making and doing) and *praxis* (of social action, of production of goods, and distribution of goods). It would, however, be mistaken to say that these modes of *acting* exhaust the lifeworld in all its dimensions. For example, there are religious, aesthetic, and cultural dimensions." Hence, investigation of landscape language must include methods and techniques to identify the impact of all those dimensions. Casey (1997) notes that communities are involved in "bonding together through rituals that actively communalize people" (p. xiv). In Chapters 5, 6 and 8 cultural norms are discussed in terms of a community's topo-socio-cultural-spiritual framework, with Manyjilyjarra *Jukurrpa* used as an example.

Husserl's work on inter-subjectivity and the common constitution of reality, via communalised intentionality, included the concepts of *Ineinandeersein* (to merge with one another) and *Fuereinandersein* (for the sake of one another) as part of modes of *Miteinandersein* (being-with-others). Loidot (2017), noting discussion of these issues by Hannah Arendt, explains that the modes of *Miteinandersein* relate to types of concrete formations of inter-subjective relations, involving communal social and political systems, including aspects of affect, such as empathy; potentially providing an 'authentic' way of dwelling together. Group activities and speech acts occur within this 'actualized plurarity'; a community forged via a common 'historical fate', common language and culture, and, thus, a common 'understanding of being' [see also Szanto and Moran, 2015].

The concept of lifeworld advanced in Husserl's later phase, described above, involves such a myriad of diverse, ever-changing characteristics that it seems dysfunctional to drop them all in a bag labelled 'habits', except in the context of making some very general philosophical point. Such criticisms are not new; having been identified by researchers in new phenomenology

(subsection 4.3.2), hermeneutic phenomenology (subsection 4.3.5) and postphenomenology (sub-section 4.3.6). Husserl's *epoché* and phenomenological reduction are the traditional steps for identifying essences of people's mode of dwelling, as discussed in sub-section 4.2.6 below and Section 7.3.1 in Chapter 7. However, in the context of ethnophysiography, there are likely to be much more efficient and effective methods to understand the influence of lifeworld on landscape language, as discussed in Chapters 7 and 8. This involves the EDM and PTM-ECS.

The proposed methodology incorporates a hermeneutic approach, as developed by Alfred Schütz in his social-sciences method of lifeworld analysis (see subsection 4.3.3). This is applicable to the ethnophysiography research project, since the hermeneutic approach requires that we analyse the meaning of any 'speech act' in relation to the ordinary engagements that entail the lifeworld of our community. Odysseos (2009) notes that, for Schütz, community is constituted via the process of 'critical mimesis' (Chapters 6 and 7), incorporating aspects of the community's past, to produce a type of 'critical belonging', which is aligned with both past and present versions of lifeworld. The importance of such shared knowledge, for the experience of belonging, is supported by Jovchelovitch (2007), who notes: "This experience of connectedness is what produces the psychology of belonging, the feeling that one fits in a cultural milieu, understands the taken-for-granteds and communicates without having to be explicit all the time" (p. 77 /78). Through their shared lifeworld, communities link past, present and future through social memory and shared representations (via language, images and performances), yielding social identities.

Husserl, in his later publications, moved phenomenology from concentrating on individuals to also consider its use for interpreting interactions between people and group behaviours; what he termed 'intersubjectivity'. Chelstrom (2013) contends that Husserl "treats subjectivity as immersed in relations to others, denying atomistic conception, which claims that the subject is an island unto herself and all relations to others are secondary to her being […] One cannot be the sort of subject one is without others" (p. 2).

Kockelmans (1994, p. 25) asserts that: "I experience the world as being not my own private world but an intersubjective world in which others exist both as others as well as for others", hence, a community "is constituted in the sphere of my ownness, which in its *communalized intentio*nality constitutes the one identical world for everybody" [emphasis added]. In ethnophysiography case studies, interviews and other research procedures with individuals give

us access to their understanding of landscape language, but any one piece of evidence regarding the meaning of a term requires confirmation from other speakers of the language. However, this does not mean that it is 'one identical world for everybody', as Kockelmans asserts at the end of the quoted section, as every individual's set of concepts will be slightly different due to their personal experiences, cognitive style, etc.[17]

Simon Schama (1995) discussed the important role of communal memory in developing relationships with landscape. He contended that myths and memories of indigenous past have established themselves as part of the basic social instincts and territorial identity of a language community. Such deep relationships with landscape are expressed through the landscape terms and toponyms used in a particular language.

How is it then that a group comes to a consensus about the meaning of a landscape term? There may be aspects of chance at play, but surely it is the fitness of the meaning (in the environmental and cultural context) which guarantees its dominance (over alternatives) and longevity. Such meaning-term connections do not, however, remain fixed but rather drift as relevant conditions change. For instance (in a case study reviewed in Chapter 2), there are two words in Yindjibarndi for similar, though different, types of flat area. The term *bargarra* refers to a large flat area, prototypically an extensive stony or sandy plain, usually with patches of spinifex or grasses, although there could also be occasional bushes. Whereas, *biila* is a term meaning "in the open" or "outdoors" or "outside the dwelling" or "a clearing in a forest". Older speakers pointed out to the researchers (Mark, Turk and Stea, 2007; Turk and Mark, 2008) that, in the speech of younger people, *bargarra* is gradually replacing *biila* as a term for smaller open spaces. They said that young people felt less need to differentiate between the two terms, as they now live in town and only occasionally visit 'bush' areas.

This view of lifeworld incorporates the social, cultural, spiritual and ethical aspects of relationship to 'country' (Benterrak, Muecke and Roe, 1984), as well as sense of place (e.g. topophilia; Tuan, 1974), which all need to be incorporated into a complete understanding of ethnophysiography. Indeed, two groups of people inhabiting the same territory (e.g.

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[17] An interpretation of Kockelmans' (1994, p. 25) notion (following Husserl) is an assertion that there is only one world, which people have different perspectives on, due to their cognitive style, experiences, etc.. This concentrates on physical and affordance aspects of the world, rather than social, cultural, spiritual and ethical considerations. [see Section 2.4.1 and discussion of the hole in the ground at Jindawarrana]

Yindjibarndi and non-indigenous Australians in the Pilbara region of Western Australia) will have different ontologies and terms for landscape features and a different set of values concerning the 'country' (Chapters 2 and 6). For instance, the group of pools of permanent water at *Jindawarrina* (Millstream) is a sacred place (for Yindjibarndi people) and, simultaneously, a beautiful National Park and a source of water to sustain mining activity (for the non-indigenous inhabitants) (Ieramugadu Group Inc., 1995; Rijavec, Harrison and Soloman, 1995). Such valuations are integral to the landscape ontologies: "Things are cognized, acted upon, evaluated not only as unique individuals, but also, simultaneously, as exemplifying *types* […] Action and praxis present the world to the agent *as having a certain meaning*" (Mohanty, 1997, p. 61) [emphasis in original]. See also Malt (1995, p. 141) regarding formulation of categories.

A key aspect of the differences in conceptualisations of landscape, proposed in the initial theoretic propositions of ethnophysiography, is people's objectives and actions, in association with the affordance of landscape elements. For instance, in Yindjibarndi there is a word (*wangguri*) for what might be termed in English a 'box canyon', which is thought of as a landscape feature into which it would be useful to drive kangaroos, so that they are trapped and easier to spear. An element of landscape is considered as a feature (thing or object), and given a term in the language, because it fits with an intention.

Kockelmans (1994 p. 25/26) explains the process of moving from individual to group concepts: "my transcendental subjectivity is gradually expanded into a transcendental intersubjectivity or community, which in turn is the transcendental ground for the intersubjective value of nature and the world in general". The common conceptualizations of the speech community extend beyond the merely physical aspects of topographic features to encompass also the social, cultural, spiritual and ethical dimensions relevant for the speech community: "Besides being *objects in the Lebenswelt*, we are at the same time *subjects with respect to the Lebenswelt*, insofar as it derives its meaning and the sense of its existence from our collective mental life, from our acts (concatenated and interlocked with those of our fellow men) of perceiving, experiencing, reasoning, purposefully acting, etc." (Gurwitsch, 1957, p. 372).

Phenomenology thus has the potential to assist in understanding the way that landscape terms may incorporate cultural and spiritual aspects of the worldview of the speech community via communalised intentionality. Patočka (1996a) suggests that "Edmund Husserl's

phenomenology represents a concurrent reflection about the meaning of things and about the meaning of human life" (p. 1). It can provide a distinctive contribution to the re-vitalisation of science: 'Science ought to and can provide human lives with a 'spiritual meaning', the content and aim of life we need in order to be truly at home, at one with ourselves, with our life, and with our world" (p. 1). These aspects of being/dwelling need to be considered alongside those that are more specifically physical and utilitarian.

4.2.5 Embodiment, movement and affordance

The most fundamental aspect of dwelling in landscape relates to people's bodies and the ways they are used in nonconscious and conscious ways as part of a person's lifeworld. Casey (1997, p. 228/9) emphasises "acknowledgement of the lived body's role in the constitution of place as distinctly different from space". Understanding of dwelling in place was advanced by Husserl and Heidegger, and embodiment aspects were further developed by Merleau-Ponty.

Merleau-Ponty (1962) discusses the concept of the 'phenomenological body', rather than the 'objective body' (a physiological entity), as a unified capacity for doing things as part of our (encultured) intentional relationship with our world. Later chapters (especially 5, 6 and 8) include discussion of the role of every-day movements through and between places, as part of the traditional practical and social activities of (for instance) the Australian Central and Western Desert Aboriginal peoples (Yarnangu) lifeworld. This provides an embodied, intentional relationship with landscape. In addition, Yarnangu singing and dancing performances (*inma*) can be considered as an embodied representation of *Jukurrpa*, the linking of 'The Dreaming' to 'placelines' through landscape ('country').

The proposition that intersubjectivity can also involve 'intercorporability' is advanced by Csordas (2008). He examines ethnographic instances where this can occur between participants via an interaction involving the 'intercorporeal hinge' of contact between hands or lips. Csordas also posits instances involving other elements of embodiment such as "gesture, touch, etiquette, alterity, spontaneity, body image, sonority, mimesis, and immediacy" (p. 110). He concludes that "intersubjectivity is a concrete rather than an abstract relationship and that it is primary rather than a secondary achievement of isolated egos" (p. 110). A fundamental aspect of intersubjectivity concerns the spatial relationships between people's bodies (e.g. standing in line) and the way they touch each other (e.g. in greeting gestures, such as shaking hands).

This highlights the significance of body language, via touch, and visual transmission of formal and informal sign language, including facial expressions and body posture. Csordas quotes Gail Weiss (1999, p. 5): ''To describe embodiment as intercorporeality is to emphasize that the experience of being embodied is never a private affair, but is always already mediated by our continual interactions with other human and nonhuman bodies''. This relates to procedures involved in work protocols, sporting events and spiritual practices. Discussion of the photo of a group of Manyjilyjarra people at the *Yimiri* sacred site (Chapter 6, Section 6.8.3, Figure 6.1) provides an example of intersubjectivity (and communalised intentionality), which includes ritualised behaviour of group members. In western society intercorporability may occur, for instance, when a group 'waves-goodbye' to a departing friend. Our interactions with the inanimate and animate word around us are, first and foremost, corporeal.

James Gibson used the term 'affordance' to refer to the characteristics of an object or an environment that relate to the potential for a person (or indeed any specific organism) to interact with it: "The affordances of the environment are what it offers animals, what it provides or furnishes, for good or ill" (Gibson, 1977, p. 68). This approach (in the context of embodiment) can be applied to landscape features, with positive affordance facilitating interaction in an efficient and effective manner (e.g. having a comfortable place to sleep), or perhaps in a dysfunctional way (e.g. falling down a cliff). Thus, affordance characteristics (e.g. degree and slipperiness of a hillside slope) are important factors in the definitions of landscape categories. In Manyjilyjarra landscape language (Chapter 8) there is a term for 'slippery' (*jiraly*), which can refer to a landscape slope (*larrku*) or claypan (*linyji*).

Heft (2001) links Gibson's affordance approach to Merleau-Ponty's 'direct perception' (Michaels and Carello 1981) version of phenomenology, rather than Husserl's tradition. Ingold (2000, p. 166) emphasises that affordances relate to specific activities undertaken in/on landscape, as 'taskscape' (Ingold, 1993): "The knowledge obtained through direct perception is thus *practical*, it is knowledge about what an environment offers for the pursuance of the action in which the perceiver is currently engaged" [emphasis in original].

The role of embodiment and movement in understanding landscape is manifest in a wide variety of ways. Feld (1996, p. 91) comments on the primary importance of people's perception of landscape via their various senses: "as place is sensed, senses are placed; as

places make sense, senses make place". This relates to all senses, not just sight: "The overwhelmingly multisensory character of perceptual experience should lead to some expectation for a multisensory conceptualization of place. But by and large, ethnographic and cultural-geographic work on senses of place has been dominated by the visualism deeply rooted in the European concept of landscape" (p. 94). He goes on to explain how a whole-of-body sensory experience of place leads to terms for elements of landscape that use words for body parts and, in a more abstract way, terms for land forms which reflect shapes of body sections, such as thigh or chest. This is discussed in the reports of landscape language case studies in Chapter 2.

EIsenlohr (2018) discusses the role of 'voice' in understanding spoken words, and more broadly, sound, and its relationship to place and movement. He cites Merleau-Ponty (1945/2002, p. 329/30) regarding his distinction between the phenomenological 'felt-body' (*Leib*) and the physical body (*Korper*): the concept of "the felt-body transcends the limits of the material body as it is commonly conceived and thereby helps to do justice to sound as a material phenomenon that ignores the boundaries of bodies" (Eisenlohr, 2018, p. 35). EIsenlohr links this with the broader notion of 'atmosphere', a 'new phenomenology' notion of the way a person exists within an expanding and contracting spatial envelope of perception and feelings (Schmitz, Mullan and Slaby, 2011, p. 255):

> Atmospheres are quasi-objective entities that spread in a given space, touching and enveloping the bodies of those perceiving them in a way that exceed single, definite sensory impressions. Far from being a matter of subjectivist interiority, feelings are atmospheres poured into a space where they encounter and impact humans, similar to the sensations of being in darkness or warmth (EIsenlohr, 2018, p. 39).

Atmospheres include an intermingling of sound and the felt-body, which "exists in time, (and) can be measured, and propagate through space" (EIsenlohr, 2018, p. 39).   In the landscape context, this could be the sound of a waterfall, or a running stream of water, or wind blowing through boulders or trees or grasses.   Eisenlohr notes that this can give an impression of movement; as a sound increases or decreases in volume, the hearer may have the impression that they are moving closer to, or farther away from, its source in space, as this sonic phenomenon plays a role in 'commingling' with the felt-body's sense of place (Ingold, 2007; Bohme, 2000).   He also notes that the interpretation of such sonic atmospheres occurs within a

person's sociocultural framework and experiences, including religious/spiritual traditions (p. 38).

Ingold (2016) uses the concept of atmosphere as interpreted by Merleau-Ponty's (1964b) to express a person's sense of 'openness' to the world, an allowing of being enfolded within it "to yield to its embrace, and to resonate in one's inner being to its illuminations and reverberations. To be able to see is to open to the experience of light; to be able to hear is to open to the experience of sound; to be able to touch is to open to the experience of feeling […] place is the way we are with the world" (Ingold, 2016, p. 12). The concept of atmosphere is linked to Heidegger's 'mood' in Chapter 6, Section 6.4.2. See also Hadjioannou, (2019).

Patočka (1996) suggests that we are not aware of things solely in terms of their position relative to us, in terms of 'objective relations'. Rather, we live through relating to things, and in this way find "a place in the world of things" (p. 172). Patočka (1996) continues: "We are not indifferent neighbours of things. Our relations are not external, indifferent […] we do something for the sake of something. Therein lies the nonindifference of our mode of being" (p. 172). In this way we are integrated into the world, in terms of 'means' and 'ends'; a complex set of embodied relationships with things in the world, including landscape features and the atmosphere they create. The atmosphere of a place can also be newly created, especially in an urban setting (Bille, Bjerregaard and Sørensen, 2015).

According to Chvatik and Ucnik (2016), Patočka contends that a person understands the world by perception, which is necessarily mediated by their overall schema of the world and their place in it: "The activity that accompanies and makes possible the whole of human life is perception; however, perception itself is impossible without an extensive structure, it presupposes the original consciousness of time, in which both perceiving and the perceived take form and shape" (p. 4). Our awareness of things and their usefulness (affordance) is in the context of our life-world.

Ucnik (2018, p. 1-2) explains that, as a way of dealing with subject-object dualism, Patočka discusses how movement influences our perception, and consequential constitution of meanings concerning the world. She notes that, for Patočka, "Things reveal and conceal themselves depending on our bodily position in relation to them. We move near a thing or far away from it, thereby seeing it differently. Things are given to us in a perspective that depends

on the position of our bodies" (p. 2). We are continually 're-thinking' the meaning of a thing, as our movements around it reveal different aspects and perspectives. However, because for us this a 'commonplace' activity, we usually don't consciously think about this mental process or the ways it is influenced by our lifeworld and socio-cultural context, and the relationship of this particular thing to the totality of things in the world (Fink, 1972). Ucnik explains that, for Patočka: "Our human existence is rooted in a place from where we come from and where we travel" (p. 10).

Chvatik and Ucnik (2016) discuss how the world can be considered to consist of zones, for which we have different relationships: "The nearby is purely practical, the distant often of a more aesthetic nature (though that does not rule out, even here, an originality practical articulation – e.g. mountains, valleys, roads are units indexed, undoubtedly, as functions of our praxis)" (p. 77). Landscape features have utilitarian, social, cultural, spiritual, and even ethical relations with us as individuals, but primarily, as members of communities.

Corporeality is not merely individual, but also part of the intersubjectivity of dwelling with others and carrying out daily tasks together with and with regard for them; a *being-in-the-world-with-and-for-others* (Chvatik and Ucnik, 2016, p. 55). Perception is always mediated by who we are, where we dwell, and who we dwell there with. For instance, a Manyjilyjarra person (Chapter 8) approaching, then circling, a waterhole, considers its size and shape and, given the surrounding topography and recent weather, the possibility of it being a permanent water source, and hence its likelihood of having spiritual significance, with respect to *Jukurrpa*, and the social rules governing this language community. They would also consider whether the waterhole is located in another group's territory, and hence, should not be used without asking permission.

Di Fazio (2015) notes that a key aspect of embodiment emphasised by Merleau-Ponty and Patočka, is movement; which expresses our thoughts, desires and intentions. He suggests that, often movement is the answer to a life-world question, posed by vision. Movement involves nonconscious adjustments of our body posture to compensate for current physical conditions. Movement assists us in understanding key aspects of the environment; including estimating the rise and fall of terrain more precisely and reliably than eyesight. Movement also presents us with different views of the environment to enable construction of a more complete terrain

schema for use with respect to our goals. Observing the movement of others gives us information about their intentions.

Based on readings of the works of Heidegger and Merleau-Ponty, Inkpin (2016) proposes a phenomenological conception of language as involving embodied, embedded, enactive, and extended cognitive systems. This seeks to ground the relationship between language and world, focusing on the pragmatic role of language in 'everyday' life-world activities, and the way it expresses the structure of conceptualisations of being in the world.

Some of the latest developments regarding a phenomenological approach to movement, affect and language were brought together under the term 'life phenomenology' (Smith, Saevi, Lloyd and Churchill (Eds.), 2017). Articles in this publication address contemporary issues for hermeneutic phenomenology, including the following topics relevant to this dissertation: the role of movement and gesture in different types of lifeworld; how "senses, feelings, emotions and moods of self-affirmation and responsiveness to others sustain us in our daily lives"; and the extent to which the "descriptive, innovative, provocative language of phenomenology" can enliven human sciences research (p. 1). For instance, one of the authors, Stephen Smith (2017), discusses how phenomenological analysis of movement and gestures can assist in understanding the relational, interactive and inter-corporeal aspects of non-verbal language.

Embodiment influences, and is influenced by, lifeworld, taken in its broadest meaning. Hence, if the role of embodiment is to be understood in general, it is necessary to examine how it operates across a wide range of landscapes, lifestyles and cultures, rather than assuming some sort of universal roles of embodiment, movement and affordance.

Anderson (2009) discusses ambiguities inherent in the concept of 'affective atmospheres', in terms of individual and collective affects and emotions. This includes the indefinite relationships between people and objects, such as landscape features, and how this influences lifeworlds. He sees these phenomena as "occurring beyond, around, and alongside the formation of subjectivity" (p. 77). He discusses difficulties of terminology, with 'atmosphere' used differently in every-day speech and 'aesthetic discourse'. It can be used "interchangeably with mood, feeling, ambience, tone and other ways of naming collective affects […] Moreover, the referent for the term atmosphere is multiple; epochs, societies, rooms, *landscapes*, couples, artwork, and much more are all said to possess atmospheres (or to be possessed by them) […]

atmosphere traverses distinctions between peoples, things, and spaces […] On the one hand, atmospheres are real phenomena […] On the other, they are not necessarily sensible (capable of being sensed) phenomena" (p. 78) [emphasis added].

Atmospheres relate to both individual and collective feelings about places. Anderson (2009, p. 78) notes Massumi (2002) suggests that the concept of affect is a way to express "the transpersonal or prepersonal intensities that emerge as bodies affect one another". He cites Deleuze and Guattari (1991/1994, p. 164) as asserting "affects are no longer feelings or affections; they go beyond the strength of those who undergo them". They may perturbate relationships between individual and others in a community and between people and objects, such as landscape features. While such affects are real and can be strong: "Perplexingly the term atmosphere seems to express something vague. Something, an ill-defined indefinite something, that exceeds rational explanation and clear figuration […] Yet as one and the same time, the affective qualities that are given to this something by those who feel it are remarkable for their singularity" (p. 78). Hence, we can define atmospheres as " collective affects that are simultaneously indeterminate and determinate […] a class of experience that occur before and alongside the formation of subjectivity, across human and non-human materialities, and in-between subject/object distinctions (after Seigworth (2003); see Anderson and Wylie (2009)" (Anderson, 2009, p. 78).

A strong example of atmosphere is the spirituality associated with the culturally important fresh-water spring Yimiri, which wells up in a saltlake in Manyjilyjarra country, in Australia's Western Desert (see Figure 4.1). In the photo, elders are educating younger people about the importance of *Yimiri*, by carrying out traditional ritual practices which celebrate the atmosphere at this place.

Figure 4.1: A group of Manyjilyjarra speakers (and other Martu people) gathered at Yimiri - [source: Kanyirninpa Jukurrpa cultural awareness course materials - Topic 3 "Ngurra" (Country)].

An atmosphere may, in a sense, apply to a place for all conceivable time. For example, the huge monolith Uluru, in Central Australia, is a cultural site for Arnangu Aboriginal people. For Arnangu the landscape was formed at the start of time and its sacred atmosphere will continue for all future time (Figure 4.2). However, atmospheres can also be: "perpetually forming and deforming, appearing and disappearing, as bodies enter into relation to one another. They are never finished, static or at rest" (Anderson, 2009, p. 79). In September 1969 this author formed a strong personal relationship with what was then called Ayres Rock by the government. During the day and early night he undertook surveying observations from a trigonometric station (brass mark and rock cairn) on the summit, while part of an Australian Government mapping field party. The atmosphere of Ayres Rock / Uluru was altered for most Australians when Lindy Chamberlain said a dingo took her nine-week-old baby Azaria, from the family tent when they were camping there in August 1980. Azaria's body was never found and people either believed, or disbelieved, the reason given for her disappearance. The atmosphere of Uluru was further altered (more remotely) for many people internationally by the 1988 film *Evil Angels* (also known as *A Cry in the Dark*), where Lindy Chamberlain was played by Meryl Streep.

Figure 4.2: Uluru (from: https://ulurutoursaustralia.com.au/blog/the-significance-of-uluru-to-australian-indigenous-culture/)

In 1985 the Australian government returned ownership of the area to Arnangu people and officially changed the name back to Uluru, as part of the Uluru Kata Tjuta National Park, which was included on the UNESCO World Heritage List, for both its natural and cultural values, in 1987. Climbing Uluru has always been discouraged by the Traditional Owners (the Arnangu people).[18] In 2017, the board of the Park voted unanimously to end the climb because of the spiritual significance of the site, as well as for safety and environmental reasons. In 2019 the chain, which facilitated climbing, was removed and climbing the rock is no longer permitted. Instead tourists are given cultural tours by Arnangu Rangers, providing the visitors with a less physically invigorating experience, but one more culturally rich. This history of Uluru demonstrates how atmospheres can change for the different people having relationships with this unique landscape feature.

4.2.6 Essences, meanings, ontologies and universals

Husserl's version of phenomenology concerns itself with the essential nature of objects and acts of consciousness, their 'essence'. This 'eidetic reduction' is achieved by a mental process

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[18] https://theconversation.com/why-we-are-banning-tourists-from-climbing-uluru-86755 [accessed 2nd September, 2020]

of 'bracketing off' contingent and accidental aspects of everyday experience to discover what is the invariant, necessary, essential, universal form of that kind of object or act of consciousness.

The motivation for Husserl's development of the *epoché* and phenomenological reduction, is described by Dastur (2017, p. 58) as not desiring to make phenomenology more scientific, but rather to seek the true essences of consciousness, via a new methodology, employing 'a philosophical attitude of thought'.   Citing Husserl (1988, p. 35), she explains that:

> A phenomenon is not to be understood in the current sense (that is, as a thing of the world, as it presents itself to consciousness), nor in the traditional philosophical sense (that is, the appearance that the thing offers to the look and that is distinct from its hidden essence), but rather as the 'pure absolute given' of the thing, which can appear only if we stop being interested in the thing's being, stop giving or refusing it our assent, therefore only if we practice the *epoche* (the sceptical suspension of judgment) with respect to it, and only if, by breaking with our participatory relation with the world, we adopt the position of the 'disinterested onlooker'(p. 59).

Dastur (2017) states that Husserl sought to "abandon once and for all the basis of psychology" so as to establish a 'transcendental phenomenology' (p. 60). Husserl also finally recognised that all subjectivity is actually intersubjectivity, hence it is shared meaning that is at stake: "The problematics of the reduction and of intersubjectivity, far from being irreconcilable, instead form one and the same problematic" (p. 66). This involves language, which is the fundamental process of embedding shared meanings.

This dissertation involves a productive combination of science and phenomenology. This can be contrasted with Heelan's (1977) claim that traditional science is the "antithesis to Phenomenology" (p. 8), because of its objectivism (rejecting subjective discovery of meaning), scientism (cultural imperialism of positivism) and technicism (seeking technical control of processes). In a more collaborative vein, he asserts "certain kinds of scientific activity cannot be well or properly understood without having recourse to phenomenological categories" (p. 11).   This proposition is supported here, especially in the context of using case studies to reveal differences, rather than assuming universals.

McGuirk (2009, p. 248) suggests that Husserl was not anti-science:

From the time of his earliest phenomenological writings, Edmund Husserl took the task of grounding the natural and human sciences to be one of his leading missions. While opposition to naturalism and psychologism spurred his thinking, this in no way implied an anti-scientific strand in his philosophy. Rather, Husserl felt that the sciences fell into incoherence when they attempted to understand themselves in terms of their own positivity, such that they failed to bring out the issue of meaning-constitution which is a *sine qua non* of their very existence.

Thus, Husserl's objective can be described as establishing phenomenology as a meta-science. This supports the contention that phenomenology can be used as an overarching paradigm for the transdisciplinary investigation for combinations of physical and social sciences, such as ethnophysiography [see also Section 7.3.1].

Husserl sought to advance these objectives via the search for essences. According to Moran (2000, p. 147-8), Husserl regarded understanding of his methods of *epoché* and reduction as vital to understanding phenomenology, which is not an easy matter. Husserl talked about the need for a "systematic theory of phenomenological reductions' (*Ideas* 1-61, 139; Hua III/1, 115)". Moran describes his naming practices for different kinds of reduction as neither systematic nor uniform. Husserl developed new forms of reduction, sometimes using the same name applied to earlier, somewhat different, methods, and sometimes he concatenated different approaches.

Mohanty (1997, p. 8) notes that phenomenology is fundamentally about "describing essences and essential structures of various regions of phenomena". He discusses the research program of phenomenology in terms of the development of the relationship between essences and meanings: "our determination of the essence of a thing is relative to how we describe that thing […] then we must abandon the essences as constituting an autonomous realm. What the essence of a thing is would depend upon how we take that thing to be" (p. 8). In the context of this dissertation, if a language includes the terms 'mountain' and 'hill', what is the essence of a mountain, compared with that of a hill? Perhaps both are examples of the essence of a 'convex landform'. Such issues are problematic because we can subdivide the continuous landscape in different ways, and adopt terms for its parts, based on different ontologies, influenced by a variety of factors, not all of which relate to physical characteristics of the landscape feature,

such as size, shape, colour, etc.. These issues are pursued in discussion of ethnophysiography case studies in Chapter 2 (Yindjibarndi and Navajo) and Chapter 8 (Manyjilyjarra), and in Chapters 7 and 9 regarding methodologies.

Moran (2000, p. 161) notes that Merleau-Ponty (in the Preface to his *Phenomenology of Perception*, 1962, pp. xiv; viii) claimed that "the most important lesson which the reduction teaches us is the impossibility of a complete reduction" and that Husserl agreed! Moran notes that "many philosophers, including many of Husserl's own followers, have rejected the possibility of carrying out the reduction" (p. 160). Moran also quotes David Bell (1991, p. 162), who "rejected Husserl's account of the reduction as an appeal to an 'esoteric experience': 'There is something dismal and dogmatic about a philosophy whose utility, cogency and plausibility depends essentially, not on objective arguments, rational analysis, or the critical consideration of evidence available to all, but rather on the individual philosopher's having undergone some esoteric experience'" (p, 161). While not wanting to necessary agree with Bell, it may be better to limit the use of the classic techniques of reductions within a methodology proposed for landscape language research.

Joel Smith (2005), a researcher on the philosophy of Merleau-Ponty, suggests that his supposed lack of support for Husserl's eidetic reduction is often mistaken. Smith also believes that a "proper understanding of his views on the relation between phenomenology and psychology shows that, at least in Merleau-Ponty's eyes, the methods of phenomenology and the empirical sciences are largely similar" (p. 553). This accords with the sentiments expressed in this dissertation.

Morris (2012, p. 45) discusses Merleau-Ponty's view (in *Phenomenology of Perception,* 1945/2002, p. 90) of the necessity for both philosophy and the social sciences to analyse the same real-world phenomena across a variety of cultures. Dastur (2017) discusses how this led to Heidegger's proposal (in *Being and Time*, 1962/2007, pp. 77-83) for a project of 'phenomenological deconstruction', with the goal "to elucidate the derivative character of philosophical propositions and to show that the phenomenon of language can be generally understood only within the larger framework of an analysis of existence" (p. xiv). This aligns exactly with the thesis of this dissertation, in that it suggests that language about landscape can only be understood in the context of the language group's lifeworld, including social structures, culture and spirituality.

This brings us to the core of ethnophysiography; the way particular aspects of essences of landscape features are selected and utilised in the terms used in a particular language. This presumably is a function of the sort of characteristics listed as 'factors' in the EDM, initially discussed in Chapter 2, then revised in later chapters. For instance, regarding the different essential structures of mountain, the nature of the 'country' of the language group, and their particular set of land-use activities, spirituality and culture, could lead to one potential aspect of the essence of 'mountain-ness' to dominate in a particular generic landscape term or toponym. In Yindjibarndi this is perhaps 'hardness'; since the term *marnda* is used for rocks, hills, and mountain ranges, but also for coins and even metal, as used in leg-irons (*marndamarangga*) in colonial times. Hence, the search for universals in the context of landscape needs to be considered at different levels of abstraction, as discussed in Chapters 5 to 9.

An example of using landscape language studies, to try to identify universals, is provided by Bromhead (2017). She discusses terms for standing water places in the Australian Central Desert languages Pitjantjatjara/Yankunytjatjara, and compares them with terms in English and French. She notes: "People identify places in the landscape in which there is water, but different languages and cultures label on the basis of different criteria" (p. 36). She infers from her study that 'holes in the ground, with water in them' may be a universal landscape category, in terms of their capacity to facilitate drinking, washing, collecting aquatic flora and fauna, etc. A sub-category may be "long places with flowing water, such as rivers, fleuves (French), and karu (Pitjantjatjara / Yankunytjatjara)" (p. 36). See also discussion of terms for water features and their parts in Brodaric, Hahmann, and Gruninger (2019), who develop an "enhanced theory of physical object parthood […] that enables water features to be characterized as wholes with various essential parts" (p. 1). Their new general ontology is a formal extension of the DOLCE ontology (Hahmann and Stephen, 2018).

If the Mohanty's (1997, p. 4) definitions of essences and concepts (and their relationships to one another) are adopted, ethnophysiography can be considered as a search for landscape essences via comparison of examples of landscape concepts gathered from as wide a range of languages, spoken in varying topographic environments, by speakers with different socio-cultural characteristics. Case studies to collect this data need to ensure that the landscape concepts identified are comprehensively, authentically and ethically represented, then compared in an appropriate manner, such as via the EDM. This is perhaps a way to deal with

the difficulties identified above in using essences within ethnophysiography. How to achieve this objective via a phenomenological approach to ethnophysiography is discussed in Chapter 5 to 9.

4.3 Other Current Phenomenological Approaches and Methods

4.3.1 Introduction to section

The previous section highlighted some key aspects of traditional phenomenology relevant to this dissertation. However, this field of philosophy has developed in significant and varied ways since the work of Husserl and Heidegger. It is important that this dissertation examines the various forms of phenomenology to aid in identifying which one(s) will be most useful as an over-arching paradigm for a transdisciplinary approach to ethnophysiography.

This section advances its objective by firstly providing in subsection 4.3.2 a discussion of what has been termed 'New Phenomenology', conceptually linked with post-modernism. This dissertation is about dwelling together in landscape, hence social issues and theories are relevant. Sub-section 4.3.3 briefly explores relevant links between sociology, hermeneutics and phenomenology. Such approaches seek to render phenomenology more tractable in application to practical problems addressed by various disciplines. A brief introduction to ethnomethodology is provided in Sub-section 4.3.4.

Sub-section 4.3.5 discusses hermeneutic phenomenology, phenomenography and related methodological issues. Ihde's postphenomenological approach to integration of scientific methods and phenomenology (sub-section 4.3.6) is especially interesting in the context of transdisciplinarity. More extensive discussion of each of the methodologies mentioned in this section is provided in Chapter 7.

4.3.2 New Phenomenology

The term 'New Phenomenology' is explained in Simmons and Benson (2013)[19]. They (and other authors) chronicle a wide variety of developments in phenomenology and hermeneutics, mainly by French philosophers, in the latter half of the twentieth century. Simmons and Benson (p. 7) note that this movement addresses issues relevant to "the philosophy of religion, but also concerning methodology, hermeneutics, ethics, politics, social theory, and even epistemology and aesthetics". These writers also sought to explain the relevance of phenomenology to disciplines other than philosophy. Thus, the developments made by New Phenomenology are especially relevant to this dissertation.

Simmons and Benson (2013) see phenomenology as a living philosophy, still developing and widely applicable. They do not claim that the 'New Phenomenologists' constitute a coherent school. Rather, it is a 'family' of overlapping approaches seeking to address what are seen as limitations within the complex phenomenology of Husserl and Heidegger. They also pursued implicit possibilities for the development of new theories and methods. Some see this new trajectory as 'radical phenomenology', as it seeks to re-interpret key aspects of classical phenomenology. Such moves are opposed by more traditional philosophers who wish to adhere more closely to the 'orthodox' versions of the phenomenology of Husserl and Heidegger.

The overarching definition of phenomenology adopted by Simmons and Benson (2013, p. 7) includes the investigation of 'phenomenality'; "the conditions of presentation, givenness, appearance, and intuition that would then get concretized in a particular phenomenon". They suggest that New Phenomenology "(a) displaces the centrality of intentionality, (b) transforms the role of the 'horizon', and (c) rethinks the ways in which the phenomenological 'reduction' ought to function" (p. 8). Problems relating to each of these issues were raised in section 4.2 above. The extent to which those issues are relevant to this dissertation is reviewed briefly in this sub-section and revealed more fully in Chapters 5, 6, 7, 8 and 9.

The first two key classical aspects of phenomenology discussed by Simmons and Benson (2013) were briefly reviewed in Section 4.2 above, however, the discussion did not include exploration of the term 'horizon'. Husserl considered that attention needed to be focused

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[19] The term 'New Phenomenology' is not universally accepted among phenomenologists. However, it is useful here to refer to a particular group of phenomenologists who collectively sought to provide a new interpretation of phenomenology, in the context of post-structuralism and post-modernism.

principally on the present, establishing a 'temporal horizon'. Perceptions, thoughts and intentionality are also directed by adopting a 'spatial horizon' (p. 18). However, in reality, it is impossible (or at least dysfunctional) to consider any moment in time, and/or place in space, without reference to matters outside of such horizons; the past pervades the present and any place exits in connection with others. At least that is the point of view adopted by New Phenomenology and this dissertation. However, it may be important to consider what Husserl termed the 'horizon of anticipations', in that any act of perception is influenced by the person's expectations (Moran, 2000, p. 162). This is conditioned by their lifeworld, the current attitude being adopted, the task being undertaken and the possible involvement of other people in that task activity.

Gadamer developed a phenomenology of hermeneutics (Section 4.3.3), which is taken up and advanced by the New Phenomenologists, especially Paul Ricoeur. Hermeneutics operates at cultural and methodological levels. Laverty (2003) notes that, for Gadamer, hermeneutic phenomenology was not about developing a particular methodology, but rather concentrating on creating the conditions for understanding of peoples' behaviours. She notes (p. 27) that: "The focus is toward illuminating details and seemingly trivial aspects within experience that may be taken for granted in our lives, with a goal of creating meaning and achieving a sense of understanding". Language plays a key role: "For Gadamer 'Language is the universal medium in which understanding occurs. Understanding occurs in interpreting' (1960/1998, p. 389)" (Laverty, 2003, p. 30). This approach is thus suited to ethnophysiography, which uses investigation of language to understand conceptualisations of landscape.

In the opinion of Simmons and Benson (2013), Jacques Derrida is the best known of the New Phenomenologists. Hence, he has probably been the one most criticised by 'old guard' phenomenologists. He has often been misinterpreted, and at various times "accused of being a relativist, a nihilist, and a sceptic, and deconstruction has been denounced in various ways as undermining truth, goodness, and meaning" (p. 52). This author has witnessed such attacks in the context of discussions of theories of place and landscape language. In some ways such criticism arises from the degree of difficulty in understanding Derrida's texts. They can be interpreted as supporting a very open reading of Husserl and a commitment to phenomenology as a "kind of infinite task" (p. 54). Derrida sought to destabilise and reformulate phenomenology, firstly with respect to acts of reading and notions of identity, in the context of

"language, textuality, signification, and meaning" (p. 56). He also discussed the role of religion, ethics and politics in navigating this 'destabilised world'.

As noted by Gratton (2017), the views of Henri Lefebvre mostly reflect his reading of Hegel, Nietzsche and Marx; hence, his discussion of history, politics, technology, modernity and 'state space'. He was also influenced by the work of Heidegger regarding phenomenology and hermeneutics (Lefebvre, 1991). Lefebvre did not support a transcendental version of space, as *a priori*, rather, he advocated a 'non-universal' approach to space and place; where conceptions of space are fundamentally influenced by history, politics and social processes.

Gratton (2017, p. 231) notes that Lefebvre, in *The Production of Space* (1991, p. 26), claimed that "*(Social) space is a (social) product*", correcting the "modernist emphasis on time and historicity over spatialization [although] This is not to say that time and space are separable from one another" (p. 231). Lefebvre (1991) argued that control of space is central to contemporary political struggles, since "the shift from one mode [of production] to another must entail the production of a new space [Lefebvre,1991, p. 46]" and "space is becoming the principal stake of goal-directed actions and struggles [Lefebvre 1991, p. 410]". Societies have the capacity to 'reconfigure' representational space, which explains the different modalities of space found across the world. This relates to Heideggerian notions of 'dwelling' and 'habitation', with a Marxist political twist (Gratton, 2017, p. 231-2).

In de Certeau's 1980/84 chapter *Walking in the City* (pp. 91-110). He suggests New York is a place that is impossible to 'read' with any completeness or certainty. Experiencing the ever-changing, 'exploding' city, as you move among its streets, buildings and parks, one is a 'voyeur', trying "to locate the practices that are foreign to the 'geometrical' or 'geographical' space of visual, panoptic, or theoretical constructions" (p. 93). This is a richly post-modern approach to understanding place, involving an intricate mix of movement, perception and imagination. As de Certeau elaborates (*Spatial Stories*; pp. 115-130), our experience of moving through place produces stories, intertwined with those of other real or mythical travellers. This is equivalent to Yarnangu (*Anangu*) travel and their spatial-socio-cultural framework (*Jukurrpa*). Narrative structures mirror spatial trajectories and spatial syntax, within the traditional codes of 'The Dreaming', and provide references for landscape meanings and affective attachments to place.

Kögler (2017) discusses Foucault's contribution to this debate, with respect to three issues/claims: *firstly*, the influence of one's location/place, that is the grounding of phenomena in their "concrete context of social production", as a critique of "transcendental or essentialist notions of the subject (as grounding knowledge), of truth (as defined by universal standards), and of meaning (as free from power and institutional force)" (p. 240). *Secondly*, Foucault's analysis of diversity relies on a methodological approach based on 'discursive formulations' and prevailing social practices, constraints and ethics, and entailing an analysis of objectives and power, both of the agents under consideration and the analyst herself. *Thirdly*, the hermeneutic process "mediates the agent's situatedness in discourse/power constellations with the project of an ethically oriented reflective agency" (p. 241). This entails rejection of 'a view from nowhere'.

Simmons and Benson (2013) conclude by predicting that New Phenomenology will lead to re-examination of the texts of traditional phenomenologists and development of new ways to understand phenomenology. They see it as a legitimate strand of phenomenology, with a particular emphasis on its connection to religion (e.g. see Wattles 2006), and a productive interplay with hermeneutics. It also offers "new phenomenological approaches to ethics, politics and society" (p. 237), which resonates with some topics of this dissertation.

4.3.3 Links between sociology, hermeneutics and phenomenology

There was increasing involvement from the 1930s of social scientists in the general field of phenomenology and hermeneutics. This development built on the classic phenomenology of Husserl and Heidegger. Carlos Belvedere (2007) notes that the key figures were Alfred Schütz and Maurice Merleau-Ponty. However, there were also significant contributions by Emmanuel Levinas and Michel Henry. Pierre Bourdieu also played an important role, as discussed by Will Atkinson (2010). Bourdieu's *Outline of a Theory of Practice* (1977) combined aspects of phenomenology with 'objectivist analysis', and he emphasised the role of 'habitus'. Eberle (2012) notes the significance of Peter Berger and Thomas Luckmann's *The Social Construction of Reality* (1966) and George Psathas' edited collection *Phenomenological Sociology: Issues and Applications* (1973) and his *Phenomenology and Sociology: Theory and Research* (1989).

The impact of writers such as Hans-Georg Gadamer on developing an understanding of hermeneutics is noted by Simmons and Benson (2013), including the inherent 'preconceptions' ('prejudices' or 'prejudgements') that a person invariably (and often unknowingly) brings to

any mediation of experience: "For Gadamer, as for Ricoeur, we never encounter the world free of ideas about it, but already only as such an encounter can occur: internal to our social, cultural, historical, and biographical contexts" (p. 48). Discussion of this notion is extended in Chapters 5 to 9, with respect to the role of over-arching frameworks of cultural thought, such as *Jukurrpa* for Yarnangu peoples of Australia's Central and Western Desert regions.

Contributions from Schütz

Contributions by Alfred Schütz to the study of phenomenology and social reality have already been noted above. Natanson (1970a) edited a collection of essays regarding the contribution of Schütz (e.g. Schütz, 1940; 1966; 1967). Natanson (1970b) claims that philosophy is "concerned with the *phenomena* of the social world" (p101). These notions are at the core of phenomenology, hence, "the best way to approach Schutz's phenomenology is to see it at work in his characterization of the social world [which is] primarily the world of everyday life as lived and appreciated and interpreted by common-sense men carrying on the cognitive and emotive traffic of daily life" (p. 102).

Merleau-Ponty and language

Early work on links to sociology was undertaken by phenomenologist Merleau-Ponty (1960) [translated 1964a], who saw no need to separate the two fields of investigation. Collaboration between phenomenology and social sciences needs to be integrated in a well structured manner (not just 'mixed'), and respectful, or it will be "rejected as a bastard procedure" (Merleau-Ponty,1964a, p. 143). The transdisciplinary approach to the use of phenomenology adopted in this dissertation is not radical; rather it is in line with the thoughts of Merleau-Ponty almost six decades ago.

A fundamental step in the interdisciplinary collaboration proposed by Merleau-Ponty is a phenomenological analysis of a wide variety of natural languages: "Language is no longer broken down into elements that are seen as assembled together bit by bit; it is rather like an organ whose tissues all work together in a single functioning, however diverse might be their provenance, and however fortuitous their original insertion into the whole" (Merleau-Ponty, 1960, p. 150). Phenomenology and linguistics must therefore develop appropriate collaborative methodologies. Merleau-Ponty notes that "recognition of the world of lived experience, and thus also of language as experienced, became a characteristic of his phenomenology" (p. 151). This approach is discussed in Chapters 6 and 7 and demonstrated in Chapters 8 and 9.

Husserl was influenced by his reading in 1935 of Lévy-Bruhl's book *La mythologie primitive* (*Primitive Mythology*), as also discussed in Chapter 8. In a letter he wrote to Lévy-Bruhl (to be found in *Husserliana: Edmund Husserl – Collected Works*; trans.1999), Husserl discusses the difficulty for a philosopher to directly arrive at the universal by simple reflection, when she or he is not in a position to review anthropological evidence, and has to construct, by a simply imaginary variation of her or his own experiences, what it is that makes meaning of other experiences with other cultures. He writes:

> It is a possible task, and one of great importance' […] it is a major task to project ourselves (*einzufuhlen*) into a humanity closed in on its living and traditional sociality, and to understand in what way, in its total social life and on the basis of this, this humanity possesses the world, which is not for it a 'representation of the world', but the world that is real for it (cited in Merleau-Ponty, 1960, p. 154).

This is a key quote from Husserl, in the context of this dissertation. It is a great pity that Husserl was never able to acquire more reliable information about so-called 'primitive people'. However, this opportunity is now open to us all and we need to make effective and ethical use of what we can learn. As discussed in Chapter 8, the Manyjilyjarra case study provides an investigation of a speech community fitting Husserl's 1935 prescription of being "closed in on its living and traditional sociality", since these Australian Western Desert peoples have lived there for at least 20,000 years (Veth, 2005, p. 141, cited in Walsh, 2008, p. 61) and some language group members had no contact with foreigners until 1964 (Davenport, Johnson, and Yuwali, 2005). The results of this study comprehensively refute the ill-informed and biased opinions of Lévy-Bruhl about indigenous peoples.

In the Preface to their edited collection of essays on *Space and Social Theory* (1997), Georges Benko and Ulf Strohmayer note that their objective is to highlight key geographical interpretations of 'postmodernity' and 'post-modernism', especially in cultural studies and human geography (p. xiii). They identify the meaning of 'landscape' as a common problem across the human and social sciences (Peet, 1997).

Such discussion follows in the tradition of social theorists such as Pierre Bourdieu (1977), who proposed a 'reflexive sociology', where an investigator recognises his or her own biases, beliefs, assumptions, etc. Such reflexitivity is an essential practice for effective and ethical

ethnophysiography case studies. Bourdieu's work is critically evaluated by Throop and Murphy (2002), in the context of the theories of Edmund Husserl and Alfred Schütz. They suggest that Bourdieu is at times too critical of phenomenology and overly deterministic regarding thought, feelings and behaviours. They also call for more awareness of the potential benefits of using phenomenology for anthropological research, especially for the investigation of the cultural patterning of subjective experience, a key topic of this dissertation. Bourdieu's work also relates to the notion of 'habitus', an embodied way of thinking about place, shared by people with a similar lifeworld, such as a language community. These matters are discussed further in Chapters 5 and 6, in the context of investigations of the nature of 'dwelling' (e.g. Casey, 2001a; b).

4.3.4 Introduction to Ethnomethodology

Ethnomethodology is based on the notion that people's behavior is mostly determined by inter-subjective 'norms', established and maintained via consensus. Of course, it is not especially useful to ask people directly about such 'norms', so ethnomethodology uses techniques to uncover norms via observation and analysis of behaviours, including linguistic exchanges. Johnson (2008) notes that ethnomethodology concentrates on shared perspectives that are "implicit and taken-for-granted assumptions that simply 'go without saying' […] Interpreting the meaning of both words and actions requires implicit background knowledge acquired through shared experiences" (p. 137). There is an inherent difficulty in being able to reliably identify this background framework, in any particular context of investigation. This aspect is discussed further in Chapters 6, 8 and 9, in the context of socio-cultural frameworks such as *Jukurrpa*.

Thomas Eberle (2012) discusses various aspects of the complex relationship between phenomenology and sociology, which is also intricately interrelated to culture (Heap, 1991). He links this to the emergence of ethnomethodology. Eberle (2012) also discusses the work of Schutz and describes the contributions of other researchers, including the work of George Psathas, who he terms the most prominent researcher on phenomenological sociology. Psathas followed on from the work of Husserl, Schutz and Garfinkel and was particularly influential in the development of ethnomethodology. Eberle compares the approaches of Psathas and Luckmann. Psathas' goal was to advance "the understanding, description and analysis of the life-world as experienced by those who live it" (Eberle, 2012, p. 139; quoting Psathas, 1989, p. xii). However, Luckmann sought to interpret the lifeworld as "a protosociological foundation

of the methodology of social sciences" (Eberle, 2012, p. 139). Eberle's detailed analysis of these two positions concludes with strong support for a marriage of sociology and phenomenology, although the forms of synthesis can vary. He notes that a key issue is ensuring use of a particular form of ethnomethodology, which suits the domain of any specific investigation.

One way to deal with complexity within an interdisciplinary project is to utilise the various theories, via an approach such as ethnomethodology. However, like so many aspects of phenomenology related research, ethnomethodologies are of varying provenances and types (Maynard and Clayman, 1991; Wilson, 2012). They adopt a practical combination of phenomenological and social sciences methods (Wilson and Zimmerman, 1979), which draws it main inspiration from the work of Schutz, and was developed by Garfinkel (Heritage, 2013), as well as Cicourel, Sacks and others. Aspects of ethnomethodology are linked by a common concern for finding practical and effective ways to develop improved understanding of the ways communities function, and how their members describe their every-day motivations and actions. It seeks to maximise the reflexivity of investigations of social processes, although different applications of the approach achieve such accountability to different degrees (Pollner, 1991).

Alec McHoul and Mark Rapley (2005) combine phenomenological and psychological approaches to explore a 'counter-representationalist re-specification' of the concept of culture: "Here we mobilise ideas from Husserl and Heidegger (again), and also from the basic ethnomethodological theory of Sacks and Garfinkel, to argue for the primacy of culture as an order of practical-actional affairs that makes conceptualisations of a putative 'self' always an effect of, and subsequent to, that very (cultural) order itself" (p. 431). This fits with a notion of dwelling, which is partly configured by the socio-cultural belief system of the language group, in the context of the life-world activities, which suit the nature of their dwelling place.

McHoul and Rapley (2005) suggest that an effective approach to investigating 'socio-cultural being' is via an examination of real-world examples, using ethnomethodology. All action involves the individual assigning meaning to things involved in their activity, in the context of her or his communal life-world and the common discourse of the language used (Hall, 1997). This implements an approach aligned with the theories of Heidegger: "Heidegger is famous, in the early parts of *Being and Time* (1962), for his insistence that, roughly, social practice –

actually doing things in the world – must precede any 'mentalistic' construal of that practice" (p. 439). "This has an almost direct repetition in the work of the founders of ethnomethodology, Harold Garfinkel and Harvey Sacks" (McHoul and Rapley, 2005, p. 440).

Anita Williams (2017) discusses ethnomethodology in the context of phenomenology, psychology and formalisations. She sees qualitative methods, which are informed by ethnomethodologically, as a possible alternative to statistical methods, but having their own degree of formalisation. It is important that any methodology implementing a rich phenomenological approach does not fall into the trap of attempting to formalise and objectify all aspects of human existence. Taking all of these issues into consideration, some version of ethnomethodology might usefully be incorporated in a flexible, mixed methodology for ethnophysiography case studies. A more detailed discussion is provided in Chapter 7.

4.3.5 Hermeneutic phenomenology, phenomenography and associated methods

This sub-section discusses the overlapping developments in phenomenology that are termed hermeneutic phenomenology and phenomenography. It also briefly considers relevant methodological aspects, especially postphenomenology. These matters are discussed further in Chapter 7.

Hermeneutic phenomenology

Hermeneutic phenomenology combines theory and practice from phenomenology and hermeneutics. Its main approach uses descriptions of lived experience together with reflective interpretations of their meanings. Henriksson and Friesen (2012) explain the historical development of this approach as deriving from the work of Husserl, Heidegger, Gadamer, Ricoeur and others. It seeks to start with detailed observation and description of everyday activities, prior to interpretation. Totally un-biased observation is impossible as it is extremely difficult to eliminate all pre-suppositions. They cite (p. 1) van Manen (2002a, n.p.) as suggesting that this approach represents an "attitude or disposition of sensitivity and openness: it is a matter of openness to everyday, experienced meanings as opposed to theoretical ones". Note also discussion in Sections 7.3.1, including Olivier (2017) regarding 'exterophenomenal' considerations and reference to Smith (2013, p. 3), and Section 7.4.4 in Chapter 7.

Armstrong (2003) identifies Heideggerian hermeneutic phenomenology as a method of interpreting concealed meanings.. In line with key aspects of this dissertation, Armstrong

notes: "Using hermeneutics to study landscapes/place/architecture opens the debate about who is entitled to use hermeneutics and what methods are involved" (p. 2). She concludes that use of hermeneutic phenomenological approaches has rich potential for use in design process relevant to place, landscape and environment. She reproduces (p. 2) a table from Spiegelberg (1975), which indicates phases in development of phenomenological methods, culminating in hermeneutic phenomenology:

Phases of the Phenomenological Method (after Armstrong (2003) and Spiegelberg (1975)

1. Descriptive phenomenology:
Direct exploration, free from presuppositions; redeeming what was seen as unredeemable data; stimulating one's perceptiveness about the richness of experience.

2. Phenomenology of Essences:
Grasping the essential structures and essential relationships of phenomena; allows for the researcher's imaginativeness as well as a sense of what is essential and what is accidental.

3. Phenomenology of Appearances:
Cultivating attention to the way things appear and the changes in this appearance. It relates to the physicality of phenomena; heightens the sense of the inexhaustibility of the possible perspectives one can have of phenomena.

4. Constitutive Phenomenology:
The process in which phenomena take shape in our consciousness. Exploring the dynamic aspects of our experiences.

5. Reductive Phenomenology:
Bracketing the experienced world in order to give the researcher new perceptions of phenomena. Intellectual self-discipline and intellectual humility.

6. Hermeneutic Phenomenology:
Looking for hidden meanings associated with phenomena. Directions and intentions rather than descriptions.

Dowling and Cooney (2012) review the complex landscape of research approaches related to phenomenology and provide a diagram (Figure 1, p. 22), which implements a similar objective to the above list of phases from Armstrong (2003). It indicates that hermeneutic phenomenology arose from interpretations by Gadamer and Ricoeur of the phenomenological traditions of Husserl, Heidegger and Merleau-Ponty. They provide many references in support of this diagram. They discuss the appropriateness of methodologies based on hermeneutic phenomenology to research regarding nursing, as long as researchers the implications of the relevant underpinning philosophical assumptions.

Van Manen (1990; 2002a; b; 2007; 2014; 2016; 2017a; b) is a key advocate of using hermeneutic phenomenology methods for researching lived experience in fields such as nursing and education. In his 1990 book he lays out the basis of this approach, which builds on the developments of 'The Utrecht School' of philosophical thinking. He notes that this concerns the very nature of human sciences: "the preferred method for human science involves description, interpretation, and self-reflective or critical analysis" (p. 4). Van Manen cites Dilthey (1976) regarding the complexities of investigating lifeworlds, and notes that phenomenology has been progressively developed for this task.

While such research seeks to understand how individuals experience their lifeworld, and hence might be termed "a philosophy of the personal", it is actually pursued "against the background of an understanding of the evasive character of the *logos* of *other*, the *whole*, the *communal*, or the *social*" (van Manen, 1990, p.7). Thus it is important to start from an understanding of the relevant socio-cultural framework for the people being studied. While the lifeworld is the focus, this does not mean that the investigation is limited to utilitarian aspects: "Anything that presents itself to consciousness is potentially of interest to phenomenology, whether the object is real or imagined, empirically measurable or subjectively felt" (p. 9). It is not possible to interrogate a person's experience 'in-the-moment', hence they need to 'reflect' on past experiences: "Thus, phenomenological reflection is not *introspective* but *retrospective*" (p. 10). The phenomenologist seeks to understand and compare individual instances of experience to identify the key common element, the 'essence' and to uncover and describe the socio-cultural structures providing meaning to lived experience.

The term 'phenomenology of practice', introduced by van Manen (2014), refers to " the practice of phenomenological research and writing that reflects *on* and *in* practice, and prepares for practice" (p. 15). He cites (p. 15) Patočka (1998, p. 97) as suggesting that phenomenology needs to "bring out the ordinary personal experience, the experience of the way we live situationally, the way we are personal beings in space". In order to operationalize this approach, a researcher may wish to implement it via a set of methods and techniques of investigation. Data for hermeneutic analysis can come from different sources. For instance, Eilifsen (2011) explains how stores and anecdotes can contain valuable information about a person's lifeworld, providing 'empirical evidence' for a hermeneutic phenomenological research project.

Such methodological considerations are discussed further in Chapters 7, 8 and 9 regarding the development of the PTM-ECS, to interface with the EDM. Taking van Manen's point, a hermeneutic and phenomenological approach is also applied at the meta-methodology level via use of the approach as an over-arching transdisciplinary paradigm. The recommendations regarding reflective and ethical research practices are also relevant.

The hermeneutic phenomenological approach meets many of the objectives of this investigation. The difficulty is to transfer this methodology from domains such as education and nursing to the much broader field of landscape. As discussed in Section 9.8.2 in Chapter 9, this author has already commenced a new research program to address that difficulty, with a leading expert in hermeneutic phenomenology, Tone Saevi from Norway.

Phenomenography

Phenomenography (Andretta, 2007; Cibangu and Hepworth, 2016; Khan, 2014; Marton, 1986) is a philosophical method, using phenomenological principles, to develop an understanding of human experience. Larsson and Holstrom (2007, p. 56) note that: "Phenomenography and phenomenology share the term 'phenomenon' which means 'to make manifest' or 'to bring to light'. Phenomenography, with the suffix-graph, denotes a research approach aiming at describing the different ways a group of people understand a phenomenon (Marton, 1981), whereas phenomenology, with the suffix-logos, aims to clarify the structure and meaning of a phenomenon (Giorgi, 1999)". Both approaches are useful for ethnophysiography investigations, at different phases or levels of abstraction. The main method used in phenomenography is open-ended interviews about people's experiences. Transcripts of interviews are analysed to determine key concepts, which flow from the analysed reports, rather than pre-determined theories. Phenomenographic methods can also be used to identify concepts from existing documents (e.g. books). There are similarities to a 'grounded theory' approach to qualitative research and theory building.

Phenomenography is not so well known as phenomenology but has a significant history, with Richardson (1999) noting that the approach has been used since 1974. Marton (1986) quoted in Ornek (2008, p. 1) states: "Phenomenography is an empirical research tradition that was designed to answer questions about thinking and learning, especially for educational research". Ornek (2008, p. 1) also quotes Martin et al. (1992) as indicating that the aim of phenomenography is to "discover the qualitatively different ways in which people experience,

conceptualize, realize and understand various aspects of phenomena in the world around them". It seems to have been mostly used in educational, health and information science studies. In some instances it can involve the researcher investigating their own experiences.

As discussed in Chapter 1, a version of phenomenography is used in this dissertation to prepare, then use, summaries of relevant texts (in tables). There is at least a superficial case for adopting this methodological approach for collection and analysis of data for ethnophysiography case studies. This topic is explored further in Chapter 7, including the most appropriate ways to combine phenomenography methods with traditional ethnophysiography methods and additional phenomenological techniques (Chapters 7 and 9).

4.3.6 Postphenomenology

Postphenomenology, introduced by Ihde, is a rapidly developing field, that concentrates mostly on applying phenomenological methods of analysis to technological issues (Carman and Hansen, 2005b; Ihde, 2009; Richardson, 2007). Robert Rosenberger and Peter-Paul Verbeek (2015) suggest it has developed out of an amalgamation of the phenomenological tradition and science and technology studies, explaining that: "It calls itself 'post'-phenomenology to emphasize that it distances itself from the romanticism of classical phenomenology" (p. 11). It builds on the work of the New Phenomenologists (sub-section 4.3.2); "The 'post' […] also reveals a remote relation to postmodernism" (p. 11). Postphenomenology is one way that some philosophers have sought new forms of phenomenology theory and methods to deal more effectively with social and psychological aspects of technology. Ihde (e.g. 1986; 2003; 2009) has provided the key articles establishing postphenomenology. Selinger (2006) reviews postphenomenology, providing a critical analysis of the publications from Ihde. This topic is also discussed in Chapter 7.

4.4 Chapter Conclusions

It would take an entire PhD dissertation to provide a thorough investigation of only a small portion of the field of phenomenology. Hence, this chapter has only been able to briefly provide a basis for engagement with the aspects of phenomenology most relevant to the specific research questions. These topics include: being and dwelling; intentionality;

lifeworlds, intersubjectivity and communalised intentionality; embodiment, movement and affordance; and essences, meanings and universals.

The chapter partly addresses the following three Research Questions:

Q3: What are the key aspects of phenomenology which need to be commensurate with (or adapted to) ethnophysiography research if phenomenology is to be used as an over-arching transdisciplinary research paradigm, to facilitate enhanced future ethnophysiography research methods, supporting the EDM, to address more effectively social, cultural, spiritual and ethical aspects of dwelling?

Q4: Which form(s) of phenomenology is/are most appropriate to use as an over-arching paradigm for transdisciplinary ethnophysiography research?

Q5: Can phenomenology, as an over-arching transdisciplinary paradigm be legitimately, and successfully, applied to indigenous worldviews and knowledges, in the context of relationships with landscape?

The analysis of key topics in the chapter advances the analysis in Chapter 1 by more explicitly aligning the key issues with aspects of ethnophysiography. Thus, it further supports the use of phenomenology as a transdisciplinary paradigm for landscape language (ethnophysiography) research. This is expanded upon in Chapters 5 to 9.

The analysis of the traditional approaches of phenomenology, to the topics listed in the previous paragraph, indicated some problems or issues. These included, the centrality of intentionality, the role of 'horizon' and the utility of the phenomenological 'reduction'. Many phenomenologists have recognized these issues over the last five decades. Hence, five of the more recent modes of phenomenology, which address these problems and issues, are discussed in Section 4.3. For instance, various responses are discussed under the general term 'New Phenomenology' (subsection 4.3.2). That subsection includes discussion of the 'theological turn' in works by Emmanuel Levinas, Michel Henry and Jean-Luc Marion. This increases the potential for investigation of level of commensurability between phenomenology and *Jukurrpa* (see Chapters 6, 8 and 9), given that this indigenous worldview incorporates aspects of spirituality and ethics.

The potential use in ethnophysiography research of various phenomenological methods was briefly explored. The analysis of Husserl's approach to lifeworld, especially in the context of

the *epoché* and reduction, was reviewed. This traditional method may not be appropriate for ethnophysiography. Ethnomethodology, developed by Schutz and others, is seen as very useful for ethnophysiography case studies. Ihde's concept of 'multistability' is seen as a possible explanation of multiple meanings of some landscape terms (Chapter 8). These methodological issues are further discussed in Chapter 7.

Based on the analysis of phenomenology in this chapter, it is important to examine details of a language community's lifeworld in as great depth as possible, to facilitate applying phenomenology to landscape language case studies. A phenomenological analysis of case study data can then be undertaken with respect to the following five key topics: physical aspects, embodiment and perception; utilitarian aspects and actions; social structures, culture, knowledge and language; spiritual and ethical considerations; and structural systems. The analysis of the application of phenomenology to investigations of place in Chapters 5 and 6, will explore these five key topics and other aspects of peoples' relationships with landscape as place. This will facilitate discussion in Chapter 7 of how phenomenological methods may be integrated within a coherent, contingent, integrated, methodology.

The topic of place will be further reviewed, including with respect to indigenous peoples, in Chapter 6. This will establish the basis for in-depth exploration in Chapter 8 of the application of phenomenology to studies of place, via the capstone Manyjilyjarra landscape language case study. The utility of the methodology used in that study will be reviewed in Chapter 9.

Chapters 8 and 9 will also review the option, within a phenomenology-based study, of investigating the relevant over-arching topo-socio-cultural-spiritual framework, which applies for the language community under consideration. Using an investigation of *Jukurrpa* for studies with Yarnangu peoples in Australia's Central and Western Deserts, is seen as a strong example domain for demonstration of this approach (Chapter 8). Its potential use in more complex cultural environments is discussed in Chapter 9.

Chapter 5 - Phenomenology of Place

5.1 Introduction to Chapter

The topic of phenomenology was introduced in Chapter 1 and Chapter 4. The emphasis was on those aspects with potential to provide an over-arching paradigm for transdisciplinary study of ethnophysiography. The objective of this chapter is to expand upon the links between these aspects of phenomenology and concepts of landscape as place. This chapter explores the rich ways that people and landscape interact, highlighting the requirements for new techniques and methods to provide for more effective ethnophysiography case studies. The issue of relationships that people have with place are further explained in Chapter 6.

Section 5.2 provides a review of the key literature regarding a phenomenological approach to investigation of place. This includes discussion of publications by Elizabeth Ströker, Edward Casey, Jeff Malpas, Bruce Janz and Janet Donohoe, in terms of the following five key relevant aspects of phenomenology of place, identified in Section 4.4 of Chapter 4. These were derived from the analysis of ethnophysiography in Chapter 2 and phenomenology in Chapter 4. They are: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and structural systems. This is followed (in Section 5.3) by less detailed discussion of relevant research contributions, grouped under the same five key aspects, by other researchers on place, including David Seamon, Elizabeth Behnke, Edward Relph, Tim Ingold, Adam Konopka, Irene Klaver, Jonathan Maskit, Keith Basso, Kieran Bonner, Anne Buttimer, John Cameron and Trish Glazebrook. In both these sections there are linkages to the key philosophers discussed in Chapter 4, and to some results from ethnophysiography case studies (Chapters 2 and 8).

Section 5.4 explores linkages between culture, phenomenology and place. This discussion starts with a review of conventional approaches to investigation of culture. This is followed by discussion of the application of culture, sociology, phenomenology and hermeneutics to the understanding of place. The final sub-section reviews some more radical proposals regarding culture and cultural studies put forward by Alec McHoul. Section 5.4 also examines some relevant linguistic considerations, including words with multiple meanings, complex semantic content, linguistic structures and discussion of the body and deixis in landscape language.

A set of relevant questions about phenomenology of place (from Seamon, 2014a) is presented in Table A6.1 of Appendix 6 and discussed in Chapter 9 and Appendix 14. Phenomenographic Table A6.2 provides a detailed summary of 83 key aspects of phenomenology of place discussed in Sections 5.2, 5.3 and 5.4, grouped under 9 headings. Both of these tables, and others generated in subsequent chapters, can be used as part of a contingent, integrated, transdisciplinary methodology, to assist in the use of the PTM-ECS, as discussed in Chapter 7. The chapter concludes with a brief summary of the main conclusions and a bridge to later chapters.

5.2 Linking Place and Phenomenology
5.2.1 Introduction to section

From the beginning of this chapter it is important to distinguish between the terms 'space' (the physical location of things and activities) and 'place' (a location imbued with a host of characteristics and relationships with people and other places), from a phenomenological perspective. There is a large body of literature on this topic, including some authors who, in the past, placed less emphasis on the distinction, preferring to enlarge the meaning of 'space' (e.g. Massey, 1994). John Agnew (2011) contends: "The question of space and place in geographical knowledge is ultimately not just about whether the question of "where" matters in the way that "when" does in explaining "how" and even "why" something happens. It is also about how it matters" (p. 316). Tuan (1977) notes that the difference between 'space' and 'place' concerns meanings associated with a particular area of space (e.g. part of the terrain) to create place. Such place meanings can be derived directly from human experiences of any particular space, via vision, hearing, smell, and/or touch, or indirectly via information conveyed verbally or through text, images, symbols, etc. about a place [see also Dana Pop, 2014 for a comparison of approaches to space and place].

Space, place and dwelling have been important concerns from the beginning of phenomenology. One of the principal themes in Heidegger (1962/2007) was 'being-in-the-world': "Dwelling [*Wohnen*] is what we call the native sojourning in the realms in which the human belongs" (Smith, 2009, p. 3). We need to be 'contemplative' and 'reflective' with regard to the genuine manner of thinking involved in dwelling; "a mediation [*Sinnen*] wherein the awareness [*Besinnung*] of what is, is expressed in language (p. 5). Smith (2009, p. 7) notes that "For Heidegger, we and our activities are always 'in the world', our being is being-in-the-world, so we do not study our activities by bracketing the world, rather we interpret our

activities and the meanings things have for us by looking to our contextual relations to things in the world". Dwelling in terrain turns it into landscape, incorporating relationships that reflect the particular qualities of the lifeworld (Husserl) of those who live there.

The discussion in Chapter 4 summarised how early phenomenologists (Husserl, Heidegger, Merleau-Ponty and Patočka) started from the position of people being in landscape (*Dasein*), and dwelling together with others (*Mitdasein*) (Moran, 2000a). We exist in place and we configure the details of place through our communal ideas and actions. Patočka (1996b, p. 172) clarifies our relationship to things in our place: "that knowledge of things that are solely next to each other, in purely objective relations, is possible only if there is a being that is in space differently, not just one of the things, indifferently next to them in space, but is rather in space *existing* in it, that is, by relating to itself, to its life, through relating to things". Our way of being (lifeworld) determines our relationship with features in our taskscape.

Malpas (2006, p. 58) discusses Heidegger's concept of 'being there' (*Dasein*): "What is brought to salience in and through the 'there', is also what participates in the very happening of the there – myself, the others who are there with me, the things that I find myself alongside […] we do not find ourselves in the world through encountering the world, or the things within it, as something that stands over against us as separate and apart from us". Our experience of the world is mediated by our activities, mostly undertaken with others. In an earlier work, Malpas (1999, p. 187) explains how a person's worldview applies to landscape: "Embedded in the physical landscape is a landscape of personal and cultural history, of social ordering and symbolism […] the narratives of the land as enculturated and humanised cannot be prised away from its physical structure". Hence, an ethnophysiography case study needs to incorporate social, cultural, spiritual and ethical aspects of the nature of dwelling in that landscape. He also discusses people's relationship to objects in terms of intentions and actions: "Understanding an agent, understanding oneself, as engaged in some activity is a matter both of understanding the agent as standing in certain causal and spatial relations to objects and of grasping the agent as having certain attitudes – notably certain relevant beliefs and desires – about the objects concerned" (p. 95). These aspects of phenomenological intentionality apply to relationships with areas of terrain, turning them into landscape. A pond in the terrain may be considered a source of drinking water, a place to breed fish and /or a sacred place of cultural and spiritual significance.

Tuan (1977) makes a case for social scientists to more effectively explore the nature of place, via detailed ethnographic studies (such as those carried out in ethnophysiography research). However, this requires the development of appropriate research techniques and methods of analysis and summary, such as the PTM-ECS and the EDM proposed in this dissertation. Tuan notes: "As social beings and scientists we offer each other truncated images of people and their world. Experiences are slighted or ignored because the means to articulate them or point them out are lacking" (p. 201). Hence, a detailed understanding of a language group's lifeworld is required in order to effectively collect and analyze landscape language case study data, and to represent appropriately the summary of people's rich relationships with landscape, resulting from the analysis.

In a much more recent article, Tuan (2014, p. 49) emphasises the need to consider both an observer's literal and metaphorical 'point of view'. He contrasts the information gleaned from different senses: "What I see is always a point of view – my point of view. What I hear, by contrast, is more circumambient and so less subjective. What I smell is even less subjective, more 'in the round', and more a quality that emanates from something 'out there'". He goes on to suggest that: "Phenomenologists, eschewing objectivity, tend to emphasize the 'point of view' or the subjective. This is a mistake, for the human experience includes both." It is important to find ways to integrate, in an effective way, a suitable range of perspectives, via a contingent, integrated, methodology. Tuan suggests that it is possible to take a lead from the best examples of literature, where, for instance, "great novelists sought to be objective by drawing attention, as would a sociologist, to the social and economic forces at work" (p. 49). Phenomenologists should similarly use analysis of social context (lifeworld) to better understand data from individuals, so as to be able to make more effective general inferences. This applies especially with respect to people's relationships with landscape.

Adams (2017) discusses Tuan's contributions to a humanistic approach to geography. Tuan's many books and articles (e.g.: 1974; 1977; 2001; 2013; 2014) include a hermeneutic approach to analysis of place, although he does not map out a methodology for analysis of "the ambiguities and ambivalences that attend the human experience of dwelling in the world along with the inseparability of self and world" (Adams, 2017, p. 275). Tuan was part of the 'turn to place' in the 1970s and 1980s within human geography, alongside Edward Relph, Anne Buttimer and others. Adams says of Tuan's investigation: "Geographically contingent understandings of the world are shown to propel people between one pole of experience

characterized by rootedness, security, grounding and certainty, and an opposing but interpenetrating pole characterized by outreach, expansiveness, possibility and imagination" (p. 277/8). Adams explains that Tuan did not always support a phenomenological approach, insisting that the focus should remain on geographical empiricism, not just subjective viewpoints. Tuan's desire to fuse subjective and objective methods is adopted in this dissertation via the proposed PTM-ECS (Chapter 7).

The need to consider emotional impacts and meanings flowing from, not only utilitarian aspects of the lifeworld, but also social, cultural, spiritual and ethical ones, is emphasized by Adams (2017). This accommodates the notion that people have affective relationships with parts of landscape and want them to remain 'healthy'. This aligns with Tuan's (2013) discussion of cultural variations and how they relate to feelings about landscape, and their relationship to universal attributes of dwelling in place, and ethical considerations.

Carl Sauer's (1925) *The Morphology of Landscape* was a seminal text establishing cultural landscapes as a key aspect of geography. He considered human impacts on the landscape to be a manifestation of culture; embedding relationships with landscape as place. Aspects of human ecology include the damaging impacts of humans on the environment. In order to understand such impacts, as a manifestation of culture, it is necessary to develop socio-cultural methods of 'reading' the ethical aspects of conceptualisations of landscape. Language plays a key role in establishing communalized intentional relationships with place. Phenomenology can facilitate interdisciplinary interpretations of language (Seamon and Mugerauer, 1985b, pp. 1, 2).

In their "Introduction" to *Textures of Place: Exploring Humanist Geographies* (2001b), editors Paul Adams, Steven Hoelscher and Karen Till note the way peoples' relationships with place are woven into its ever-changing 'texture', which is not necessarily 'skin-deep', so that changes may be profound (p. xiii). Recent study of such phenomena has included the turn to phenomenology by 'humanistic geographers', such as Yi-Fu Tuan, Edward Relph and David Ley, yielding a renewed interest in the interdisciplinary nature of place. They note particular emphasis on the following themes: experience and identity; imagination and social construction; and paradox and modernity (pp. xx-xxii).

Seamon has for decades been a strong advocate for use of phenomenology to investigate the nature of place in wild, rural and urban settings (e.g. Seamon, 1993; 1997). In his (2014b)

paper he summarized some aspects of this history, beginning with his 1977 PhD dissertation: *Movement, Rest, and Encounter: A Phenomenology of Everyday Environmental Experience*. Seamon notes that this fitted within the emerging field of 'humanistic geography', which concentrated on "human consciousness, feeling, thoughts, and emotions (as) at the centre of geographical thinking" (Cresswell 2013, p. 109). Seamon's approach is based on four assumptions: understanding grounded in experience; phenomena approached as openly as possible; people immersed in the worlds in which they find themselves; and describing and understanding lifeworlds as a major phenomenological aim. (pp. 1-2). He explains each of these assumptions and the role of phenomenology: "Phenomenologically, place can be defined as any environmental locus that draws human experiences, actions, and meanings together spatially and temporally (Seamon 2014a, p. 1)" (p. 8).   This approach supports the notion of 'wholness' of people-in-the-world: "Place is a phenomenon integral to human life and holds worlds together spatially and environmentally, marking out centres of human experience, meaning, and action that, in turn, make place" (p. 9). This constitutes the dialogue between person and place, both for their 'homeworld' (where they live) and 'alienworld' (other places outside their homeworld), which operate as a dialectic (Adams, 2017, p. 277/8).

Seamon's impressive contribution has included his editing of the journal *Environmental & Architectural Phenomenology* for thirty years (Seamon, 2019). In his contribution to the 25th anniversary issue, Seamon (2014a, p. 8) poses a lengthy set of questions concerning place and phenomenology, many of which are relevant to this dissertation. The list is provided in Table A6.1 in Appendix 6, with relevant questions shown in italics. Relevant questions include: all 10 in Topic 1: Questions relating to phenomenology and related interpretive approaches and methods; 2 of 8 in Topic 2: Questions relating to the natural world and environmental and ecological concerns; all 11 in Topic 3: Questions relating to place, place experience, and place meaning; 3 of 4 in Topic 4: Other potential questions. The set of questions relating to architecture and environmental design and policy is not included. This list will be used to inform discussion in Chapters 7 and 9.

Key authors have undertaken specific reviews of the role of phenomenology in understanding place in general, and landscape in particular. Subsections 5.2.2 to 5.2.6 briefly discusses key concepts about place from a selection of such authors: Elizabeth Ströker, Edward Casey, Jeff Malpas, Bruce Janz and Janet Donohoe. This is achieved, in each of the subsections, by an initial general introduction to the relevant work of the particular author and their

phenomenological approach to place. In each subsection this is followed by a set of discussions of the author's work under the following five headings: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and structural systems[20]. The set of topics are key aspects of a phenomenological approach to lifeworld, as discussed in previous chapters. This provides for a direct understanding of each author's approach, across topics. The comparison of different author's views for each topic is provided by phenomenographic Table A6.2 in Appendix 6, as discussed in the concluding subsection 5.2.7.

The publications of a dozen other authors are discussed in less detail in Section 5.3. The review of the literature, within Sections 5.2 and 5.3, provides an indication of the development of a phenomenological view of place, over the last five decades.

5.2.2 Elizabeth Ströker

Introduction

In the *Translator's Preface* in Ströker (1965/87), Algis Mickunas describes Ströker as a noted philosopher of the history of science, undertaking important work in philosophy of space, philosophy of science and ethical issues relating to science and technology. He notes that this book "contains the best possible phenomenological and critical analyses of issues concerning the 'experience' and the 'Being' of space, and the most outstanding and precise theoretical investigations of the problems in conceptualization of space" (n.p.). He also notes the contribution to the translation task by Elizabeth Behnke, whose work is discussed in Section 5.3.

Discussion of the work of Elizabeth Ströker is included here because her 1965 book, translated by Mickunas into English for the 1987 edition, provided a sort of 'hinge' between discussion by earlier phenomenologists about landscape as 'space', and later writers (see below) who generally substituted 'place' for 'space'. Although Ströker mentions place, she continues the phenomenological tradition (from Husserl) of discussing people dwelling in space. However, she anticipates the 'turn to place' by adopting the terms 'lived space' and 'attuned space', which have the characteristics of place, such as: experience of being in space; perception and embodiment; practical activities; and cultural and spiritual concerns. She followed this

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[20] There is not discussion relating to all five topics for all authors.

publication with others translated into English (e.g. Ströker, 1993; 1997) and published several other books about phenomenology in German and French, making her an influential contributor to phenomenology.

Ströker describes the aim of her (1965/87) book as providing a philosophical grounding for discussion of 'lived space', including its investigation via experimental sciences [21]. She briefly reviews the Western philosophical tradition and concentrates on the phenomenological approaches of Husserl, Heidegger and Merleau-Ponty. She compares this phenomenological treatment to a Euclidean/mathematical approach to space and also contrasts the phenomenological methods to investigations using scientific methods. Ströker stresses the need for an ontology of aspects of 'attuned space' (see below). She investigates ways for philosophy and science to collaborate, noting (p. 8, 9) "the need for philosophy to not just rely on philosophical insights, but to be more self-critical, via examination of data and findings from scientific studies, which can reveal the limitations of phenomenological methods". She notes problems with relying on Husserl's transcendental-phenomenological reductions, and sees 'lived space' as a critical topic for investigating the subjectivity of individuals, via a wider range of approaches. This led to her contributions to the phenomenology of 'lived space' as an object of consciousness. However, the investigation begins not with a subject's "judgements 'about' space, but in terms of his comportment 'in' it" (p. 15). Hence, the investigation must deal with an ambivalent awareness of space; both pre-reflective (corporeal) and conscious. Ströker's approach, both philosophically and methodologically, is aligned with that of this dissertation.

Physical aspects, embodiment and perception

Ströker (1965/87) adopts the term 'attuned corporeity' to denote a person's fundamental relationship to the surrounding world. The person's practical corporeity "is a point of departure for goal-oriented activity; and as a unity of senses, it is the centre of perception" (p. 17). She emphasises that the person is a carrier of 'expressive content'. In these ways the person occupies space, and gives it structures and attributes, which differ, depending on the holistic

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[21] Ströker notes (footnote 1, p.15) that "the concept of lived space was already used by K. V. Burckheim in 1932", although he used a different approach and reached different conclusions.

'comportment of corporeity'. She notes that perception of space involves all senses. 'Attuned space' is perspectival, as it is usually viewed from within. Ströker emphasizes that sound is important for graduation of space and localization: "Sound detaches itself from its source. It is not a property but an event; it is not attached to something but draws nearer and recedes into the distance. It can indeed be said that it is a sound of something, that points to a source" (p. 25). This aligns with the role of sound in the context of sense of place discussed in Chapter 6 (Feld and Basso, 1996a).

Utilitarian Aspects and Actions
Discussion of 'lived space' led Ströker to the concept of 'attuned space', which "comprises the 'atmospheric' dimension of an attuned being. It is a space of labour, of leisure, of festivities, of devotion – a space that is loved, hated, feared, and avoided" (Ströker (1965/87, p. 19). Hence, each landscape place, as lived in terrain, has its own 'proper visage', in accordance with the lifeworld of those who inhabit it (see also Riedel (2019, p. 85). See discussion of atmosphere in Chapter 6, Section 6.4.2.

Ströker discusses what she calls 'expressive movement', both with respect to the individual's movements and those of others, that are observed: "each apprehension of a bodily movement is constantly transcended toward a specific intention: the movement is a searching, defensive, furious, tired, happy movement and hence is already grasped as a dynamic mode of relationship to the world" (1965/87, p. 31). The significance of movement is not just physical but may potentially entail all aspects of lifeworld. Such "expressive movement must be grasped from the experience of the space 'in' which it takes place" (p. 31). Thus, landscape configures movement, and movements establish place through their connection with utilitarian, cultural or spiritual practices: "Space is not just a space *for* my movement; it becomes a space, in its specific attunement *through* my movement" (p. 31). For example, a raised up, flat, bare area of ground facilitates it being a place from ritual dancing, which, over time, makes this a ceremonial place for the community.

Social systems, culture, knowledge and language
Ströker is not much concerned with detailed analysis of social and cultural issues in her (1965/87) publication, giving most of her attention to mathematical aspects of space. However, she does note the role of knowledge and language in the characteristics of 'attuned space' and comments that: "The understanding of this space is not perception, and awareness of space is

not cognition; it is rather a way of being moved and affected" (p. 19). The experience of space is not 'causal', rather, as 'attuned space'; "it has an appropriate mode of coexistence with the lived ego […] founded on the primordial and intransgressible bond between the corporeal subject and space" (p. 19).   This strongly aligns with the approach taken in this dissertation.

Spiritual and ethical aspects

For Ströker (1965/87), attuned lived experience of dwelling in landscape is holistic; it constitutes " a unique communication of the living-experiencing ego with another, with an expressively animated space" (p. 19). This is commensurate with the way many indigenous peoples think of landscape as a living entity. For instance, Manyjilyjarra people (Chapter 8) consider that their 'country' will become 'sick' unless they routinely carry out ceremonies at sacred places.

Ströker addresses spiritual aspects of attuned space, noting that this is part of the differentiation of space, in terms of 'valence of mood'. An area of space can be "strongly pervaded by an atmospheric and specifically religious difference, constituting a mythical residuum, carefully preserved in all cultural development" (1965/87, p. 34). She discusses this in terms of Christian values of good or evil attributed to particular places. In Footnote 14 she discusses representation of the belief systems of 'primitive' peoples. Citing E. Cassirer (1931), she notes: "Certainly for him mythical space is merely a primitive precursor of scientific space; the modern consciousness of space is specified by its total liberation from such mythical elements" (pp. 34-35). This seems to indicate that she is still under the influence of works such as those by Lucien Lévy-Bruhl, discussed in Chapters 1 and 4. However, Ströker states: "It would require an entire investigation to deal with the problem of the space of primitive people living today. These issues must be avoided precisely because it is questionable whether the phenomenological-descriptive method is adequate for them" (pp. 34-35). This highlights the need for careful development of ways to utilize phenomenology in ethnophysiography studies in a manner that does justice to all groups of peoples, while adopting a particular emphasis on understanding of indigenous ways of being.

Structural systems

Following on from the section of Footnote 14 (1965/87, p. 35) quoted in the paragraph above, Ströker says: "The world of the primitives cannot be simply delimited as primitive in comparison to ours; rather, it must be interpreted as a self-contained whole with its own

structural regularities […] in order to acquire a categorical system befitting the differing consciousness-structure of these peoples". This aligns with the basis of ethnophysiography and the role of topo-socio-cultural-spiritual frameworks, discussed later in this dissertation (Chapters 6 to 9). Ströker comments: "Even where we employ methodological procedures that take seriously 'the presuppositions of such a mentality', these *eo ipso* enter the 'understanding' of a consciousness that requires, according to Gehlen (1956), a structural change of its own. It is only with such an explicitly self-critical limitation of its claims than an ethnographically oriented 'phenomenology of space' would be justified" (p. 35). Hence, there is a rigorous requirement to understand the particular structural system of culture and reasoning for the language community being studied. This dictates use of the appropriate topo-socio-cultural-spiritual framework, such as *Jukurrpa*, which, Aboriginal people and anthropologists agree, lies at the heart of Aboriginal cultures (Stanner, 2010; Swain, 1993; Goddard and Wierzbicka, 2015). This is discussed in Chapters 6, 8 and 9. Ströker also discusses structures of space in a more geographic fashion, including its subdivision into regions, as different fields of action (pp. 52, 54), and the individual (or group) location as a locus of meanings and perspectives (e.g. our home place vs foreign places).

In general, the set of ideas discussed in Ströker (1965/87) constitute a key development in the use of phenomenology for understanding space as place. They provide a strong foundation for later examination and explication of phenomenology of place.

5.2.3 Edward Casey

Introduction

Philosopher Edward Casey is one of the most important writers on place. In taking a phenomenological perspective, he considers landscape a fundamental aspect of place, both as concept and as experience. In his 1996 contribution to Field and Basso's *Senses of Place,* Casey (p. 16) quotes the Archytian axiom: "Place is the first of all things", and in his 1993 publication (pp. 176-177), he quotes Plato; "any thing that is must needs be in some place". However, Western philosophy and culture have not always used this concept and terminology: "In between the ancients and the postmoderns there was a period of preoccupation with space – as well as with time, conceived of as space's cosmic partner. But how may we retrieve a sense of the priority of place? […] My suggestion is that we can retrieve such a sense by considering what a phenomenological approach might tell us" (Casey, 2002, pp. xv-xvi). Although in traditional indigenous cultures place is central to their worldviews, Western approaches, under

the influence of realist/positivist/modernist philosophies have tended to use the term 'space'. There has been a return to discussion of place in recent decades, especially under the influence of phenomenology and post-modernism.

This historical trajectory is discussed by Judith Martin (1999) in her review of Casey's (1997) *The Fate of Place*. She commends Casey's approach as both comprehensive and demanding, in that it reviews relevant philosophical history from Aristotle and Plato, through Newton, Descartes, Locke, Leibnitz, Kant, Whitehead, Heidegger, Bachelard, Foucault and Derrida, to inform his own views on the nature of place. He concentrates especially on the phenomenological approach of Martin Heidegger to provide an anchor for contemporary thinking about place. Martin contends that Casey concentrates on this philosophical basis, rather than the contributions by researchers from other disciplines, such as the geographers mentioned below, and in Chapter 6. Casey does acknowledge that architecture, anthropology, and ecology have made contributions to the study of place.

Since being in place is a requirement for all people, Casey (2002) suggests the terminology, 'place-world' to indicate that the world is constituted by places (pp. xiv-xv). He also adopts the terms 'place-scape' and 'poetry of a place', for what place is like "in a deep sense" (p. 26). Of particular relevance to this dissertation is his claim that places are units of landscape; its 'main modules' (p. xv). He emphasises the fundamental importance of representation in our understanding of places: "representation is not a contingent matter, something merely secondary; it is integral to the perception of landscape itself" (p. xv). Thus a phenomenological approach to detailed description of place is needed, which can be enhanced by using both pre-modern and post-modern approaches in addition to scientific/modern methodologies (pp. xv-xvi). Because landscape is a configurative complex of things (p. 25), it is inappropriate to just use generic categories for places, so we need to discover, or invent, new ways of 'grasping-together' meanings of a place (p. 26). This includes naming and describing a place, with reference to its unique characteristics and 'event-ness'. Casey notes: "Its peculiarity calls not for assumption into the already known […] which lends itself to predefined predications, uses, and interpretations – but for the imaginative constitution of terms respecting its idiolocality" (p. 26). This requires in-depth study of peoples' physical, utilitarian, social, cultural, spiritual and ethical relationships with their landscape, so as to maximise understanding of their topo-socio-cultural-spiritual framework, such as *Jukurrpa* (Turk, 2011; 2014; 2016a; b; c), as proposed in Chapters 6 to 9.

Fifteen chapters review Casey's work in the 2013a collection, edited by Cruz-Pierre and Landes, entitled: *Exploring the work of Edward S. Casey: giving voice to place, memory, and imagination*. In the Introduction (2013b), the editors describe the book as "an exercise in collective and productive nostalgia, both recovery and creation" (p. 1). In saying this, they are adopting Casey's broad definition of 'nostalgia', as "not dependent on a specific set of recollections", nor is it a "purely fictitious imagining", but instead a way of producing an understanding of "one's sense of being in a given place", as an "imaginative production" (p. 1). Cruz-Pierre and Landes seek to follow Casey's approach of making examination of place as interdisciplinary and dialogical as possible, fitting with the mode of this dissertation. The need for interdisciplinarity is further emphasized in the chapter recording an interview of Casey by Landers (2013), in which Casey says that philosophers should be involved in other fields, such as art, sociology, anthropology or psychology: "I regard such interdisciplinarity as an ethical responsibility; as philosophers, we are responsible for not just solving our own problems or teaching our own paradigms" (p. 25). Other aspects of Casey's work relevant to this dissertation, discussed in the other chapters of Cruz-Pierre and Landes (2013a), are included in the themed summaries in the subsections below.

Physical aspects, embodiment and perception

Casey (2002) emphasises that phenomenology includes consideration of both physical and mental aspects of dwelling because places gather various entities, both animate and inanimate (p. 24). Knowledge of place is an ingredient of perception (p. 19) because living bodies belong to places and help to constitute them (p. 24). The subliminal hermeneutics involved in Casey's notion of place is discussed by Morris (2017). He emphasises the subtle significance of what Casey terms 'periphenomena'; subliminal perception via glances, or objects noted in the periphery of vision, which orient and guide our movements through place. Through those movements, we identify phenomena significant to our understanding of place, as a sequence of 'horizons'. The incompleteness of sense data, moment by moment, is accommodated via memory, anticipation and projection of possibilities, to enable a temporal unfolding of place. This emphasizes that embodiment is not a static concept, and that it is deeply involved in relationships with place; incorporating a basic, bodily hermeneutics, interwoven with the 'taskscape' (Ingold, 1993). This is also evident in aesthetic and cultural bodily movements during dance and ritual. Casey (2017) takes his sense of living at the edge of our own bodies and of place a step further in his consideration of the potentially catastrophic impact of climate

change on our ways of dwelling. Casey sees this impacting in fours ways: 'our place vs their place'; competition for resources leading to increased violence; 'degradation of places'; and the role of governments and corporations in mitigating (or not) climate change. He also notes the 'implacability' of linked places, in that actions in one place inevitably have consequences for other places. Thus, 'required interventions' must be developed and negotiated if we are not to fall off the edge of an acceptable lifeworld.

Utilitarian Aspects and Actions

Casey (2001a, p. 684) contends that self and place are 'thoroughly enmeshed' in practical ways. Regarding the various 'articulations' involved, he cites Heidegger (1962, sections 17 and 18) as suggesting that they include "the 'towards-which' of serviceability, the 'for-which' of usability, and the various 'assignments' or references that are part of the work-world (itself only an exemplification of any technological milieu) [which] indicate that the place/self relation is here as highly ramified as it is intimate". In the context of habitual activities in place, Casey refers to Pierre Bourdieu's (1977, p. 81) term 'habitus', "where it serves as a figure of the between: above all, between nature and culture, but also between consciousness and body, self and other, mechanism and teleology, determinism and freedom, even memory and imagination" (p. 686). Thus it is the milieu of place that enables utilitarian as well as cultural and spiritual processes; what Casey terms "an intentional and invested commitment to the place-world" (p. 687). Casey emphasizes that, although this may rely on past practices and memory (e.g. via 'mimesis'; see Chapter 6), habitus is subject to improvisation and innovation, leading to change in set routines.

Social systems, culture, knowledge and language

In the interview of Casey by Azucena Cruz-Pierre (2013, pp. 187/8) they discussed the term 'idiolocality' (from Casey's 2001a article). This is one of a triad of terms (with 'habitus' and 'habitation'), that Casey introduces to describe places of special significance to individuals and social or cultural groups; recognizing characteristics that he terms 'peculiar' or 'eccentric'. Casey uses the term 'thick places' for those involved in rich interactions with people. Of course, a place (such as a hole in the ground) may be extremely 'thin' (impoverished) in meaning to one observer, while simultaneously being very 'thick' for another (such as for the Yindjibarndi elder who believes that this hole is the place where the warlu spirit *Barrimindi* poked his head up, during his underground travel from the coast in search of two boys who had

broken the *Birdarra* law, in the beginning time, when the world was still soft) (Ieramugadu Group Inc., 1995) [see Section 2.4.1 in Chapter 2].

Casey further developed his ideas about 'idiolocality' in his 2007 article *Limit and Edge, Voice and Place*. Casey (2011) distinguishes several basic types of edges to territories, such as rims, frames and margins. These can be disputed in terms of their location and meaning. He uses the example of La Frontera, on the border between the USA and Mexico, established by the Treaty of Guadalupe Hilalgo in 1848, ending the war between the nations. That war resulted in the USA acquiring from Mexico an additional 525,000 square miles, including the land that makes up all, or parts of, present-day Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming[22]. La Frontera is a contested place, both historically, and also currently, as it is where Mexican people seek to enter the USA looking for work and a better life. In seeking to understand the meanings associated with places of high historical/cultural/spiritual values, Casey emphasizes the need for a 'hybridity of voices'.

Place is part of culture, just as culture plays a fundamental role as part of place. Heidegger, in *Being and Time*, "points to possibilities of dwelling that are not merely instrumental in character" (cited in Casey, 1997, p. 254). Casey (2002) suggests that: "all too frequently, late modern Eurocentric thinking has located culture in two extremes – either in overt behavioural patterns […] or in symbol systems [...] Given that culture manifestly exists, it must exist somewhere, and it exists more concretely and completely in places than in minds and signs" (p. 33). Places gather cultural information; "experiences and histories, even languages and thoughts" (p. 24). Places become cultural in character via the thoughts and actions of individuals and groups, so that culture pervades the place and hence influences the way it is perceived, as well as actions performed in that place. Of course, places, although part of a cultural system, are not just the 'appropriated' product of the actions of people; they are "not merely parasitic" nor just a "by-product or off-spring", with each place retaining "its own features and fate, its own local being" (Casey, 1997, p. 285). Thus place can be considered as a 'generatrix' (template and mechanism) for generating and recalling historical and cultural knowledge (Casey, 2002, p. 26) [see also Basso (1996a; b)].

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[22] https://en.wikipedia.org/wiki/Treaty_of_Guadalupe_Hidalgo [accessed 24 Aug 2017]

Casey's writings about place and collective memory are reviewed by Carr (2013), in the context of their relationships with history. He cites Assmann (1997) as using the term 'cultural memory', "treating memory as something larger than what goes on in individuals' minds [...] Not only individuals but also cultures and communities have memories" (Carr, 2013, p. 46). Cultural memories are attached to places. In Western culture such places may be monuments, museums, other buildings, geographical sites and territories. Carr suggests that Casey's work uses phenomenology to assist in understanding such places, for instance via the term 'place memory', where memories are usually of a place itself, or of people and events in a particular place. Hence, places are not just signposts to our movement, they are about meanings and activities: "Place is thicker and richer than the notion of location in lived space, and anchors it" (Carr, 2013, p. 50). Casey also uses the notion of 'lived time' to explain the role of memory, in both a personal and cultural sense, giving places "a temporal and memorial dimension" (Carr, 2013, p. 51) [See also Donohoe (2014b) *Remembering Places* and Landers (2013) *The Weight of Imagining, Remembering, and Place*].

Spiritual and ethical aspects
Important aspects of peoples' dwelling in place can be termed spiritual and ethical, although there is no attempt here to draw any sort of hard boundary between these aspects and those more broadly called 'cultural'. Casey (2001a, p. 683) calls for increased investigation of "the human subject who is oriented and situated in place"; what he terms "the geographical self", proclaiming "there is no place without self and no self without place" (p, 684). Casey (2000) discusses the relationship between imagination and lifeworld, including spiritual and ethical aspects of dwelling. Cruz-Pierre and Landes (2013) explain Casey's definition of 'nostalgia' as an 'imaginative production'; a way of producing an understanding of "one's sense of being in a given place" (p. 1). The meaning of place arises within a 'being-in-and-towards-the-world', the *milieu* (Merleau-Ponty), and an overarching worldview, engendered by the person's lifeworld, including their belief systems.

During Casey's interview with Landes (2013), prompted by Landes' questions about his earlier publications, Casey admits that his thinking about imagination in his 2000 book was not sufficiently developed. Thus, the freedom of imagination needs to be considered as restricted in the particular context of landscape "which is always arrayed before and around the subject [...] You cannot really control it; more likely, it controls you" (Landers, 2013, p. 28). Casey's publications after 2000, involve a different mode of consideration of being in landscape. For

instance, in the second edition (2009) of *Getting back into place: toward a renewed understanding of the place-world*, he writes "I shall accord to place a position of renewed respect by specifying its power to direct and stabilize us, to memorialize and identify us, to tell us who and what we are in terms of *where we are*" (p. xv) [cited in Landes, 2013, p. 33]. Casey says that this realisation set him off on a crusade "to rectify the pervasive neglect of 'place' in Western thought, at least since the Pre-Socratics, who were the last to give it full force" (Landes, 2013, p, 33). This leads Casey to say that "all of the imagining and remembering that I do *in a given place* becomes secondary insofar as it is a *response to that place*" (cited in Landers, 2013, p. 34). He then began to explore further the nature of community with respect to 'shared' place, "including linguistic community and communication" (cited in Landers, 2013, p. 34). This and other developments of Casey's views on dwelling in place are evident in his (2007) *The World at a Glance,* and in his other interviews contained in Cruz-Pierre and Landes (2013).

Structural systems
Casey (1996, pp. 24-25) discusses how place gathers together physical and abstract aspects of landscape:

> *Places gather*: this I take to be a second essential trait (i.e., beyond the role of the lived body) revealed by phenomenological topoanalysis. Minimally, places gather things in their midst – where 'things' connote various animate and inanimate entities. Places also gather experiences and histories, even languages and thoughts […] Third, the holding at issue in the gathering of a place reflects the layout of the local landscape, its continuous contour, even as the outlines and inlines of the things held in that place are respected. The result is not confusion of container with contained but a literal *con*figuration in which the form of the place – for example, 'mountain', 'mesa', 'gulley' – joins up with the shape of the things in it. Being in a place is being in a configurative complex of things.

Thus we should not consider elements of landscape (or peoples' relationships with them) individually, but rather, as part of a whole environment. For instance, this 'gathering' applies to the hydrological (stream/river) network example (Burenhult, 2008), discussed Chapter 2. [See also discussion of Heideggerian topology in Chapter 6, Section 6.2].

Places need to be considered in terms of their spatial and temporal relationships, within structural systems of cultural knowledge. Casey (2002) contends that places integrate time and

space so that they are both 'in place', rather than being their own 'autonomous presences or spheres' (p. 44). Taking his lead from Deleuze and Guattari, Casey (1997, p. 305) maintains that a "region is not the mere totalization of places, as if places were assigned or allocated to parts of a region", rather regions result from physical, utilitarian, social, cultural and spiritual associations. Thus, places, linked together by both time and space, never exist in isolation; they interact with others in their region to form different types of groups.

5.2.4 Jeff Malpas

Introduction

Philosopher Jeff Malpas is a leading figure in discussions of place, phenomenology and hermeneutics. Over the range of his recent publications (1999; 2001; 2006; 2007; 2010; 2012a; 2012b; 2013; 2014a; 2014b; 2016; 2017a; b) he concentrates on the philosophy of Martin Heidegger and his topology of being, in place. He notes that Heidegger sees the connection between thinking and place in at least three ways: firstly, place is the proper 'focus' of thinking and articulating; secondly, place is the proper 'horizon' that bounds thinking; and thirdly, place is the 'origin' of thinking, that from which thinking emerges (Malpas, 2012b, p. 13). Place has crucial foundational qualities.

Malpas (2017a), in the "Forward" to Janz (2017a), notes the importance of hermeneutics within phenomenology; "Whether ones focus is a text or utterance, a practice or activity, even a building or landscape, the task of understanding is necessarily tied to the concrete situatedness of the interpretive encounter" (p. v). This relates to 'interpretation' practices within disciplines such as cultural studies, and to the hermeneutic approach to Heidegger's interpretation of Being. Malpas suggests that 'situatedness', a hermeneutic approach, does not imply 'relativism' or 'scepticism': "the placed character of understanding does not mean that understanding can only be understood as it arises in some place and as it relates to that place alone but, rather, through being placed that understanding is opened to the very character of understanding as such, as it is also opened to the world as it goes beyond a single place" (p. vi). This notion of the validity and necessity of comparing the consequences of situatedness for landscape languages supports the development and use of the EDM.

In his 2014 article in *Environmental & Architectural Phenomenology*, Malpas contends that: "Although I am certainly not opposed to a phenomenological characterization, I think of my own work as, for the most part, 'topological' or 'topographical' rather than

'phenomenological'. Yet I also take phenomenology, along with hermeneutics, to be essentially topological in character, a point I have argued for elsewhere (e.g., Place and Experience, 1999)" (Malpas, 2014a, p. 11). For Malpas, the relevant nature of place includes "the entirety of the surrounding world as it is brought to focus in place, and that therefore includes the built and the unbuilt, the cultural and the natural, the urban and the wild" (2014a, p. 12). This is a wider field of study than landscape, as defined in this dissertation, but definitely includes all aspects of landscape. Phenomenological approaches can play a key role in such investigations, not just through using the theory from Husserl, Heidegger and other key figures, but also via examination of "the articulation of the placed character of experience that is to be found in much contemporary architecture, art, music, film and literature, as well as in many forms of personal reflection and practice" (Malpas, 2014a, p. 12). Flexible, transdisciplinary methodologies are needed to accomplish this objective.

Being 'placed' affects all aspects of our life, including our ideas. Malpas (2010) notes that Heidegger, as discussed in Gadamer (1992), considers understanding as being 'situated', that is being in the context of the person's 'Da' of being here/there; their 'hermeneutical situation' of being emplaced within topographic/topological and socio-cultural contexts. The situatedness is also temporal, affected by the history of those who dwell in that place, that tradition, at least partly, being a function of the geography of the particular locale. This generates a connection between 'sense of self' and 'sense of place' and hence the 'relational' character of self and 'self-referential' character of understanding (Gadamer). These characteristics are developed through place-based activities (*praxis*), affecting, and being affected by, interactions with others, a process of engagement and response.

In a response to Casey's (2001b) claim of the 'perdurance' of place, Malpas (2001) suggests that places are dynamic and indeterminate. They do not necessarily endure, or at least, their nature might change to such an extent that they are in effect a new, different place. Physical aspects of place may change due to earthquakes or volcanic action. This author watched a bay being filled with lava from the Kilauea volcano erupting on the Big Island of Hawaii in 1990. The lava flow also destroyed the historic fishing village of Kalapana[23]. Vegetation cover may alter due to drought or flood or, more slowly, due to climate change. A similar event occurred

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[23] http://www.dailymail.co.uk/news/article-2607625/Towering-inferno-These-amazing-pictures-volcano-wiped-village-Hawaii-thing-remains-No-Parking-sign.html [accessed 12 Aril, 2018]

in June 2018. Even more likely to change is human culture and relationships, which produce place, for example by war and/or colonisation of part or all of a country.

Malpas gave a talk at Queens University entitled *Thinking Topographically: Place, Space, and Geography* (2014b). This author strongly agrees with Malpas's urging for an interdisciplinary approach to place, which is linked to philosophy in an effective way. Malpas contends that this "requires a capacity for disciplines to be able to reflect upon and to engage in articulation of the concepts and modes of thinking that give them their shape and character" (p. 2). Malpas is suggesting that writers need a deep understanding of a discipline before trying to interpret its theories and practices. This is ideal, but not always practical.

Physical aspects, embodiment and perception

Things in the world (e.g. landscape features) are not just sensed in isolation from, or merely 'alongside', ourselves. Malpas (2006, p. 55) notes that current ecological thinking views the 'environing world' as the place where 'different creatures always live within a certain configuration of salient features and affordances". This is similar to Heidegger's notion of a 'particular configuration of meaning' in the context of 'meaningful involvements'. Thus our sensing and acting in the world concerns aspects "brought to salience in and through the situation, in and through the 'there'" (p. 58) during our interaction, as 'embodied agents', with others, we undertake lifeworld activities, in the context of the "unity that pertains to place" (p. 60). We typically establish this unity via walking around a place, while undertaking various types of task (Malpas, 2012b, p. 203; Olwig, 2008).

Utilitarian Aspects and Actions

Malpas (2012b) links 'gathering' of places to Heidegger's notion of the relationships between places and activities: "the way in which our activity, and our orientation to things and places within that activity, is not merely determined by the end *to which* we are directed, but also by the structure of the spatiality *in which* that activity is situated" (p. 184). This aligns with Gallagher's (2008) discussion of 'situated cognition' and 'embodied cognition' and Ingold's (1993) concept of 'taskscape'. Our everyday lives involve actions connected with place. Malpas (2012b, p. 184) contends that our self-identity is constituted by the activities we perform with others; the potential for 'contentful experience' through 'worldly projects'.

Social systems, culture, knowledge and language

Malpas (2006) is suspicious of considering place as a social construct (as he claims is suggested by Harvey (1996, p. 324): "Are we to suppose that the 'social' somehow stands outside of place, space, and time – underdetermined by them, but determining of them?" (Malpas, 2006, p. 319). Malpas contends that Heidegger's 'philosophical topography' provides an important mode of theorizing space and place in contemporary geography and social theory, and also, in all philosophy. Of importance in the context of this dissertation, Malpas (2006, p. 320) claims that "The topological character of philosophical thinking is not […] peculiar only to Western thought, but basic to any attempt at a certain 'fundamental' thinking and obtains irrespective of the cultural tradition in which such thinking occurs". He regards such philosophical grounding as essential: "all too often, place is viewed as a function of human responsiveness or affectivity, as a social or cultural 'construction', or else as nothing other than a sort of neutral 'site' (perhaps understood in terms of a more or less arbitrary region of physical space) that draws any qualities it might have from that which is located within it" (2006, p. 5). This dissertation deals with these apparent disciplinary conflicts by exploring the philosophical basis as well as social and cultural aspects of landscape as place, having, by definition, distinguished it from mere terrain. The topic of social constructionism is discussed in Section 5.5.

Spiritual and ethical aspects

Malpas (2012b, p. 168) notes that nostalgia (as homesickness) is one form of affect associated with place, connected with self-identity and sense of place, via autobiographical memory; "longing for, a certain being-in-a-place". It can also be associated with cultural phenomena and spirituality. As placed beings, Malpas suggests that ethical questions are of critical importance as they determine the manner of our dwelling: "Our being placed does not merely *determine* our being, it *is* our being, and as such it is also that which is the foundation for our being *as ethical* – it is in being placed that we are given over to the question of our proper relation to ourselves, to others, and to the world" (2014a, p. 12). Malpas (2012b, p. 156/7) notes the "essentially contingent, multiple, and fragile character of human life" requiring us to "recognize the limitations of human agency in the world", and adopt an ethical stance.

Structural systems

This sub-section provides a brief introduction to Malpas' explication of Heideggerian topology, which is discussed in depth in Chapter 6, Section 6.2. In his 1999 book concerning phenomenology and place, Malpas used the term 'topography' to refer to sections of the

Earth's surface. However, in his 2006 discussion of Heidegger's ideas of being and place, he prefers to use 'topology'. He adopts a general use of 'topology' rather than its "specific technical sense that refers to a branch of mathematical geometry that studies the nature of surfaces" (2006, p. 33)[24]. Malpas (2006) goes on to suggest that "Heidegger, however, drawing on the Greek roots that lie embedded in the term – *topos* and *logos* – takes it in the sense of a 'saying of place' (*Ort-reden*)" (p. 33). Malpas provides further justification for now preferring 'topology' to 'topography' by suggesting that it better supports "the idea of a 'saying' of 'place' or 'abode' (a *logos* of *topos*)" in comparison to "the idea of writing or 'inscribing' of place that is undertaken by the traditional topographer" (2006, p. 34). There may, however, be virtues in exploring both meanings of topology.

In spatial information theory (e.g. with respect to GIS) a more mathematical meaning of topology is utilized, regarding the specific relationships between points, lines and areas representing landscape features of physical and abstract types (e.g. these lines representing property boundaries, meet at this point, which is within this polygon). Such topological data structures have been utilised in vector-based GIS since the late 1980s (Rana, 2004). This was a specific implementation of the general principles of mathematical topology, within the landscape domain.

Mathematicians sometimes refer to a topology representation as a 'rubber sheet' approach. Bending a rubber sheet distorts a graphic drawn on its surface but retains the topological relationships (e.g. a point in a polygon remains there and two object that were side by side continue to be side by side), while changing the spatial geometry (Johnson and Glenn, 1960). Topology is also increasingly applied to analysis of networks. The idea of topological networks has been adopted by social scientists, including analysis of representation of social networks in literature (Waumans, Nicodème and Bersini, 2015). The topology of family relationships remains (e.g. a daughter of a mother and father) although particular people may change their characteristics or locations. This meaning of topology is integrated with that from GIS in this dissertation to produce the concept of topology as a TSCS-MOD (Section 6.2 in Chapter 6). At a higher (methodological) level of abstraction, the concatenated

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24 "Topology is a mathematical sub-discipline that studies the properties of objects and spaces. Topology focuses on the inherent connectivity of objects while ignoring their detailed form. Because of this abstraction from the detailed form, it is possible to define the "objects" of topology as 'topological spaces'." http://braungardt.trialectics.com/mathematics/topology/ [accessed 20th June 2017]

phenomenographic tables, used in this dissertation, represent the topology of related concepts from many authors, across several disciplines.

If one takes a metaphorical, or even poetic, approach to the analysis of topology (in the context of Heidegger's writing) the possibilities for interpretation and exposition are almost endless. For instance, Ryan (2011, p. 56) suggests that: "Whatever we may have to say about Heidegger's topology, the topos of our own interpretation, faced with that same demand, always risks reverting to a meta-topo-logic of the essence of place, or else collapsing into philology—into biography, chronology, doxography—a twofold danger seemingly averted only by a well-intentioned faith in our own hermeneutical openness to the meaning of Heidegger's text". The danger of multiple, disciplinary-based, interpretations of topology, identified by Malpas, is why a transdisciplinary approach aids explication of the meaning of topology [see Chapter 6, Section 6.2.2].

5.2.5 Bruce Janz

Introduction

Another key contributor to phenomenology of place, is philosopher Bruce Janz. Somewhat counter to the positions stated by Malpas and Casey, Janz suggests that philosophy has been "notoriously the discipline least concerned about place, at least classically" (Janz, 2014, p. 20). Philosophy likes to deal in universals "and leave all those messy particulars to other disciplines". He contends that, for most historical versions of philosophy, the main topic has been the way that specific concepts attach to the 'universal individual': "Place was like that – everything had one, and therefore the philosophical task was to consider this shared feature of all particularities" (p. 20).   In Janz's view, this has produced a distorted understanding of place.

Janz (2005b) notes: "Places are in flux, sliding in and out of existence, and our discourse about place is also in flux, sliding between disciplines and uses" (p. 87). He suggests that there is much work still to do, across many disciplines, to further our understanding of place. He notes that: "Some writers have addressed the range of this work within their own areas (in sociology, Thomas Gieryn's (2000) article is noteworthy), and others have noted the resurgence of place and space as a useful analytic term (e.g., Herbert Gans, 2002)" (p. 88). Janz usefully divides recent work on place into the following categories (2005b, pp. 90-91):

   "1. Phenomenological and Hermeneutical: [e.g.] […] Edward Casey's work. Its roots are in

Heidegger's notion of "dwelling," in Bachelard's *The Poetics of Space* (a book that is really about place), and in Merleau-Ponty's work on embodiment. … Approaching place phenomenologically and hermeneutically means to recognize that the experience of place brings out something significant about both the world and the one experiencing it.

2. Symbolic and Structural: Symbolic approaches to place find the meaning of place in the "external" world of symbolic production. Working out the threads of symbolic place is complex, in part because the symbolic and the failure or exhaustion of the symbolic or symbolized […] Michel de Certeau and Pierre Bourdieu provide the most useful versions of symbolic place […] Bourdieu's shifting idea of "habitus" can also be seen as a version of symbolic place.

3. Social Constructivist and Marxian: A host of writers follow the lead of Henri Lefebvre's *The Production of Space* and Harvey's work in regarding the idea of place as the result of social forces. Social constructivism is split on the usefulness of place.

4. Psychological and Determinist: A popular understanding of place is as an element, component, or cause of identity formation […] The usefulness of this approach to place is that it is clear on the connection between subjectivity and environment, that in some way subjectivity is made possible by the environment in which it is located."

Each of these approaches is addressed within this dissertation. This includes different ways to understand and research experience of landscape as place, the concept of habitus, social constructionism/constructivism (and opposing positions) and identity formation (e.g. for indigenous peoples).

Janz (2005b) notes that "Place breaks down the distinction between the disciplinary tendencies to explain the world and the artistic need to express" (p. 92). He demonstrated a commendable willingness to engage with other disciplines by accepting the invitation to participate in the *International Transdisciplinary Workshop on Landscape in Language* in late 2008 (see Chapter 2, Section 2.6.3). He contributed a chapter (*Philosophical Issues in Ethnophysiography: Landform Terms, Disciplinarity, and the Question of Method*) to the resulting book (Mark, Turk, Burenhult and Stea, 2011). In that chapter, Janz discusses the goals of ethnophysiography, its methods and how they relate to other ways of exploring the nature of 'place', including phenomenology. He notes that investigations of landscape language must take account of cultural and spiritual aspects of peoples' relationships with landscape and the meaningful actions, social structures and individual interests and desires, which are all part of

this relationship. The chapter analyses the potential for phenomenology to provide a philosophical underpinning for ethnophysiography and the role of formal ontologies in applying the results of 'place language' research (as discussed in Turk, 2007; 2011). Bruce Janz's approach to investigation of concepts of place aligns significantly with that expressed in this dissertation.

In the "Introduction" to his edited collection of articles, Janz (2017b, p. 1) notes that exploration of place in philosophy has blossomed since Casey noted (1997, p. x) that it had "disappeared 'almost altogether'". As noted throughout this dissertation, this development has impacted on many disciplines, including geography, anthropology and cultural studies, with the terms 'space' and 'place' used in a vast range of ways. Many disciplines use "elements of phenomenological hermeneutics in their theorization of place"; however, this usage has often involved "both vagueness and ambiguity", yielding an "intellectually rich space, one that is moving and active and using a wide range of tools" (Janz, 2017b, p. 2). Janz, (2017c) notes especially the contributions of Casey and Malpas in claiming that "our fundamental mode of being is palatial […] We cannot extract ourselves from place […] Dwelling is as fundamental as temporality" (p. 25).

Janz (2017c) explores some of the uses of hermeneutics within phenomenology of place and considers the utility and limits of the metaphor of 'text' for discussion of 'place'. He suggests that other metaphor can also be useful; "specifically place as body, place as scene, place as image/visuality, and place as haunting" (p. 23). He notes Derrida's (1994) preoccupation with regarding almost everything as a text and how, since that time, this approach has receded, such that "discussing textuality seems almost quaint or outdated" (p. 23). Text is best treated as a metaphor and not all 'intelligibility' and meaning need be expressed in text or, indeed, utterances (as noted in Section 5.4 below). Janz recognizes that there may be some aspects of space research for which phenomenology is not necessarily the optimum approach, such as extra-terrestrial space (2017d, p. 292). Hence, it is useful to seek to integrate other methodologies with phenomenological ones, and to always take a critical approach to review of methods and results.

Physical aspects, embodiment and perception

Janz (2005a) discusses aspects of embodiment, using as an example an exhibition entitled *Bodies: The Exhibition at the Museum of Science and Industry (MOSI)* in Tampa (USA), from

August 2005 to February 2006, displaying "real [preserved] bodies in various poses, (to emphasize muscle and skeleton movement), cut and rendered in many ways to reveal every imaginable aspect of human physiology" (p. 103). Janz's reason for discussing this exhibition is to emphasise embodiment issues and narratives involving representations of the body, and how it moves through space and time. He discusses the exhibition in terms of 'the scientific gaze', regarding bodies as 'natural', rather than 'cultural' objects. This emphasises the different ways of viewing and understanding the human body.

Utilitarian Aspects and Actions

Janz (2004) notes that place it not arbitrary, its existence and nature depends on people's actions, and these frequently relate to the every-day utilitarian practices of their lifeworld. It is configured via the particular ways people dwell. However, such instances of use of place can be grouped, so that we might talk about categories like " 'tourist destination', 'home', 'suburb', 'atrium', 'memorial site' " (p. 11), partly as a function of their physical form, but often because of the nature of the main activities undertaken there. This is just one way to construct an ontology of place, which is a key aspect of ethnophysiography, where meanings of landscape terms often express such an ontology, for that language community. It reinforces the need to adopt a case study methodology, which ensures that the particular ontology for the language being studied is not pre-judged (perhaps based on earlier linguistic activity with this or nearby languages) or assumed to follow some universal model.

Spiritual and ethical aspects

Janz (2017d) provides a chapter entitled *Unprecedented Experience and Levinas's Heideggerian Idolatry of Place* in the book *Place and Phenomenology*, edited by Janet Donohoe (2017a). In this chapter Janz discusses how, for Levinas, "place was a kind of Heideggerian Idolatry" (p. 281, quoting Levinas (1961/1990, p. 231); that is a plea to rediscover a world, "to open up to the light of great landscapes, the fascination of nature, and the delight of camping in the wilderness" (p. 281). Interestingly, in the context of this dissertation, Janz notes that Levinas regarded this as a form of 'sense of place', rooted in the "eternal seductiveness of paganism"; that is, a fundamental and spiritual association with landscape. Levinas saw technology as the means to free us from this Heideggerian superstitious view of place, by providing a new broader view uncluttered by previous notions, to investigate unprecedented place, such as extra-terrestrial space. In particular, Janz discusses the notion of 'wonder', in the context of contemplation of space travel. He notes Malpas'

(2006) explication of place as 'event', embedding wonder in place, and also Francoise Dastur's (2000) notion of 'phenomenology of surprise'. Utilising such approaches for earthly concerns, one could consider the 'wonder' associated with indigenous concepts of timeless spiritual places, created in foundational events by ancestral beings, (as Yindjibarndi people say), 'when the world was soft' (Chapter 2), still influencing the nature of place, within *Jukurrpa* and its equivalents (Chapters 6 and 8). The investigations of African philosophy by Janz (1997; 2016) (discussed in Chapter 9) include recognition of spiritual aspects of place-based approaches to philosophy, and the role of traditional narratives in understanding indigenous knowledges.

Structural systems

Janz, in his long-term investigation of African philosophies (e.g. 1997; 2016), advocates a position that a phenomenological understanding of place must take into consideration local topo-socio-cultural-spiritual frameworks, whether or not you choose to call them philosophies (Chapter 9). This involves respectful investigation of pre-modern as well as post-modern approaches. As noted above, this is commensurate with the positions put by Casey and Malpas concerning the role of structural systems.

5.2.6 Janet Donohoe

Introduction

The applicability of phenomenology to study of place is reviewed by Janet Donohoe in the "Introduction" to her edited book *Place and Phenomenology* (2017b): "Because phenomenology is a philosophical approach that starts from everyday human experience, it is well suited for addressing many of the questions and issues that arise when analysing places(s) […] the meaning of place or particular places […] human relationships with place or places, be they sacred places or medical facilities, rivers or mountains, homes or ruins" (p. vii). She notes the breadth of phenomenological method, and that it "is not a monolithic theory, but is, instead, a manner of approaching experience [it] helps us to better understand ourselves and our places" (p. viii). Hence, in the context of this dissertation, the appropriate approach to phenomenology must be discovered to ensure that it provides an effective transdisciplinary paradigm.

In her contribution to Janz's edited volume *Space, Place and Hermeneutics*, Donohoe (2017d) expands on her concerns about effective ways to deal with the environment. People and the environment cannot be considered separately without distorting their inter-relationship, as part of dwelling in place. An integrated approach is facilitated by consideration of phenomenology

(Husserl) and hermeneutics (Gadamer). The Husserlian notions of 'homeworld', 'alienworld' and 'lifeworld' are central to a holistic consideration of place, which balances social and cultural issues with scientific environmental data. She notes that Gadamer's analysis of Husserl's phenomenology emphasizes the importance of the "*a priori* common world to the culturally relative homeworlds and alienworlds" (p. 431) and the notion of 'horizons' of the different 'worlds'. Gadamer (1977) concludes that each person's world is different in terms of the way the nominal *a priori* world is configured and interpreted. Donohoe asserts that this "hermeneutics of place makes possible the understanding of the homeworld of specific, subjective-relative, cultural places [which are] embedded deeply into our bodily ways of being in the world and are inseparable from our memories" (p. 432). Detailed analysis (and comparison) of particular modes of dwelling in a wide variety of specific places is required before any understanding of a nominal *a priori* world can be validated. This is the justification for development in this dissertation of the PTM-ECS and EDM.

Physical aspects, embodiment and perception

We physically interact with our environment; with nature. To investigate the relevance of lifeworld to landscape studies, it is useful to review Donohoe's (2014a) discussion of how phenomenology relates to nature. She begins by asking whether the essentially anthropocentric viewpoint embraced by phenomenology undermines the intrinsic value of 'nature' as a holistic term? She suggests that: "a genetic phenomenological account of nature allows us to understand that there is nothing natural about nature and that, in spite of nature's cultural embededness, there can be universal elements of our experiences of it" (p. 23). The approach used in this dissertation does not presuppose a generic universal view of nature, indeed the opposite view is adopted, with the objective being to compare conceptualisations of landscape across different language groups. The potential for any universal aspects of landscape is likely to be at higher levels of abstraction.

Utilitarian Aspects and Actions

The way we think about nature is largely driven by our activities in nature, as part of our lifeworld. Donohoe (2014a) asks: Is nature independent of people or is it at least partly a construct developed in peoples' minds, through their experience of its characteristics? She asserts that "many theorists want to establish nature as something independent of and 'beyond' the experience of nature […] Phenomenology, on the other hand, has always conceived of the natural world as not a thing in itself but as a thing of experience" (p. 23). This does not mean

that there is not a collective sense of nature (or landscape): "This thing of experience is not thereby reduced to subjective experience, pure and simple, because all experience is viewed as intersubjectively, historically, and culturally embedded" (p. 23). It is therefore essential to investigate as full a range as possible of utilitarian activities undertaken by members of a studied language community. Care needs to be taken to ensure effective questioning of both men and women and to engage with participants from a wide range of ages. For instance, some traditional food gathering activities, undertaken when the language was formed, may only be remembered by the oldest members of the community. This applied to the Manyjilyjarra landscape language case study discussed in Chapter 8.

Social systems, culture, knowledge and language

The complex ways memory and place are intertwined is discussed in Donohoe (2017c). This is easy to recognize with respect to our specific memories of particular places, such as our childhood home, however, "meanings of places of social memory are much more complex and difficult to tease out" (p. 265) [see also Donohoe (2014b) *Remembering Places*]. An individual's conceptualization is built from their social and cultural experiences. Nature is viewed by a person through the lens of their worldview. A researcher needs to understand the interaction between social structures, cultural and spiritual traditions and the terms used for particular types of places.

Structural systems

In Donohoe (2017c) she explores "the genetic phenomenological method [Husserl post-1917] as a way of peeling away layers of meaning to reveal fundamental, sedimented layers of our approach to the world" (p. 265). This involves examination of both personal and community associations with place, revealing the role played by topo-socio-cultural-spiritual frameworks in influencing an individual's response. Their response is also influenced by other "various causes, some natural, some deliberate, and some as a collateral result of other activities" (p. 266). Investigations of dwelling in place need to address all of these issues.

5.2.7 Conclusion to Section

This section has provided a detailed review of publications by Elizabeth Ströker, Edward Casey, Jeff Malpas, Bruce Janz and Janet Donohoe, in terms of the following five key aspects of phenomenology of place: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and

structural systems. Key aspects of each author's understanding of place are listed in Table A6.2 in Appendix 6. This phenomenographic summary is utilised in the development of the EDM and PTM-ECS, as discussed in Chapters 7 to 9.

Section 5.3 provides a less detailed review of aspects of phenomenology of place, as discussed by some other authors.   Again the key aspects are included in Table A6.2. Key aspects from Section 5.4 are also included.

Section 5.5 discusses the disputed topic of social constructionism. Different perspectives on this notion are discussed and the approach adopted in this dissertation is outlined.

The entries in phenomenographic Table A6.2 are grouped under the nine headings (A to I) listed in Section 5.6. Table A6.2 thus constitutes a detailed and reasonably comprehensive conceptual model of the principal concepts of place discussed in the literature on this topic.

5.3 Contributions by Other Researchers Regarding Phenomenology of Place
5.3.1 Introduction to section

This section provides less detailed discussion of contributions regarding a phenomenological approach to place by researchers from diverse disciplines. As for subsections in Section 5.2, some general aspects of contributions by some authors are included in this introductory subsection. For the remaining subsections, contributions from authors are grouped under the following headings: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and structural systems. A summary of these contributions is included in Table A6.2 in Appendix 6. Adopting a similar approach to that used in Section 5.2, the remainder of this subsections reviews overview contributions from some of the authors.

Environmental behaviour and architecture researcher David Seamon (1984) discusses the role of phenomenology in investigation of the environment and place. He emphasizes the importance of considering the lifeworld of those living in a place, some details of which may not be apparent to the people themselves. Themes investigators focus on include "sense of place, at-homeness, and environmental experience and behavior" (p. 130). These need to be considered, as much as possible, from the point of view of the 'insider' rather than that of the 'outsider' (researcher) via a 'reflective process' interrogating the 'experiential dynamics of

place' (Buttimer, 1980). This is assisted by adopting a phenomenological approach (Relph, 1976), seeking to identify aspects of an 'unself-conscious immersion in place'. Seamon (1984, p. 132) discusses how this involves aspects of "an authentic phenomenology of the person-world relationship", including bodily behaviours such as 'place ballets' (regular routine activity patterns) and 'time-space routines' (Seamon, 1979; 1980; Seamon and Nordin, 1980).

Seamon (1984) also discusses phenomenological investigation of landscape: "People are not separate from their worlds; rather, they are immersed through an invisible net of bodily, emotional, and environmental ties" (p. 133). He quotes Schutz (1962, p. 221): "all the other manifold social relationships are derived from the originary experiencing of the totality of the other's self in the community of time and space" (Seamon, 1984, p. 134). We build culture and social structures together, in place. We also build physical structures, which form part of an extended definition of landscape (adopted by Seamon). The discussion in Seamon (2017) concentrates on his principal area of interest; the phenomenology of buildings. He explains how a phenomenological approach can aid investigation of the role of buildings in lifeworlds, the 'atmospheric' sense of place provided by buildings, and how buildings can be considered as enfolding places exhibiting a 'wholeness'.

Phenomenologist Elizabeth Behnke (2014) uses the concept of path as an example of how a phenomenological approach can aid in understanding of dwelling in place. She discusses different multi-dimensional ways of experiencing a path: as a route to a goal; as a way back to where one started; and as a link between two or more places. Behnke (p. 60) also discusses paths in a metaphorical sense: "even though I initially set out to describe a path as a feature of the natural and built worlds, I find myself describing a multi-dimensional experience in which the possibility of following a path of phenomenological practice plays as great a role as the bricks, gravel, and earth of the visible paths beneath our feet". This path analogy applies to "phenomenological method (methodos, from hodos, way, journey)". She links this concept to the writing of Edmund Husserl, noting (p. 61) that he discusses phenomenology as a 'pathway', including that: "we do not know in advance what the investigation will deliver"; "We necessarily proceed step by step […] while at the same time remaining cognizant of the larger horizon (e.g., the concrete whole we ultimately want to explicate)"; and "the goal may not lie at the end of the path, but in the journey itself". Phenomenological investigation seeks to investigate and describe various facets of a domain, in a manner similar to an explorer taking many interlinked pathways across landscape.

Geographer Edward Relph (1976; 1981; 2014; 2017) has made considerable contributions to the discussion of a phenomenological approach to landscape as place. He asserts: "The spirit of a place resides in its landscape" (1976, p. 30). He adopts an 'open' perspective regarding the nature of place, rather than adopting Aristotle's (and others') enclosed notions of place as "a container with a fixed boundary […] which infect thinking about place" (2017, p. 3). He notes (p. 4) that Massey (1994, p. 121) challenged the restricted notion of place, suggesting that they are "open and porous moments in networks of social relations". Relph (2017) contends the 'openness' extends beyond "social relations or economic processes" to "memory, imagination, watching television shows, skyping with children or grandchildren in distant cities, visits to the doctor, reading the news, and so on" (p. 4). Our relationships with places combine what is special and local ('hereness') with openness. Memory allows us to "carry places with us", sometimes in powerful ways (p. 7). These "experiences of pleasure, belief, grief, dwelling and suffering are shared across cultures and geographical diversity" (Relph, 2017, p. 10). There is increasing evidence for this among mobile, multicultural communities, however, this can lead to rootlessness and marginalization of some peoples, especially remnant indigenous populations in colonized countries (Harvey, 1996; Johansen, 2014).

The Eurocentric nature of Patočka's approach to phenomenology is discussed by philosopher Martin Ritter (2017): "The key flaw in Patočka's approach, one which also underpins his Eurocentrism, is identified as his drawing a firm line between a free, truly historical way of life, and unfree, earthbound living" (p. 388). Ritter asserts that it is possible to overcome this dichotomy by considering the influences of different forms of historicity, culture and politics on all peoples (via Arendt's 'concept of action'). This re-interpretation of Patočka's phenomenology can provide a framework for a non-Eurocentric analysis of human being in the world.

Other contributions by these and other authors discussing place are summarized in subsections 5.3.2 to 5.3.6. These summaries are structured under the same five key aspects of phenomenology of place used in Section 5.2. As with the discussion in Section 5.2, key points arising from the review of these publications are included in the detailed summary in Table A6.2 in Appendix 6.

5.3.2 Perception, embodiment and physical engagement

Perception is fundamental to physical, embodied relationships with place. Perception is not an entirely, stimulus driven process. Evidence for this is provided by an extensive study involving many researchers and languages (Majid, et al. 2018). It addressed the question: Is there a universal hierarchy of the senses, such that some senses (e.g., vision) are more accessible to consciousness and linguistic description than others (e.g., smell)? This was considered in the context of the assumption (in Western thought) that vision predominates. In this linguistic study "stimuli from the five basic senses were used to elicit descriptions in 20 diverse languages, including 3 unrelated sign languages" (p. 1). They found that "languages differ fundamentally in which sensory domains they linguistically code systematically, and how they do so. The tendency for better coding in some domains can be explained in part by cultural preoccupations" (p. 1). This provides support for the detailed methodology for landscape language case studies (including cultural considerations) recommended in this dissertation.

Social anthropologist Tim Ingold (2011) discusses how human beings perceive their surroundings. He argues that, rather than concentrating on variations based on culture, it is better to focus on perception occurring in the context of skills. Lifeworld practical skills are developed and maintained through interaction with the environment, so that perception of a person's surroundings becomes intimately linked to the exercising of sets of skills. Although he does not refer to himself as a phenomenologist, Ingold has made many contributions to discussion of dwelling in place, which are very relevant to this dissertation. His 1993 article notes that a 'dwelling perspective' and temporality are the major unifying themes of archaeology and social-cultural anthropology of landscape [see also Hirsh and O'Hanlon, 1995 ; Levering and Van Manen, 2002; Tilley, 1994; 2016; and Tonner, 2015]. Ingold's approach includes that people are involved in "active, perceptual engagement in the world [and the] notion of 'taskscape' is introduced to denote a pattern of dwelling activities, and the intrinsic temporality of the taskscape is shown to lie in its rhythmic interrelations or patterns of resonance" (p. 152). He contends that such consideration leads to dissolving of the distinction between taskscape and landscape, and the conclusion that both are embodied and 'mentally temporal'.

Ingold (2015) bids us think about the way things (physical and social) can occur as 'assemblages', where each part has a relationship with the others and the whole. This occurs in landscapes, where the relationship may be geomorphological (regarding the formation of landscape features) and/or cultural, such as a group of numerous types of landscape features

being involved in a sacred place, highlighting the intertwining of physical and spiritual place. He also notes (p. 12) that people form dwelling groups, which are "submerged in their environments and sentiments" (Mauss, 1954/1970, p. 78). Such groups of physical and cultural/spiritual entities are "held together and kept in place within what would otherwise be a formless and inchoate flux" by life processes; "knotting in the fundamental process of coherence", which is part of dwelling (p. 14).

The notion of coherence of dwelling (Ingold, 2015, p. 14) can be linked to Gibson's theory of affordance, regarding what is perceived and what a feature potentially allows an animal to do, or not do (p. 38). Thus, elements of landscape (conceptually 'knotted' together) can be thought of as possessing coherence with respect to lifeworld activities: "There are objects, which may be attached or detached, enclosures such as caves and burrows, convexities such as hills, concavities such as hollows, and apertures such as cracks and openings" (p. 39). This is the field of our embodied phenomenological dwelling: "The walker treads the ground itself, experiencing its rising and falling in the alternation of close and distant horizons, and in the greater and lesser degrees of muscular exertion entailed in first toiling against, and then surrendering to, the force of gravity" (p. 42). The importance of consideration of the process of walking, is also discussed by Casey (1997, pp. 224-226). He notes that Husserl suggested lived place is revealed as a 'steady stream of places'. Perhaps the most basic and natural way this is achieved is by walking.

Adam Lovasz (2019) suggests that any particular instance of walking is an activity that occurs within a certain landscape, and hence is moderated by it. In addition, walking influences the person's impression of that piece of topographic environment. For example, imagine all the sensory feedback involved in walking up a sandhill (sandridge) in Australia's great sandy desert, being impeded by the slope and loose sand and punctured by spinifex spines. Walking activity is often part of a pragmatic, utilitarian task, within the taskscape (Ingold, 1993), such as hunting a kangaroo, with a spear in the past, and today with a rifle. Hence, "walking may be approached in an object-oriented manner" (Lovasz, 2019, p. 49). Walking is part of a lifeworld, enmeshed within a physical, social, cultural and spiritual 'behavioural field' (Rockwell, 2005). In Chapter 4, Section 4.2.5, Figure 4.1 (or Chapter 6, Section 6.2.2, Figure 6.2), Martu people are standing in a group beside the salt lake, which contains the *Yimiri* sacred site, a permanent source of fresh water. The normal protocol of these Martu people is to walk up to Yimiri, in single file, as a sacred procession, showing respect. However, it has rained, so their normal

pattern of walking is interrupted, an example of just one of the ways usual patterns of walking may change in any instance. Examination of patterns and frequency of walking can be a rich vein of understanding for ethnographic studies about place, especially with indigenous peoples in remote areas, or with most citizens in a complex, crowded city. When it suddenly rains in the city at 8.45 on a Monday morning, walker's regular patterns of movement are disrupted as they seek shelter. This will happen much less in a covered laneway than an open street. Landscape matters, even in the city. See also discussion of de Certeau's 1980/84 chapter, *Walking in the City,* (pp. 91-110), about New York City, discussed in Chapter 4, Section 4.3.2.

Ingold (2015) notes that Gaston Bachelard (1964, p. 10/11) calls patterns of walking in place 'muscular consciousness'. A person's various histories of movement through landscape can be considered as potentially 'infinitely variegated', producing a composite kind of knowledge as she or he grows older and wiser, with increasing levels of knowledge of landscape "equivalent to (her/his) maturation" (p. 47). Of course, people live and often travel in groups, such that their topographic knowledge interacts with the trails of other beings and "enters the realm of the social" (p. 49).

Terms for movements up and down slope were recorded by Penelopy Brown (2008) in the language of the Tzeltal people of southwestern Mexico (Chapter 2). They carry out subsistence agriculture in a steep, precipitous mountainous region, involving lots of travel by foot up and down rivers and ridges. The universality of the fundamental notion of upward and downward movement is discussed in the context of Manyjilyjarra landscape language (Chapter 8).

Merleau-Ponty's view of perception is also discussed by Ingold (2015). In particular, that it entails both action and passion: "To be sentient, in his view, is to open up to a world, to yield to its embrace, and to resonate in one's inner being to its illuminations and reverberations […] Thus in a sentient world there are no objects and subjects of perception, rather, perception inheres in the creative movement of emergence, where 'things become things', as Merleau-Ponty put it, and the 'world becomes world' (p. 84)". For Ingold, this links to Gibsonian 'affordance', which is in effect 'created', not just 'apprehended' during a person's interaction with the landscape as 'taskscape' (Ingold, 1993). He contends that this is in line with Gibson's active theory of 'perceptual attunement': "It is not a matter of picking up, and turning to one's advantage, the affordances of a world that is already laid out" (p. 136). Ingold (pp. 138-9) takes exception to the usual (phenomenological) explanation that this is because "as intentional

beings – that is as agents – humans deliberate before they act". He proposes an alternative formulation, "that the assumed relation of temporal priority between mastery and submission that underpins the cognitive or intentionalist account of doing, should be reversed […] Thus the leading edge of action, where it pushes out into the unknown, is a moment not of doing but of undergoing, not of mastery but of submission – a moment of exposure to a world that may or may not afford possibilities for carrying on". He suggests that attentive action in landscape involves perceiving and engaging with the environment, attending to its relevant aspects and being led by those, rather than some "inspiration that comes entirely from inside the actor" (p. 139). He ultimately concludes (p. 152) that we operate in our taskscape via a combination of attentionality and intentionality, citing Eduardo Viveiros de Castro (2012, p. 99) as suggesting that "intentionality, subjectivity and agency are packaged into an indissoluble triad of mutual implication". Thus the role of the person's entire, integrated lifeworld must be considered.

The significance of Gibsonian affordance in phenomenology of place, is also discussed by McConnell and Fiore (2017). They assert that Gibson's direct perception perspective can be conceptualised as a theory of place, linking an organism to the environment with which it interacts, and illuminating what it means to be 'present' (Gibson, 1950). McConnell and Fiore (p. 267) cite Gibson's (1979, p. 127) description of the 'perception-action cycle': "we perceive in order to move, but also move in order to perceive". This processes is driven by 'affordances' and central to an embodied notion of being. McConnell and Fiore (2017, p. 269) note that Gibson (1979) also discussed the possibility of 'social affordance', in terms of possibilities for interaction with others, as part of purposeful being together in place. This relates to notions of procedures, protocols, mimesis (Gibbs, 2010) and performance discussed elsewhere in this chapter, and in Chapter 6.

The embodied conception of being in a particular surrounding or environing place, is discussed by phenomenologist Adam Konopka (2017), adopting the term 'environed embodiment'. He suggests that the phenomenological view of people's everyday activities in place, includes that embodiment entails "an essential contribution to the process of perceiving and enacting motion" in proprioceptive, kinesthetic and tactile ways (p. 147). This begins with proprioception, which concerns the relative position of a person's body parts and objects in the immediate environment, relative to the task in hand. This motivates and guides movement, such as walking across a room or reaching out a hand. Feedback is provided through various combinations of "muscle and tendon extension, contraction and release […] integrated with the

vestibular system in the awareness of bodily posture in relation to the weight of gravitational pull […] Pre-reflective bodily self-awareness is provided through kinesthetic sensations involved in bodily movement" (p. 148).   He notes that, at a finer level of granularity, tactile[25] sensations guide fine motor actions. Pre-reflective sensations within the body, such as hunger and thirst may also play a role in food gathering activities. Each of these aspects of embodiment contribute to a more or less automatic, tacit or latent, bodily self-awareness that is responsible for possibilities of mobility and volition contributing to activity and affectivity within our 'taskscape' (Ingold, 1993). Such notions emphasise the richness of physical interactions with landscape, indicating the need for methodological approaches which surface and analyse details of lifeworld.

Carvalh de Moura, I. C., Grun, M. and Avanzi, M. R. (2009) discuss the use of phenomenology to assist in understanding of landscape in an educational setting. Artistic representations and games were used to help establish a sense of belonging to an 'environment-world'. They base this work on the ecological anthropology of Tim Ingold and the phenomenology of Merleau-Ponty.

5.3.3 Utilitarian aspects and actions

Levinas (1998/2006) in his discussion of contemporary ontology, emphasises the need for a deep level of analysis in order to understand engagement with landscape in physical and utilitarian ways, and in terms of social, cultural and spiritual aspects of dwelling. Tuan (1977, p. 9) quotes Paul Ricoeur (1967. P. 127): "Feeling is […] without doubt intentional: it is a feeling of 'something' – the lovable, the hateful, (for instance). But it is a very strange intentionality which on the one hand designates qualities felt on things, on persons, on the world, and on the other hand manifests and reveals the way in which the self is inwardly affected". These twin facets of intentionality (inner and outer) with respect to landscape could be considered as integrated via the concepts of 'Being there' or, over time, 'dwelling' in a place.

There is often a certain level of indeterminacy in the nature of place, depending on which of its characteristics, and potentials for activities, are in focus. Environmental philosopher Irene

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[25] These are (mostly) more accurately termed 'tactual', since they involve sensations produced by active, rather than passive, touch (Massey, Poliness and Turk, 1983; Turk, 1982; 1983; Turk and Ainley, 1986).

Klaver (2017) investigates this aspect of place in relationship to its particular landscape features and the activities they make possible: " a capacious sense of place entails affordance, capacity, and potentiality" (p. 209). It is also important not to consider places in isolation, since they are "always related to other places: nested, embedded, in a context" (p. 209). Such relationships often involve transportation of different kinds, as people move between places for utilitarian, social, cultural or spiritual purposes, thus the means of transport can be associated with a place. For instance, a stream or river may be an important place of movement, such as in the dense tropical rainforests of Borneo or the Amazon. They can also be impediments to movement, at an angle to the river, and thus be associated, in this context, to a ford or bridge. If you are concentrating on getting across a river you may think of it in terms of the bridge which crosses it, rather than its meandering course, the precious water it contains, or the fact that it is a regional or national boundary. Such associations can be indeterminate, or elusive, appearing and disappearing as a person's location, activity or purpose of discourse, changes. Klaver notes that: "Places can never be completely or exhaustively determined: they have porous boundaries, open, exposed, they are ever changing – always in flux or flow" (p. 209). Indeed, she asserts that indeterminacy is a critical aspect of places, as they are "permanently in a process of becoming, […] emerging, created in a dynamic with other places, forces, events, and processes" (p. 211). This leads to notions of place involving nostalgia, as well as belonging and identity; and hence, to descriptions which employ imagination and metaphor.

Philosopher Jonathan Maskit (2017) also discusses movement between places, modes of transport, transit experiences (such as: driving, bicycling, walking, and riding a train), and transit-oriented planning processes, in the context of phenomenology. To investigate such social processes, he uses methods developed from the work of Alfred Schutz (e.g. 1962; 1932/1967; 1982), who developed ways to investigate social aspects of lifeworlds. He focuses on Schutz's views regarding the flexibility of temporality, the lifeworld's shared, intersubjective character, and "his distinction between encountering an individual as a particular person and encountering her as a type, that is, someone playing a role" (p. 229). A person's role is with respect to their utilitarian, social, cultural and/or spiritual activities, within the group context.

5.3.4 Social systems, culture, knowledge and language

Anthropologist Keith Basso has contributed greatly to the understanding of landscape as place, especially in the context of North American 'First Nations' peoples. His work emphasizes the

critical importance of consideration of cultural and linguistic aspects of concepts of place. Basso (1996a, p. 84) discuss the importance of studying mental templates of structured, gathered places: "Locked within the mental horizons of those who give it life, sense of place issues in a stream of symbolically drawn particulars – the visible particulars of local topographies, the personal particulars of biographical associations, and the notional particulars of socially given systems of thought". Hence, ethnophysiographic studies of assemblages of landscape elements can contribute to our understanding of social and linguistic aspects of place. This relates to generic landscape terms and also place names, which sometimes refer to groups of features (Hercus, Hodges and Simpson, 2002; Sutton, 1995).

The ways that dwelling in place influences identity are discussed by environmental design researcher Robert Mugerauer (2017a) in the context of the theories of three of the New Phenomenologists (discussed in Section 4.3.2 in Chapter 4). He notes discussion of 'place' and 'identity' across multiple disciplines: philosophy; critical theory; cultural studies; and architecture. In this chapter he concentrates on the 'structural coupling' between 'place' and 'identity', via analysis of different approaches to understanding people's dynamic interactions with their environments, with people playing an active embodied role in this continuously modified 'codetermination' of the relationship, within their socio-linguistic lifeworld.

Mugerauer (2017a) also discusses the notion of the 'givenness' of phenomenology espoused by Jean-Luc Marion (1998); that is, how through the 'primacy' of 'givenness' the person and their world "come forward originally in an eventful flash" (Mugerauer, 2017a, p. 24). The experience of place may be so 'saturated' that its meaning may not be immediately (or ever) apparent. Mugerauer reviews the work of Hanah Arendt (1958) regarding the socio-political aspects of identity, which is discussed below.

Mugerauer (2017a, pp. 33-4) concludes that the 'structural coupling' of place and identity, has multiple layers of meanings. Who we are occurs via our emplacement in natural and social environments; our 'embodied consciousness' provokes our lifeworld through the given-ness of our particular 'sensory identity'. It is also determined by what we make of our environment, in the context of sites where our identity can be performed together with other members of our society; being conditioned by our joint, intertwined 'ethos', the communal shared way of life.

The work of Hannah Arendt regarding the phenomenological hermeneutics of place, is discussed by sociologist Kieran Bonner (2017). He notes her notion of the simultaneous presence of multiple perspectives regarding public places, and their potential for interaction. This leads to a richer understanding of particular places, and, at a higher level of abstraction, of place-making itself. This approach needs to be defended against the imposition of standardised notions of place and mechanistic or restrictive approaches to understanding place. Bonner quotes (pp. 211-2) Arendt regarding her multi-perspective approach: "The reality of the public realm relies on the simultaneous presence of innumerable perspectives and aspects in which the common world presents itself and for which no common denominator can be devised […] The end of the common world has come when it is only seen under one aspect and is permitted to present itself in only one perspective (1958, p. 57-8)". Thus a multi-faceted methodology is needed for investigation of landscape as place, which can lead to identifications (and comparisons) of particular modes of dwelling.

Bonner (2017, p. 213) cites Young-Bruehl (1982, p. 405) as suggesting that Arendt thought of herself as a "sort of phenomenologist", but not like Hegel[26] or Husserl. He also notes that she is rarely associated directly with hermeneutics, although she was taught by Martin Heidegger, who was responsible for initiating phenomenological hermeneutics. However, her approach does support a hermeneutic method, as it requires a nuanced interpretation of people's variations in relationships with place, with an emphasis on analysis of ethical and political dimensions (e.g. Arendt, 2003). Her approach (Arendt, 1978) divided human activity into "labour, work, and action", and the life of the mind into "thinking, willing, and judging" (pp. 213-4), providing a basis for analysis of dwelling in place, which accords with many phenomenological approaches mentioned in this dissertation.

Place and culture are not linked only with respect to locations where peoples have dwelt for long periods. Anthropologist Arturo Escobar (2001) reflects on culture, globalism and subaltern strategies of localization; contributing to the growing dialogue between anthropology and geography. He discusses how place is involved in social movements and political strategies employed by people in place-based struggles. He uses a case study about

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[26] See, for instance, G. W. F. Hegel(1807) *Phenomenology of Spirit* – translated by A. V. Miller. 1977 Oxford University Press. [http://www.faculty.umb.edu/gary_zabel/Courses/Marxist_Philosophy/Hegel_and_Feuerbach_files/Hegel-Phenomenology-of-Spirit.pdf] – Accessed 25 Oct. 2017

marginalised communities of the Pacific rainforest region of Colombia. This raises questions about nationalism and boundaries, and how cultures overlap in space, with places holding multiple cultures; either as a 'mixture' or as 'pockets of culture' in localized areas within an enfolding wider socio-cultural environment. Escobar emphasizes that place-relationships are about identity, and notes that "the dynamic of place, networks, and power at play today" means that "identities engage in more complex types of mixing and dialectics than in the most recent past" (p. 169). This requires a more flexible approach to issues of connectivity, interactivity, positionality, networks, and technologies in relation to attachment to place.

Escobar's (2001) notions of contested places, resonate with the political and societal issues raised by Hannah Arendt (discussed above) and Doreen Massey. Massey (2004) speaks about 'geographies of responsibility' and the ethical aspects accompanying clashes of cultures. When we think about disputed identities, it demands a wider set of reconceptualisations of the notions of place developed in times when people were less mobile and their living conditions less hazardous. She contends that a significant reconfiguring of the nature of identity demands thinking about space and place 'relationally': "Identities are forged in and through relations (which include non-relations, absences and hiatuses). In consequence they are not rooted or static, but mutable ongoing productions" (p. 5). Interactions are taking place much more rapidly at all levels, from the local to the global, causing complex changes in identities relating to communities, regions and nations (Massey, 1994). These changes occur within the context of international economic, political and social movements, such as globalization of trade, neo-liberalism and feminism. Using a phenomenological approach can facilitate discussion of a range of ethical issues about place, including concerns about the environment (Preston, 2005).

5.3.5 Spiritual and ethical aspects

Geographer Anne Buttimer (2017) discusses the sacred aspects of shared dwelling in place. This has been an important part of phenomenology, since Heidegger stated that a person's manner of dwelling "respected and reappropriated the 'fourfold' (earth and sky, mortals and divinities)" (p. 59). Harries (2007, pp. 89, 90) explains the concept of the 'fourfold':

1. *Earth* names first of all the ground that supports us. […] (but also) 'material transcendence', the thingliness of things that will always elude our conceptual nets.

2. Heidegger's *Himmel* […] means first of all the ever-changing sky above. But we should not forget that looking up to the sky we experience ourselves as not bound

by the here and now […] the possibility of self-transcendence […] the spiritual, ecstatic dimension of our being, the space presupposed by every logical or linguistic space.

3. […] our being is, in its very essence, that of mortals.
4. […] human beings must measure themselves by something divine […]

Heidegger's concepts of gods is influenced by European Christian theology. Hence aspects of the 'fourfold' needs adaption if this concept is to be applied to traditional indigenous worldviews. There is not space here to explore these possibilities.

Buttimer focuses on the sacredness of water, which is fundamental for people living in relatively dry environments, such as many Australian Aboriginal language groups discussed in this dissertation. In many cultures across the world, sacred water places are linked with foundation stories and myths, which is one way that religious beliefs are linked to landscape. Relationships with water places, and terms for them, may also reflect utilitarian practices, both traditional and current.

Understanding of sacred aspects of place is discussed by phenomenologist John Cameron (2017a). He concentrates on culturally significant mountain ranges, such as the Himalayas. Cultures of different types have a special regard for the highest mountains on Earth, because of the extreme experience of climbing them and/or their religious significance. Lindsay Jones (2017) discusses in depth the notion that the sacred significance of a particular place can be complex, and apply across multiple cultural groups. She highlights the potential ambiguity of 'sacred space', using as an example the extensive pre-Columbian 'Earthworks' at Newark, Ohio, USA. These huge mounds of earth are venerated by different groups, including Native Americans and the non-Native *Friends of the Mounds*. Jones adopts a phenomenological approach to explaining how to investigate these contested sites, based on the hermeneutic perspective of Hans-Georg Gadamer and a re-construction of their history.

In her collection *Cultural Landscapes: Religion and Public Life* (2007a), editor Gabriel Ricci and the other authors discuss spiritual and ethical aspects of peoples' relationships with place. This includes consideration of 'western' vs 'eastern' approaches to philosophy, as well as the significance of spirituality for indigenous peoples. The contributors contend that spiritual aspects of culture, through human history and across the world, are rooted in the natural world.

Using Heidegger's phenomenological approach to interrogating relationships with landscape can help reveal their spiritual and ethical elements (Ricci, 2007b).

5.3.6 Structural systems

Considering Malpas' interpretation of Heidegger's notion of 'topology', a different version of overarching structure (mode) of dwelling may be required, for each of the interpretations of a complex, multi-cultural place. This is aligned with Arendt's (1978) multi-perspective approach. Each group of people, with their particular socio-cultural perspective will evoke a different topology for the same place. Especially in colonised countries, it is likely that alternative (indigenous and non-indigenous) versions of topology (modes of dwelling) will co-exist. Diversity of language is strongly implicated in this proposition, which emphasises the ethical and political importance of preserving endangered indigenous languages, such as Manyjilyjarra, in Australia's Western Desert (Chapter 8). Adopting Arendt's perspective on power imbalances assists, for instance, in recognising how a mining worldview can dominate public discourse about a desert landscape, which is an indigenous homeland. See also Basso (1996a), discussed above, regarding 'socially given systems of thought'.

When considering the role of topo-socio-cultural-spiritual frameworks in influencing interactions with place, it is important not to ignore the issue of gender. For instance, there are clearly defined, and strictly observed, gendered categories of information within Yarnangu peoples' *Jukurrpa*; 'men's business' and 'women's business'. The topic of 'gendered place' is addressed by philosopher Trish Glazebrook (2017), who notes traditional sayings, like: "a man's world" for public spaces, and "a woman's place is in the home" (p. 163). She seeks to provide a "phenomenological disruption of such placing of gender and gendering of places" (p. 163). Glazebrook refers to aspects from the phenomenological traditions of Husserl and Heidegger, including analysis of lifeworld. These are relevant to gendered-roles in the context of nature, such as hunting vs gathering. This can, in a sense, undermine universal versions of knowledge and transcendental notions of subjectivity, unless gender differences are ignored, or subordinated, as women have been, and continue to be, in virtually all cultures. This applies most obviously in utilitarian and social aspects of life, but also occurs in relation to aesthetics, culture and spirituality. For instance, "The Chipko women of India think of the forest as their home and mother" (Glazebrook, 2017, p. 177). Thus, a phenomenological analysis needs to

consider input from both genders[27] and perhaps produce different 'gendered' versions of relationships with place, including landscape [see also Sections 3.4, 9.5.4 and 9.8.1].

5.3.7 Conclusion to section

This section has augmented the discussion of the five key aspects of phenomenology of place provided in Section 5.2. It has canvassed the views of a broader range of authors, including some more recent contributions to this field of research. Key aspects of these contributions are included in phenomenographic Table A6.2 in Appendix 6, in the manner discussed in Section 5.6.

5.4 Some Cultural and Linguistic Aspects of Phenomenology of Place

The discussion in Sections 5.2 and 5.3 have emphasized the importance of cultural and linguistic aspects of place. A discussion of some of these aspects is included in this chapter to augment the above discussion of a phenomenological view of place.

Language is a key aspect of our dwelling with others in place; the essential medium of social discourse. Malpas (2012b, p. 205) discusses approaches to defining meaning in natural language. It is important to interpret utterances in the context of the speaker's attitudes and actions, adopting a holistic approach to lifeworld (p. 207); and the causal relationships between speakers and their surroundings (p. 209). This fits with the theories of both Heidegger and Gadamer, which entail embodied practices of 'habitual behaviours' (p. 210). The linguistic and non-linguistic should not be separated: "Not only does the linguistic suffuse the behavioral, just as the behavioural also suffuses the linguistic" (p. 211). Our 'practical embededness' in the world is matched by our 'linguistic embededness', in the context of structure and history of the language community. To understand these relationships requires what has been termed a process of 'triangulation': "The idea of triangulation takes social interaction as an essential element in the possibility of intentional content" (p. 212). The nature of these processes is essentially dynamic, not static, while embedded in social and linguistic traditions.

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[27] Increasingly it is important to not just think in terms of binary gender divisions, but to understand how lesbian, gay, bisexual, transgender, intersex, and questioning (LGBTIQ) individuals define and see themselves in the world.

There is not space in this dissertation to review all of the linguistic issues relevant to landscape language. In any case, that is best left to linguists active in this field. As discussed in Chapter 2, this includes researchers at the Max Planck Institute for Psycholinguistics in Nijmegen, The Netherlands (including Stephen Levinson, Penelope Brown, Nick Enfield and Gunter Senft) and their collaborators, such as Niclas Burenhult, (Lund University), Clair Hill (Sydney University), Nicholas Thieberger (The University of Melbourne), Carolyn O'Meara (Universidad Nacional Autónoma de México), Jürgen Bohnemeyer (State University of New York), Loretta O'Connor (Radboud University), Peter Kroefges (Universidad Autonoma San Luis Potosi, Mexico), and Thomas Widlok (Radboud University). There is no attempt here to give a comprehensive review of mainstream linguistic theory. Instead, this brief discussion covers some specific issues especially relevant to ethnophysiography and phenomenology.

This discussion is in the context of what is known as 'the linguistic turn' and what Ruthrof (1997, p. 289) describes as 'the corporeal turn'. The former turn was initiated by mathematician and logician, Gottlob Frege, and the founder of modern linguistics, Ferdinand de Saussure. It is described by Ruthrof (2000) as referring to "the realization that language itself needs to be carefully understood before we can deal with the phenomena it describes" (p. 6). This requires that language be defined broadly, including its role in conceptualisations of landscape, if it is to combine effectively with philosophy to study problems of meaning. Ruthrof (1993 and 2000) criticizes Frege's formal approach to language, and, while applauding the development by Saussure of 'structural linguistics', he points to problems arising from subsequent developments in this approach, which insist "that both syntax and meaning in language are the result of the differential relations within the network of terms in a given language, independent of nonlinguistic referential relations" (2000, p. 7). This problem of representation is a central issue of ethnophysiography, as elsewhere, which Ruthrof notes requires reversing the tendencies of: "(a) treating natural language sense as if it were formal sense and (b) eliminating nonverbal ingredients (sensory readings of the world) from linguistic expressions" (p. 8). This requires a more phenomenological approach, especially emphasising embodiment and non-verbal aspects of language.

The key points raised in this section regarding linguistic considerations are summarised in a phenomenographic table (Table A6.2 in Appendix 6), including references to additional publications, as noted in the right-hand-most column of the table. This provides a

consideration of cultural and linguistic aspects of dwelling, in the context of relevant aspects of sociology, anthropology, linguistics and phenomenology.

5.5 Social Constructionism

5.5.1 Definitions of social constructionism

Social constructionism is linked to sociology and psychology, as a way to understand how individuals and groups develop their inter-subjective relationships with physical, social and cultural environments (Holstein and Miller, 1993). It has been criticised and interpreted in the context of phenomenology by various philosophers. Barbetta and Nichterlein (2012, p. 1) cite Danziger (1997, p. 400), suggesting that " Danziger argued that, as a concept, social construction (SC) has 'fraying boundaries' and can only stand scrutiny in terms of its consistency if 'one focuses on the contrast between traditional psychological approaches and that of social construction […] but once one adopts a wider, cross-disciplinary, perspective, the "ism" in social constructionism becomes virtually impossible to pin down'".

The term 'social constructionism' is very broadly used in different disciplines. Its essential basis is the claim that 'reality is socially constructed' (Berger and Luckmann, 1966, p.1). This is based on philosophical writings of Mannheim and Schutz and from the ideas of sociologists George Mead and Parsons. Meanings of, or language regarding, observed phenomena (objects or events) are created via group processes, rather than by each individual in isolation. A strong version of this theory has five key premises: 1. Our experience of the world is ordered, rather than a chaotic jumble of sensory fragments; 2. We make sense of the world via the categories used in our language; 3. We share with others in our community a relatively common inter-subjective understanding of reality; 4. Through continuing use, common understandings of phenomena, and words to express them, become habituated within the community; 5. Such knowledge becomes institutionalised within a society, or sub-groups, with the potential for disagreements between sub-groups (DeLamater and Shibley Hyde, 1998, p. 14). Weaker versions of social constructivism acknowledge the role of other, non-social, factors in generating meanings, that can be more acceptable to individualistic and universalist approaches to phenomenology.

Social constructionism should not be confused with traditional social constructivism, which is the idea (from Jean Piaget) that an individual's interactions with her environment create the cognitive structures that enable her to understand the world. While the two terms spring from

different scholarly traditions, they are increasingly used interchangeably (Churchill, 2011; Janz, 2005b, pp. 90-91; Kögler, 2017b; Stauffacher, Walter, Lang, Wiek and Scholz, 2006)[28].

5.5.2 Some criticisms of social constructionism

Malpas (2006, p. 319) considers that Harvey (1996, pp. 324) adopts an inappropriate social constructionist position by claiming: "Places, like space and time, are social constructs and have to be read and understood as such". Harvey (1994, p. 127) suggests that "the particular way in which space and time get determined is very closely bound up with the power structures and social relations […] existing in a given society". However, he also states that "we are not dealing with something purely subjective or ideal, that is outside of the material world in which we have our existence" (p. 127). Hence, it is unreasonable to overstate the rigidity of Harvey's social constructionism.

Malpas recognises the role of social processes, together with the primacy of topography, in the development of place: "The idea of place encompasses both the idea of the social activities and institutions that are expressed in and through the structure of a particular place (and which can be seen as partially determinative of that place) and the idea of the physical objects and events in the world (along with the associated causal processes) that constrain, and are sometimes constrained by, those social activities and institutions [...] It is within the structure of place that the very possibility of the social arises" (Malpas, 1999, p. 35-36, cited in Withers, 2009, p. 642). Withers (p. 642) also quotes Cresswell (2004): "Malpas and Sack are arguing that humans cannot construct anything without being first in place, that *place is primary to the construction of meaning and society*. Place is primary because it is the experiential fact of our existence" (p. 32) and "Place is the raw material for the creative production of identity rather than an *a priori* label of identity" (p. 39). Each of these quotations is somewhat disabled by the ambiguity of what is considered as place; the topographic terrain and ecosystem environment alone, or the peopled landscape? The quote from Malpas (1999) indicates that he agrees with the basic proposition of this dissertation, that place is peopled landscape and that part of the meaning of any place is constructed via social processes, which are attuned to the physical realities of that time and place. This supports at least a weak version of social constructionism as part of the understanding of topology.

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[28] https://www.thoughtco.com/social-constructionism-4586374 [accessed 13 August, 2019]

The nature of Malpas' concept of 'topology' is explored by Puente-Lozano (2017), in the context of hermeneutics. Topology refers to our 'situatedness' in place and this hermeneutics provides a phenomenological method to interrogate the nature of dwelling in landscape. It fundamentally concerns Heidegger's discussion of the connectedness between aspects and elements of our domain (including other people), through both time and space (Malpas, 2006; 2012b; 2016). This is a hermeneutic process, associated with the significance given by Gadamer to the structure of situated understanding of place, events and language, within our dwelling-group. Building of the knowledge structure and interpretations occurs dynamically and iteratively, via a 'hermeneutic circle', during our bodily explorations of 'bounded' regions of our place (home, workplace, neighbourhood, countryside, etc.), each with its own set of concerns and constraints. Finitude and partiality (Gadamer, 1992) are key issues with respect to the place we find our self within, calling forth the need for understanding our being-in-place, in dialogue with others.

Puente-Lozano (2017) discusses Malpas' assertions that building topology is a fundamentally important matter, and that it relates to social, economic and cultural concerns in difficult, perhaps even 'constructivist' ways. There is 'nesting' of boundaries of concern. Disagreements relate to the extent to which the building of any particular topology is constrained by prevailing cultural and linguistic structures.

Seamon (2018) is opposed to social constructionism [see Sections 7.3.1 and 7.4.3 in Chapter 7]. However, he might only be condemning a strong version of that approach. Van Manen (2007, p. 18) asserts:

> The question of the meaning of practice raises primarily an issue of intelligibility. Practice, in its social constructionist version, is not only meant to mean something, practice is supposed to make it possible to explain, interpret or understand the nature of the phenomena within its scope. But from a phenomenological perspective, constructionist approaches to practice too easily involve reifying what escapes reification, thematizing what cannot be thematized, and bringing practice within the reach of objectivistic technological thought.

Van Manen suggests that a phenomenological approach goes beyond such restrictions. Hence, it is important to understand what sort of social constructionism is valid to apply, within a phenomenological approach to landscape as topology [see Section 6.2 in Chapter 6].

5.5.3 Applying social constructionism to landscape

As discussed in Section 5.2.1, Malpas (1999, p. 187) explains how social and cultural considerations are inherent in the concept of landscape: "Embedded in the physical landscape is a landscape of personal and cultural history, of social ordering and symbolism". This is the form of social constructionism that is applied, via the TSCS-MOD approach, within this dissertation.

Greider and Garkovich (1994, p. 2) apply social constructionism to landscape studies, via a sociological and anthropological approach, combined with phenomenology. Their integrative approach recognises that "landscapes reflect our self-definitions that are grounded in culture" (p. 1), and that through "sociocultural phenomena, the physical environment is transformed into landscapes that are the reflections of how we define ourselves" (p. 2). Their work enables review of relationships with landscape in the context of power struggles concerning place and environmental change.

Language plays a key role in the nature of social construction of aspects of reality, including landscape. Kögler (2017b, p. 114) notes "While social reality cannot be reduced to mere discourse […] the constitution of social facts is essentially maintained by means of socially shared projections of intentional meaning which are linguistically articulated". This statement, together with some earlier quotes in this section, supports the position adopted in this dissertation.

5.5.4 Conclusion to section

It is important to note that 'social constructionism', as used in this dissertation, is not a strong implementation of the initial general ideas of Berger and Luckman in 1966, critiqued by Deleuze and Guattari (1987) and many others (e.g. Barbetta and Nichterlein, 2012). In a phenomenological, transdisciplinary approach to ethnophysiography there needs to be room to accommodate at least some of the understandings of dwelling in place offered by social constructionism. This objective is best advanced by integrating a social constructionism approach into the PTM-ECS, in a nuanced manner, rather than by misrepresenting or demonizing it. This is in line with the ethos, adopted in this dissertation, of judicious integration of alternative perspectives on landscape as place.

As discussed in Section 6.2 in Chapter 6, the approach adopted in this dissertation to landscape as place, entails the synergistic, non-deterministic, emergent, intertwining of the prevailing system of 'topographic environment' (terrain and ecosystem) with the socio-cultural characteristics of a group of people (including linguistic and spiritual aspects), to produce a particular TSCS-MOD. This version of topology entails aspects of social constructionism.

5.6 Chapter Conclusions

The chapter partly addresses the following three Research Questions:

Q3: What are the key aspects of phenomenology which need to be commensurate with (or adapted to) ethnophysiography research if phenomenology is to be used as an over-arching transdisciplinary research paradigm, to facilitate enhanced future ethnophysiography research methods, supporting the EDM, to address more effectively social, cultural, spiritual and ethical aspects of dwelling?

Q4: Which form(s) of phenomenology is/are most appropriate to use as an over-arching paradigm for transdisciplinary ethnophysiography research?

Q5: Can phenomenology, as an over-arching transdisciplinary paradigm be legitimately and successfully applied to indigenous worldviews and knowledges, in the context of relationships with landscape?

This chapter has provided an extensive review of literature related to a phenomenological approach to investigations of place, including the work of about twenty key authors. The list of key questions concerning place and phenomenology from Seamon (2014) is provided in Table A6.1 in Appendix 6, with questions especially relevant to this dissertation shown in italics.

In Appendix 6, there is also a very detailed phenomenographic summary (Table A6.2), listing all the key topics (findings) from this chapter regarding place and phenomenology. In the table, various similar topics have been combined, and at least one reference is provided for each topic. The 83 topics are grouped under the following headings:

    A. 1 to 20 - Phenomenology principles and methods re landscape;

    B. 1 to 11 - Physical, embodiment and perception aspects of phenomenology of landscape;

    C. 1 to 6 - Utilitarian and actions aspects of phenomenology of landscape;

    D. 1 to 6 - Social systems aspects of phenomenology of landscape;

    E. 1 to 5   - Culture, knowledge and language aspects of phenomenology of landscape;

    F. 1 to 4   - Spiritual and ethical aspects of phenomenology of landscape;

G. 1 to 7 - Structural systems aspects of phenomenology of landscape;

H. 1 to 12 - Definitions of culture and methodological consequences;

I. 1 to 12 - Linguistic considerations in interpretation of landscape data. Example rows in in Table A6.2 (Appendix 6) are shown in Table 5.1.

Table 5.1: Example rows in Table A6.2 (Appendix 6)

Item	Topics to consider re investigating phenomenology of place	Reference(s)
E	Culture, knowledge and language aspects of phenomenology of landscape	
E1	Places gather cultural information, experiences and histories, even languages and thoughts. In the context of people's relationships with history, places have 'cultural memory'; providing 'anchors' to thick and rich notion of 'lived space'.	Casey (1997); Assmann (1997); Carr (2013)

Section 5.4 includes exploration of linkages between culture, phenomenology and place have been explored, including review of: conventional approaches to investigation of culture; the application of culture, sociology, phenomenology and hermeneutics to the understanding of place; and some radical proposals regarding culture and cultural studies, developed by McHoul. That section also discusses some relevant linguistic considerations, including words with multiple meanings, complex semantic content, linguistic structures and discussion of the body and deixis in landscape language.

A key result of this chapter has been identification of concepts and discussion from many authors, across several disciplines, which support utilizing, in research and explanation, an over-arching TSCS-MOD relevant to the language group involved in an ethnophysiography case study. There is extended discussion of the relationship of such a structure to Heideggerian topology, as interpreted by Malpas, in Chapter 6. That chapter also includes more detailed discussion of concepts of place and the role of mimesis in developing relationships with place.

An appropriate transdisciplinary, flexible, integrated, methodology resulting from this research project incorporates methods and techniques from non-philosophical disciplines and from other traditions. This new methodology is likely to adopt approaches from Garfinkel's ethnomethodology (Garfinkel, 1967; 1996; Schutz and Luckmann, 1973; Psathas, 1989; Eberle, 2012; McHoul, 1998; 2010) and possibly Ihde's (2009) postphenomenology (Rosenberger and Verbeek, 2015). This is discussed in Chapter 7. This new methodological approach was

applied in the capstone Manyjilyjarra landscape language case study (Chapter 8), and the utility of the new methodological approach is reviewed in Chapter 9. The aim is to address as many as possible of the concepts of phenomenology and place identified in Chapters 4, 5 and 6, incorporating them into the final versions of the PTM-ECS and EDM.

Chapter 6 - Relationships with Landscape as Place

6.1 Introduction to Chapter

This chapter examines peoples' relationships with landscape as place. It further develops key aspects of the discussion in Chapters 4 and 5 regarding how phenomenology can be used to help understand place. It also examines key aspects of indigenous relationships with place and discusses how ethnophysiography case study methods can be improved to better capture this information.

Because Heidegger's concept of topology is fundamental to understanding a phenomenological approach to relationships with place, it is reviewed in Section 6.2.1. Detailed discussion of the meaning of the term as interpreted by Malpas, and alternative approaches, were introduced in Chapter 5, and are expanded upon in this chapter. This leads to a statement of the approach to topology adopted in this dissertation, with reference to ethnophysiography case studies (Section 6.2.2).

Concepts of landscape as place, from several disciplines, are briefly reviewed and summarised in Section 6.3. Being only part of a transdisciplinary PhD investigation, it is impossible for this phenomenographic literature review to be in any sense 'comprehensive'; providing a summary of a high proportion of publications relevant to this topic. Nor is it appropriate for it to be 'exhaustive'; that is dealing in great depth and thoroughness with the publications from a selected few authors or about a couple of specific topics. Rather it is deliberately 'distributed', seeking to sample the ideas from a wide range of publications from different disciplines, authors and perspectives. It is also 'integrative', in that the key issues relevant to this dissertation, distilled from each publication, are concatenated and arranged into an integrated conceptual model (Section 6.5 and Appendix 7), that is utilized to revise the EDM (Section 6.6).

This approach is in line with the over-arching transdisciplinary paradigm for the methodology of this dissertation established in Chapter 1. This is borrowed from Black (2011) and integrates the Indigenous terms *talngai* and *gawarima,* where *talngai* means light, which is used to indicate processes that enlighten in a metaphysical sense, and *gawarima* describes a circular movement in which the information/story 'goes around a camp'. The paradigm involves an

enlightening discussion of a complex topic via engagement with a variety of ideas from different perspectives and iterative production of summaries of key aspects.

As explained in Chapter 1, the use of phenomenographic tables of summaries of key concepts from literature reviews is an integral aspect of the way use of phenomenology as an over-arching transdisciplinary paradigm is operationalized in this dissertation. This is further explained in Chapter 7 in the context of development of the PTM-ECS.

Section 6.4 reviews literature related to affect, atmosphere, mimesis and refrain. Feelings are a very important part of people's relationships with landscape as place. This establishes a phenomenological foundation for discussion of 'sense of place' and 'place attachment' (in Section 6.4.3).

Concepts of place surfaced and summarised in Sections 6.3 and 6.4 are concatenated and re-ordered in Section 6.5. This enables the revision of the EDM (producing version 5) in Section 6.6. The relevant EDM v6 tables are located in Appendix 7, Section A7.7, Tables A7.7 and A7.8. Conclusions from the discussion in Sections 6.2 to 6.6 are provided in Section 6.7.

Because there is a concentration in this dissertation on ethnophysiography case studies with indigenous peoples, their relationships with landscape as place are reviewed in Section 6.8 and Appendix 13. Concepts of landscape for some example Native Americans language groups in Southwestern USA are summarised. Similar summaries are produced for Indigenous Australians. The role of *Jukurrpa*, as a topo-socio-cultural-spiritual framework, is explained and Australian Aboriginal toponyms are discussed.

Summaries of indigenous concepts of place are concatenated (Section 6.9), leading to further revision of the EDM (to produce Version 6). Section 6.10 provides conclusions for the sections in the second half of the chapter. The chapter findings strongly support the proposition that a form of phenomenology can be effectively used as an overarching paradigm for ethnophysiography case studies. This provides information to facilitate development of the PTM-ECS, in Chapter 7.

6.2 Heideggerian Topology and Topo-socio-cultural-spiritual Frameworks

6.2.1 Introduction to section

It is fitting to begin this section with discussion of topology, defined (in Chapter 5, Sections 5.2.4 and 5.5.2) as a dwelling group's 'situatedness'. Topology is the form of integration of terrain (including the ecological environment) and socio-cultural considerations, which produces a particular mode of dwelling in landscape as place. Discussion in Chapters 4 and 5 indicated that, when developing a new phenomenological approach to ethnophysiography research, it is important to incorporate use of a topo-socio-cultural-spiritual framework. Hence, it is useful to explore the relationship of such a framework to Malpas' (2006; 2007; 2012b) interpretation of Heidegger's notion of 'topology'.

Initially Malpas (e.g. 1999; 2001) used the term 'topography' to indicate how Heidegger explained how the nature of place influences people's dwelling in landscape. This seems to indicate that what he had in mind was the landform or terrain (as defined in Chapter 1 of this dissertation and in Section 6.3.1); that is, the physical layout of the land where a particular group of people dwell. For instance, can the topography of the area of terrain under consideration be described as a large mountain, a group of hills, a river valley, lines of parallel sandridges (as in Australia's Central and Western Deserts), a dendritic stream system feeding a lowland swamp, or perhaps a small island in the sea? In association with terrain there needs to be consideration of the prevailing general ecological environment, including aspects such as proximity to the coast, climate, flora and fauna.

Following consideration of Seamon (2018), a new term 'topographic environment' is adopted, as an extension of the term 'terrain', used in the context of a potential landscape, to include all water (surface and underground), soils, geology, climate and all flora and fauna in a particular area of topography. This constitutes the complex topographic environmental system that entwines with the 'socio-cultural framework', including linguistic, spiritual and ethical aspects, to produce the particular TSCS-MOD for those people, in that area of topography. Malpas (2006, p. 55) provides some indirect support for this notion, although he does not necessarily designate the land that becomes landscape (as place) as terrain or topographic environment.

Malpas (2006, p. 55) notes: "the 'world' as Heidegger uses it, is understood as a particular configuration of meaning – a context of meaning we might say (*Bedeutsamkeit*) or of meaningful involvements (*Bewandtnis*). The world as first encountered is thus not a world of

mere causes, of ideas or impressions, or even states of affairs, but a world of self, of others, of concrete things". Here it is the physical form that is emphasized, however, Heidegger is seeing this topography as also containing people, through mention of their 'meaningful involvements'. Malpas goes on to suggest that it is those people who give a part of the world 'situatedness': "what is brought to salience in and through the situation, in and through the 'there', is also what participates in the very happening of the there – myself and others who are there with me, the things that I find myself alongside" (p. 58).

Malpas (2006) asserts, from on ontological[29] point of view, within Heidegger's phenomenology, that place is primary, always there, awaiting the presence of people. While acknowledging Malpas' vastly superior knowledge of these matters, it seems more useful for this dissertation to use the term 'topographic environment' to denote a place which has not yet been seen or occupied by people. From a human perspective this could be thought of as a 'nascent place', always defined as the fundamental element of being, but not yet experiencing the relationships with people, which will help define its key characteristics and boundary (horizon). Malpas also prefers to consider the different ways that multiple dwelling groups occupy a place, or discuss it as 'outsiders', as different instantiations of the *same* place. Again, it is considered more appropriate, for clarity of explanation, to refer to the different versions of dwelling as creating unique places, arising from what might be completely, or partly, the same area of 'topographic environment'. Thus, in the way place is used here, there can be various places co-located in the same area of 'topographic environment'. This is in line with Arendt's (1978) multi-perspective approach, which indicates that a particular place is likely to have multiple topologies, because of the differences in culture, worldview and the economy of groups of people occupying, visiting or discussing, that place. Malpas' apparent reluctance to clearly state the role people play in topology is perhaps because of the 'spectre' of social constructionism (see Section 5.5 in Chapter 5). This leads to adoption of a specific definition of topology for this dissertation in subsection 6.2.2.

In a more recent article, Maplas (2017b) refines his explanation of topology, linking it strongly to the role hermeneutics plays in working out the nature of topology for any particular place. He defines topology very broadly as "philosophical inquiry into place" (p. 379). The essence

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[29] Ontology concerns those concepts that are most basic and constitute the essential structures required for consideration of being in the world.

of topology is the working out of relationships between people who dwell in a place and its topographic and ecological characteristics, so that "place and understanding are intimately connected" (p. 379). He emphasises that place is fundamental to being and, of special relevance to this dissertation, notes "the centrality of language to topology" (p. 90).

Additional references relevant to review of Malpas' interpretation of Heidegger's 'topology' are included in Table A7.9 in Appendix 7. This table provides details of additional references relevant to several key topics in this dissertation. Discussion of these references has needed to be excluded from this dissertation because of the restriction on the total number of words. Such discussion will be included in an expanded report of this PhD investigation, to be published after completion of the examination process. Details of each reference are included in the reference list, at the end of this dissertation, for the convenience of readers.

6.2.2 Meaning of topology adopted in this dissertation

The definition adopted in this definition for topology, is not merely a philosophical inquiry into place (Malpas, 2017), but a transdisciplinary explication of the relationships between communities of people (with particular characteristics) and the topography and eco-system of that place. This transdisciplinary investigation incorporates Malpas's desire for a philosophical approach by using phenomenology as the overarching paradigm (meta-theory) linking together the multiple physical, social, cultural and spiritual aspects. Topology turns terrain into landscape.

The discussion in Chapter 5, Section 5.2.4 and Section 6.2.1 surfaced the elements of a topological approach by reviewing Malpas' interpretation of Heidegger's notion and offering some alternative propositions. This included interpretations by Malpas, Seamon and others of Heidegger's notion of place (*topos*), in the context of theories of social constructionism (or constructivism) (Chapter 5, Section 5.5).

As part of a Heideggerian, phenomenological approach to nature of place Malpas (2012) discusses the attitudes and actions of those who dwell there, adopting a holistic approach to lifeworld and the causal relationships between people and their surroundings. People's relationships with landscape depend on a structure that incorporates both normativity and subjectivity: "To be a subject and to be subject to norms is to be enmeshed within a certain triangulation structure" (p. 52). Malpas claims that this structure is topological. It accords

with the spatial-socio-cultural framework (such as *Jukurrpa*) proposed in Chapters 1 and 4. Such a structure is a response to the terrain so that the priority within topology is with the topos (place) rather than subjectivity; the land calls forth a worldview and a lifeworld in response to its potentialities and constraints. It is a relation of mutual dependence, so that the 'hierarchy' is a 'weak' one. Malpas explains: "In Heidegger's Topology, I take the presence of such weak priority to be an inevitable part of what is involved in the very idea of any form of structural analysis that would lay bare the ordering of a domain – weak priority is thus a matter of the order that obtains within that domain" (p. 53).   Hence, contributions from the characteristics of the people who dwell there, are also important.

Malpas (2012) provides an interpretation of how Heidegger's topology deals with the deep sense of placedness that is possible and the range of affect that comes with it. Malpas explains: "The encounter with such placedness, and so one might say with place, is what I argue underpins the experience of wonder" (p. 63). Sense of place can be deeply embedded, even essential: "it is not a relation that we can ever leave without also leaving our very humanity" (p. 63). Malpas observes that sense of place is part of being human: "This underlying, one might say, ontological, structure, although properly topological, and yet everywhere it is the same, everywhere instantiated differently" because there so many different landscapes that are all places (p. 63).

The remaining sections of Malpas (2012) provide further, more detailed, discussion on particular aspects of topology, as he elaborates the nature of place (topos). Places have a power of their own and should not be considered as merely a 'social' or 'scientific' 'construction' (p. 105). Malpas also explains: "Heidegger is certainly clear, however, on the need to refuse any account of topos that founds it on something other than itself (including the human), and yet he sometimes appears reticent in regard to the explication of the 'structure' of topos and the exact manner in which the human relation to place is to be construed" (p. 111). This dissertation interprets the phenomenological approach to place as involving the synergistic process whereby the characteristics of people and terrain, in combination, create a place, at a particular topographic location, for a period of dwelling. This topological process is not deterministic and may well be influenced by historical and other factors. Malpas offers indirectly some support for this approach:

> Both the temporal and the spatial need to be theorized together, and in a way that
> does not reduce one to the other. One somewhat provocative way to put this is to say

that such a topology must do justice to the 'geographical' alongside the 'historical', since it must be attentive to the way in which human being is always spatially situated on the earth (geo-), and not merely temporally located in relation to a past and a future (p. 138).

Specific groups of people are associated with particular areas of terrain (as landscape/place) at particular times in history, and historical processes may be strongly involved in the manner of their dwelling. For instance, an Australian indigenous language group may have been removed from their country, due to historical colonisation processes, for a period, and later return because of a Native Title legal determination. However, other social, technical and historical process are likely to have significantly changed the people prior to their return, and their country may also have been physically altered. Hence, their mode of dwelling on their return may be different from that before their removal. These topological processes may be complicated because of non-homogeneity of culture and/or rights and responsibilities with respect to that place, invoking discussion of political, racial or social identities (Malpas 2012, p. 151/152). These socio-political matters of process, interconnection, and diversity, and the dynamic nature of place, are discussed in human geography (e.g. Massey (1994).

Malpas (2006, p. 88) explains:

> Heidegger's view of the equipmentality of the world: the character of 'being-there', always as a 'being-with', is closely tied to the way being-there finds itself engaged with things, places and regions – the equipmentality of the world is always 'public', but the public character of the world, that is its intersubjectivity, is in turn tied to its spatiality as that is given in and through the ordering of things, places, and regions (indeed, this is even so in the case of language, which has its own spatialized, embodied form in utterance and text) (pp. 86-87).

For Heidegger, social being is necessarily spatial being. This influences our mode of dwelling: "our activity, and our orientation to things and places within that activity, is not merely determined by the end to which we are directed, but also by the structure of the spatiality in which that activity is situated" (Malpas, 2006, p. 127). This configures the way 'equipmentality' of place operates in our lifeworld, influencing our landscape language.

Harrison (2007) asserts: "the concept of dwelling is neither Realist nor Idealist. Indeed, these two positions are, from the event of dwelling, synonymous. All too often we fall foul of the Idealist fallacy of positing a priori a subject who constitutes the world through representing it to itself, forgetting and covering up that all this happens 'precisely after the event' (Levinas, 1969, page 153), after the subject has dwelt therein" (p. 627). This involves a synthesis of the "'subject' and `world', `inside' and `outside', `private' and `public' are lines or planes descending from the event of dwelling" (p. 628). The nature of the topographic environment (terrain, environmental factors, latitude, etc.) configures the potential for dwelling, which influences how people live (lifeworld), including their language.

Landscape language provides the facilitating communication for dwelling in landscape, and for portraying the manner of that dwelling. Investigation of landscape language through transdisciplinary ethnophysiography case studies (Turk, 2020) can expand our understanding of topology and the way it operates in different modes of dwelling. In such studies, it is critical to investigate the nature of the terrain of that place and the prevailing spatial-socio-cultural framework, and their synergistic interaction, enabling and producing in a non-deterministic manner, lifeworld tasks, procedures, protocols, attitudes, feelings and emotions. All of these aspects must be surfaced and examined as comprehensively as possible, to provide for a richly informed analysis of data concerning language use, activities, and affects. Analysis should encompass physical, utilitarian, social, cultural, spiritual and ethical aspects of the language group's interaction with landscape as place. The Manyjilyjarra Landscape Language Case Study, in the Western Desert, (Hill and Turk, 2011-2017) provides an example of this approach, where the spatial-socio-cultural framework is *Jukurrpa* (Turk, 2020).

Topology is the unique mode of dwelling for a place, that emerges from the coalescence of a specific area of terrain with a particular spatial-socio-cultural framework, to produce a mode of dwelling in place. At any particular point in time, any area of topography may simultaneously be differently expressed through the agency of many unique topologies; therefore existing as multiple places. This configures the activities of particular groups of people with-respect-to that version of place. This approach can be useful in seeking to investigate, clarify, and possibly extend, Heidegger's notion of topology, by detailed study of the particular manner of peoples' dwelling. Malpas (2006) notes: "the structure of existential spatiality is crucially determined by the structure of activity, task, and purpose" (p. 92).

Moran (2011) notes that Edmund Husserl, the principal founder of phenomenology, was frustrated by only being able to obtain second or third-hand information about so-called 'primitive peoples', such as in books by Lucien Lévy-Bruhl [see also Section 7]. Exploration of non-European examples of relationships with place can be especially useful in an investigation of the application of phenomenology across a broad range of peoples. Aspects of the example case studies of Yindjibarndi (Turk and Mark, 2008)) and Manyjilyjarra (Hill and Turk, 2016) landscape language are used below to explicate how the nature of topography ('country') relates to the lifeworld of people who dwell there. Yindjibarndi people have interacted with European colonists since 1860, whereas Manyjilyjarra speakers (part of the larger Martu cultural group) have developed their language and culture over at least 40,000 years, in relative isolation, up until 1964 (Davenport, Johnson and Yuwali, 2005). Some of the discussion concerns *Jukurrpa*, the law/lore of Australian Central and Western Desert peoples.

Being in a place is strongly influenced by embodiment and perception aspects of human activities, especially those associated with movement through terrain. For instance, in the Western Desert, travelling on foot or by vehicle in the same direction as the long parallel sandridges (i.e. in the direction of the predominating wind, which formed the ridges, or its reciprocal) is much easier than movement at an angle to the sandridges (Figure 6.1). Walking at right-angles to the sandridges is particularly difficult, as it requires, after traversing the inter-dune flat area, climbing a steep sandy slope, crossing the wind-blown sandy undulations of the summit of the ridge, then a steep climb down the other side, and so on, ridge after ridge (Figure 6.1). The rings of spiky spinifex, which must be navigated on the inter-ridge plain, are an example of how vegetation type is dictated by rainfall, soil type, slope, etc. For traditional, nomadic Manyjilyjarra speakers, their frequent journeys on foot between waterholes were configured by affordances consequential to the topography of their country.
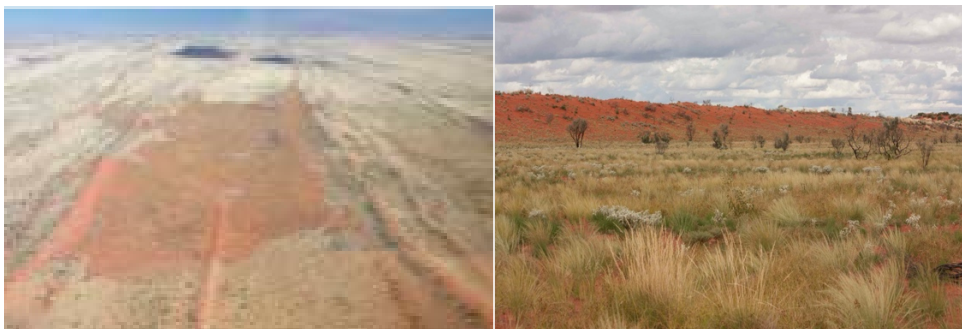
Figure 6.1: Sandridges (*yintiri*) and inter-ridge flat areas in Manyjilyjarra country.

Heidegger's 'topology' could be considered to incorporate (or be implicated in) other characteristics of place that flow from its topography and the prevailing climate, such as presence of water at, or just below, the surface of the land. Rainwater will pool in a sandy depression, which may eventually become a saltlake, after millennia of rainfall and evaporation events. After rain, pools of water on a saltlake may be too salty to drink. Rain falling on a sandridge goes into it and may be uncovered by digging a hole to produce a soak at the foot of the sandridge. In stony country, rainfall runs off the surface, to collect in rockholes and depressions. The underlying geology, such as layers of different types of rock, and their 'dip' angle (due to tectonic forces) can influence, for instance, the presence of fresh-water springs, including in saltlakes (Figure 6.2).

Figure 6.2: A group of Manyjilyjarra speakers (and other Martu people) gathered at Yimiri - [source: Kanyirninpa Jukurrpa cultural awareness course materials - Topic 3 "Ngurra" (Country)]. Copy of Figure 4.1.

For desert nomadic peoples, such as traditional Manyjilyjarra speakers, it was vital to identify the location of water sources, from the teaching of elders, remembering past experiences, and/or by prediction from landscape and vegetation indicators. An extended notion of the topology of place could incorporate such aspects of water availability and the sets of factors for finding it. This is a key aspect of dwelling in 'sandridge country'.

The terrain of the desert country, its rainfall, flora and fauna, and the technologies available to traditional Manyjilyjarra speakers, dictated a very low population density, despite tens of thousands of years of occupation. Water sources, which are relatively small and distant from each other, required these nomadic peoples to travel in relatively small family groups, and to only interact with large numbers of people at large permanent waterholes or springs (*yinta*), usually during annual law/lore ceremonies (including visitors from neighbouring language groups). Such factors influenced family structures and community rules regarding marriage protocols, as part of *Jukurrpa* to limit inbreeding in isolated groups. Hence it could be said that the terrain of the region influenced social structures.

Cameron (2017b, p. 13) quotes philosopher Plumwood (2002, p. 169), who is critical of philosophers: "Philosophers have mostly been arguing amongst themselves about the applicability to non-humans of highly abstract ethical concepts like intrinsic value and moral considerability without ever getting up the courage to actually investigate or establish specific ethical relationships [with earth others] and thereby evade the real moral task of developing an adequate ethical response to the non-human world". He contends that investigation of particular placed-based aspects of the 'more-than-human world' is critical to a thorough understanding of modes of dwelling. However, "its ultimate, hardest-to-achieve value must be in its contribution to a more place-responsive culture" (Cameron, 2017b, p. 13). Understanding and valuing the intricacy of any particular language group's way of inhabiting a specific place needs to include the way the holistic environment, including flora and fauna contributes to their lifeworld in physical, utilitarian, cultural and spiritual and ethical ways. For example, for Manyjilyjarra people kangaroos and bush tomatoes are more than mere food, they are part of the fabric of lifeworld that conditions their relationships with landscape (Walsh, 2008).

Part of holistic relationships with place is the way "place makes manifest the different time scales working within it" (Cameron, 2017b, p. 14), from the ripening of fruit, to the seasonal movement of animals and birds, to the improvement or degradation of soil in a specific depression where a root crop grows. Peoples actions in place can be in sympathy with the dispersion and timing of non-human aspects of place, or ignore them to their long-term peril.

The emphasis so far has been on dwelling in real-world place, a key concept for Heidegger (e.g. Malpas, 2006, pp. 74-83), however, places may exist for a group where physical dwelling is not involved. Places may be distant, but distinct, while perhaps being significantly

misconstrued and misunderstood, or even imaginary. Dedicated viewers of *Game of Thrones* TV series may be able to provide detailed descriptions of various mythical places depicted in that series; places they have a strong relationship with. The number, detail and variety of uses of virtual landscapes is expanding rapidly. Wiles (2018, np) notes: "As the landscapes found within computer games have become more elaborate, they have become more important, and so has the time we spend within them".

There is also a potential interaction between our relationships with real-world and created virtual landscapes. Maj (2016) explores the interplay between real and virtual worlds, in the context of complex story-telling, for fantasy and science fiction genres. He discusses developments where new types of interaction are emerging from real-world scenarios to establish immersive and purely imaginative storyworlds. Consequently, he argues that "philosophical premises of such world-building and a representative for its genre of allotopia are altogether contributing to a significant shift between 20th and 21st century fiction that manifests in the tendency to create the storyworld prior to the storyline – as a 'matrix for possible narratives'" (p. 151). Maj cites Waldenfels (2009, p. 6) from his section on Topography, regarding the 'phenomenology of the other': "Foremostly, the otherness should be conceived from the perspective of other places, as the 'else-where' and the 'extra-ordinary', as, thereby, something that does not have fixed localisation and eludes any assignments. The very space, though, should be understood as comprising both own and other places, neither surrounding from above nor neutralising the differences between the own and the other". In computer game fantasy genres, representations of self and others are intertwined spatially, as well as through continuous and disjointed time.

This is clearly a complex topic, which requires a clear explanation. In essence, topology emerges from the coalescence of the character of a specific area of topographic environment with a group's particular socio-cultural framework, to produce a unique TSCS-MOD in place. At any particular point in time, the nature of any area of topography may simultaneously be differently expressed through the agency of many unique topologies, exhibited by different groups of people, dwelling or visiting there, or even reading, discussing and thinking about the place; therefore, in a sense, existing as multiple places. An explanation needs to include parameters for how the nature of the dwelling group becomes incorporated in place and its continuously emergent character.

This issue is dealt with here via consideration of two different instantiations of place; one as terrain (including ecological environment) and the other as landscape. The differentiation is via the concept of dwelling. Terrain (including its ecosystem) becomes landscape when people dwell there. Thus, place, as landscape, entails a synergistic, emergent, non-deterministic, interweaving of the nature of the terrain with the characteristics of the dwelling group (history, language, social structures, culture, spirituality, ethics, etc.) to provide a particular, prevailing, though ever-changing, topo-socio-cultural-spiritual framework, which configures and mediates that group's specific mode of dwelling in that place; the specific instance of Heideggerian topology. Neither of these intertwining influences is static; each can potentially change in response to the other, and to external factors (e.g. colonisation or climate change). Other socio-cultural groups, occupying or visiting that same terrain, will have a different mode of dwelling, and hence, it is for them a different landscape and place, although its spatial extent may be roughly equivalent.

Landscape language provides the communication that enables dwelling in landscape, and for portraying the manner of that dwelling. Investigation of landscape language through transdisciplinary ethnophysiography case studies can expand our understanding of topology and the way it operates in different modes of dwelling. In such studies, it is critical to investigate the nature of the topographic environment of that place and the prevailing topo-socio-cultural-spiritual framework, and their synergistic interaction, enabling and producing, in a non-deterministic manner, lifeworld tasks, procedures, protocols, attitudes, feelings and emotions. Such intertwining is always continuously emergent, as elements of each contributing system change, sometime gradually and occasionally dramatically, as a function of the interaction of internal and external influences and the dwelling group's responses. All of these aspects must be surfaced and examined as comprehensively as possible, to provide for a richly informed analysis of data concerning language use, activities, affects and artefacts. Analysis should encompass physical, utilitarian, social, cultural, spiritual and ethical aspects of the language group's interaction with landscape as place, to reveal the instance of topology.

The Manyjilyjarra Landscape Language Case Study, in Australia's Western Desert, (Hill and Turk, 2011-2017), discussed in Chapter 8, provides an example of this approach, where the TSCS-MOD is *Jukurrpa*. The examination of the intertwining of systems of topographic environment and socio-cultural frameworks, via landscape language case studies, may be termed an ethnophysiological approach to topology of place.

One could suggest that any particular version of *Jukurrpa*, developed by an Australian Aboriginal language group, dwelling in a specific geographic area over tens of thousands of years, is an instance of topology. When that language group was displaced from their 'country' (by colonial processes), their *Jukurrpa* was disabled, perhaps shattered, so that the people had to develop a new topology to suit the new location and a lifeworld interacting with the colonisers, who had their own topology. An extreme version of this was transportation of Aboriginal groups to Christian missions, where children were separated from adults, forbidden to speak their language, and indoctrinated in a foreign topology.

6.3 Relationships with Landscape as Place

6.3.1 Introduction to section

> *And then, that must be space. Because we call it space,*
> *or landscape, or terrain. Or at the weedy worst*
> *a plain potential for development:*
> *right-angles on an undulant soft ground.*[30]

Peoples' relationships with landscape have traditionally been discussed in terms of concepts of space, place and place-attachment. The definitions of 'terrain' and 'landscape', somewhat modified from the initial versions in Chapters 1 and 2, are as follows:
Terrain is defined as the physical shape and texture of land and its eco-system (the topographic environment). *Landscape* enlarges the definition of terrain by incorporating the complete set of relationships (physical, utilitarian, social, cultural, spiritual and ethical) that a person (or a group of people; e.g. a language community) has with an area of terrain.

Landscape comes in a wide variety of forms and our relationships with it reflect how we dwell in it; landscape as place. Hiss (1990, pp. 114-5) provides a delineation of some of these types of landscape and relationships:

> Working countryside; working landscape; managed landscape; humanised landscape;
> historic landscape; ancient landscape; cultural landscape; heritage landscape: These are
> all terms that have been coined over the years by botanists, landscape historians,

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[30] Wallace-Crabbe (2013, p. 5)

sociologists, historical ecologists, and other specialists who have studied both the history and the future of the countryside in order to distinguish two different kinds of terrain – natural landscapes, which, in this very broad definition, are those parts of the countryside that human beings haven't altered or interfered with; and landscapes whose function and look, or character, or feel, have been shaped over time by sequential, ongoing human activities as much as by natural processes. The latter are perhaps most commonly referred to as working landscapes.

Hiss (1990) also uses the term 'partnership landscapes' to refer to those altered by a succession of actions by individuals and/or groups. An example of this is Australian Aboriginal use of fire to create vegetation aspects of landscapes, to facilitate their lifestyle. Recent discussion of these traditional landscape management practices has prompted reconsideration of the 'hunter-gatherer' tag for pre-colonial Aboriginal Australians (Boyce, 2010; 2012; Gammage, 2012; Griffiths, 2018; Pascoe, 2014). A strong non-indigenous example of deliberate alteration of landscape is the flooding of a vast area of Miriuwung country by Lake Argyle [31] (Kinnane, 2002). Hiss notes that the 'partnership landscapes' terminology can also assist with discussion of the idea of 'public value' (e.g. in National Parks).

The key objective of this section is to very briefly review, summarise and list the key aspects of the long and diverse literatures regarding landscape as place. This will permit a detailed comparison (and concatenation) of concepts of place with respect to the key aspects of ethnophysiography and the EDM established in Chapter 2. Indigenous concepts of landscape as place are discussed in Section 6.8, including a superficial review of Indigenous Traditional Knowledge (ITK).

Concepts of place have been explored in many disciplines, initially including philosophy, geography and anthropology, and more recently, landscape architecture and cultural studies. In addition, non-academic literature (songs, stories, poems, and novels)[32] has always included a

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[31] Covering about 1,000 sq km, Lake Argyle is Western Australia's largest and Australia's second largest freshwater man-made reservoir by volume. It resulted from construction of the Ord River Dam, completed in 1971, and is part of the Ord River Irrigation Scheme. It is located near the East Kimberley town of Kununurra. https://en.wikipedia.org/wiki/Lake_Argyle [accessed 24th May, 2018]

[32] E.g. *A First Place* by David Malouf, where one of Australia's finest writers explores; What does it mean to inhabit a place?

rich expression of the many complex aspects of place. Place has been a key component of phenomenology (Husserl; Heidegger; etc.), which was explored in Chapters 4 and 5. Brief discussion of concepts of place from several other disciplines is provided in the subsections below. Only the key concepts from the most relevant authors are included in tables, in this and other similar sections in this chapter.

6.3.2 Concepts of place in geography

Introduction

There is a huge literature on the nature of place in geography and other social science and humanities disciplines. An initial review of some aspects was provided in the context of discussion of philosophy of place in Chapter 5, Section 5.2.4. A broader cross-section of relevant publications is reviewed in this section.

Discussion in detail of sense of place and place attachment is reserved for Section 6.4.6. Although there is some discussion of the role of phenomenology in understanding concepts of place, this section does not include detailed consideration of phenomenology and place, which was discussed in Chapter 5. The section includes only brief discussion of contributions from authors regarding indigenous concepts of place, which are discussed more fully in Section 6.8.

The key geographical concepts of place relevant to landscape are discussed for each of the authors, then summarised in phenomenographic Tables 6.1 to 6.18. These tables are concatenated (except for Tables 6.7 and 6.17, for reasons discussed below), reworded and reordered, as appropriate, to produce the combined Table A7.1 in Appendix 7. These aspects are then reviewed in Section 6.6 for potential addition to the EDM, version 5, provided in Tables A7.2 and A7.3 in Appendix 7. As discussed above, this is part of the methodology used in this dissertation to operationalise a transdisciplinary approach to ethnophysiography case studies.

Fundamental concepts of place in geography

One of the earliest geographers to deal in depth with landscape concepts was influential American geographer Carl Sauer, whose 1925 chapter *The Morphology of Landscape* was mentioned in Section 2.2.2 in Chapter 2. Sauer (1925) introduced ideas central to this dissertation. He recognised the limitations of 'positivism' and sought to establish a phenomenological basis for the discipline of geography, to assist in understanding

environmental and cultural diversity, based on ethnographic fieldwork. This included the need to identify indigenous knowledges. It was followed up in 1927 by his chapter *Recent Developments in Cultural Geography.*

Sauer (1925, p. 23) defines the objective of geography:

> The task of geography is conceived as the establishment of a critical system which embraces the phenomenology of landscape, in order to grasp in all of its meaning and colour the varied terrestrial scene […] The objects which exist in the landscape exist in interrelation. We assert that they constitute a reality as a whole, that is not expressed by a consideration of the constituent parts separately, that area has form, structure, and function and hence position in a system, and that it is subject to development, change, and completion.

Sauer's definition fits well with that for landscape adopted in this dissertation. It also supports a holistic phenomenological approach to study of landscape, since landscape has both physical and cultural aspects of dwelling (Sauer, 1925, pp. 24-27). Habitat has values, both present and potential. Sauer recommends a methodology of study (the Morphologic Method), which reveals all the relevant phenomena; physical, utilitarian and cultural. New approaches are developed and applied via links to disciplines such as linguistics, anthropology and cultural studies (see Table 6.1).

Sauer's work continues to be influential in the field of Cultural Geography since his death in 1975. However, some scholars are critical of aspects of Sauer's theories. Marie Price and Martin Lewis (1993) provide a response to a group of scholars, who call themselves 'new cultural geographers', that have been critical of the 'Berkeley School' of geography, founded by Sauer. Price and Lewis claim that cultural geography is a pluralistic endeavour, broad enough to accommodate scholars with theoretic and methodological diversity, since landscape and culture are both complicated and disputed terms. Table 6.1 includes some relevant landscape concepts from Sauer (1925) and Price and Lewis (1993).

Table 6.1: Key landscape concepts from publications by (or discussing) Carl Sauer

Code	Landscape Concept
Sa-1	The aspects of landscape (physical and cultural) exist in interrelation, constituting a reality as a whole which is not expressed by a consideration of the constituent parts separately, but by considering their structure, and

	function and hence position in a system, that is subject to development, change, and completion.
Sa-2	The most relevant physical qualities of landscape are those that have habitat value, present or potential.
Sa-3	The aesthetic qualities of landscape need to be investigated via a subjective approach.
PandL-1	Cultural geography scholars should embrace theoretic and methodological diversity.
PandL-2	Landscape studies in cultural geography now mostly focus on social theory and human-environment relations.

Another seminal book, published by geographer Yi-Fu Tuan, is *Space and Place: The Perspective of Experience* (1977). This book, and Tuan's other publications, contributed significantly to the development of the field of human geography and his approach to relationships with landscape is broadly phenomenological. The specific material relevant to attachment to place is discussed in Section 6.4.6 below.

Rose (2012), citing Heidegger (1971b), discusses dwelling as an active process of marking and claiming. We build up relationships with place by our activities and, through this process, enact changes to the terrain, physically marking it. We also assert claims or rights over area of topography where we dwell [see Chapter 8].

A key experiential aspect of dwelling in landscape relates to sight and 'points of interest'. As we interact with landscape those initial points of interest grow into complex interrelated places (Tuan, 1977, p. 10). Tuan goes on to discuss the role of other bodily senses (such as sound; supported by Feld, 1996). He notes how, from birth, each person progressively learns about their surroundings, including landscape, contributing to the creation of the identity of the individual and also of their special places (p. 33). This relates to culture as an explanatory factor, and also raises the issue of potential for 'universals' with respect to landscape, reflecting 'the general human condition'.

Tuan discusses feelings evoked by place in terms of movement and pause (1977, p. 6). He concentrates on experience, which can be "direct and intimate, or it can be indirect and conceptual, mediated by symbols" (p. 6). Such mediation includes via language (as well as graphics) at conscious and subconscious levels. Hence, study of landscape language is important, but seldom complete, since: "People tend to suppress that which they cannot express" (p. 6). People have feelings for landscape, which may be only obliquely expressed in

language, or may be incapable of expression, or be suppressed due to cultural and spiritual considerations. Key concepts are listed in Table 6.2.

Table 6.2: Key landscape concepts from Tuan (1977)

Code	Landscape Concept
Tu-1	Relationships with landscape for an individual develop steadily over the years of their life in that place.
Tu-2	Culture strongly influences human behavior and values regarding landscape.
Tu-3	Movement through landscape (as space) occurs between places of pause and activity.
Tu-4	People have feelings for landscape, which may be only obliquely expressed in language, or may be incapable of expression or suppressed due to cultural and spiritual considerations.

Geographers Dewsbury and Cloke (2009) discuss spiritual landscapes. They lie within physical landscapes, and entail "mapping of the relations between bodily existence, felt practice and faith in something immanent but not manifest as such" (p. 695). People assign spiritual significance, relating to some form of immanence, to particular aspects of terrain, and reinforce this association via spiritual practices at those places. Dewsbury and Cloke support this contention with theories from post-phenomenology, using Christian religion as an example. The importance of spiritual landscape is emphasised in the ethnophysiography case studies with Aboriginal Australian languages discussed in Chapter 2 and 8.

Development of social aspects of geographic information systems (GIS)

As discussed in Chapter 2, ethnophysiography research grew out of discussions about the nature and role of geographic information systems (GIS), as they developed during the 1980s. By the 1990s GIS had become an embedded technology and attention turned to human aspects of use and application of this new way of analysing spatial data and producing maps. This included discussions about 'Naïve Geography' (see Section 2.3.2) and how GIS may be used effectively for, and by, indigenous peoples. This author was part of this movement, including via his PhD (1992) and other contributions to discussion about human-computer Interaction, visualization and social issues (e.g. Turk, 1990; 1992a; b; c; d; 1993a; 1993b; 1993c; 1993d; 1994; 1995).

Pickles (1995a) edited an influential book published at that time. *Ground Truth: The social Implications of Geographic Information Systems* is a collection of chapters by fourteen authors.

Chapters covered human issues generated by GIS development, including depiction of various aspects of interaction between nature and social life and visualization of activities of peoples. Many researchers, including significantly the emerging group of feminist geographers, started raising issues regarding the validity of some forms of social analysis being enabled via GIS technologies and the ways that results were being applied to real world problems.

There is only space here to review (in Table 6.3) a couple of chapters from *Ground Truth* which are most relevant to this dissertation: Pickles (1995c) regarding epistemological challenges for critical studies in geography; and Harris, Weiner, Warner and Levin (1995) concerning 'participatory GIS' and the need to overcome 'ethnocentric universalism' which would rob local people of agency and misrepresent their relationship with place. These themes are reinforced in Pickle's concluding chapter where he contends that GIS should be used in ways that enhance community identity, rather than appropriating local knowledge.

Table 6.3: Landscape concepts from chapters in Pickles (1995)

Code	Landscape Concept
Pi-1	The effectiveness of the role of GIS and associated technologies in representing landscape, depends, at least in part, on the conceptual tools, critical frameworks, and linguistic codes we choose to mobilize.
HWWL-1	In building GIS of landscape, there should be use of the 'mental maps' of local people as part of the participatory social process leading to local empowerment, rather than adopting merely a top-down elitist process.

Dobbs (2015) discusses how GIS and other digital spatial technologies can be used to support empowerment of indigenous peoples, especially as problems such as increasing development in forested areas, and worldwide climate change, impact on their lifeworlds. She notes that "the term 'Indigenous peoples' [has numerous definitions, however, it can be considered to apply] across the world, to approximately 5000 peoples, which encompass some 370 million individuals (IWGIA, n.d.)" (p. iv).

Dobbs (2015) also discusses advances in understanding of indigenous cartographies, how ethnophysiography studies (e.g. Mark and Turk, 2003) contribute to knowledge about indigenous conceptualisations of landscape, and how these differ from modernist European/Western approaches. Dobbs highlights the key topics discussed in the inter-disciplinary articles in this special issue, including ethics and protocols, empowerment,

traditional indigenous knowledges, relationships with place, and changes of different types. She notes: "There is a clear distinction between mapping Indigenous communities, mapping (by/for/with/ with consent of) Indigenous communities, and Indigenous cartography" (p. vii). This is why it is necessary to develop an effective and ethical methodology for ethnophysiography case studies, which includes understanding of the relevant socio-cultural framework, and its role in longstanding indigenous ontologies of landscape as place.

This highlights the importance of studying landscape language used by a wide varity of peoples, in a range of topographic environments. A book by Rece Jones and Hew Lewis (2019) seeks to redress what they see as a deficit in the study of language within geography, not only in the particular languages studied, but also in terms of the ever-more-rapidly changing of geographies of languages, caused by increasing migration. This is seen as part of a poststructural and postcolonial approach by the discipline, seeking ways to link geography with language, culture and politics. They use Welsh as the example minority language.

Place in social and cultural geography

Harvey has contributed to geography scholarship regarding the nature of place, including critique of phenomenological approaches, in his publications: *The condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (1990a); and *Between Space and Time: Reflections on the Geographical Imagination* (1990b). These were followed by his 1993 publication *From Space to Place and Back Again: Reflections on the Condition of Postmodernity*. These constituted major contributions to intellectual debates about place in the latter part of the 20th Century, including power relations involved in capitalism and the relationship of modernity to postmodernity.

There is a multiplicity of terms that (perhaps with subtle differences) can be generically used for 'place' in English. Harvey (1993, p. 3) identifies: "milieu, locality, location, locale, neighbourhood, region, territory", and others which can be used more specifically, "home, hearth, 'turf', community, nation and landscape". The current approach to place (including in this dissertation) is, of course, much broader than the issue of 'territorial behaviours' that he pursues (e.g. from a Marxist perspective). It encompasses all placed-based activities and relationships with landscape, requiring a broad consideration in the context of social theory. Since the early 1990s this aspect of relationship with landscape has become more and more important with increasing use of GIS, Global Positioning Systems, the Internet, WWW and

social media, even for many indigenous peoples living in physically remote locations.

Harvey (1993, pp. 5 and10) quotes Heidegger as asserting that "place is the locale of the truth of Being" (p. 9) (i.e. place is central to being) and "Dwelling is the capacity to achieve a spiritual unity between humans and things" (p. 10). He agrees with Heidegger's development of concerns regarding 'authenticity' of dwelling' (p. 12). Key concepts are listed in Table 6.4.

Table 6.4: Key landscape concepts from Harvey (1993)

Code	Landscape Concept
Ha-1	The need to consider our relationships with landscape not just within our own specific place, nor just with respect to that of our immediate neighbours, but with our increasingly globalized economies and cultures.
Ha-2	(quoting Heidegger) Authenticity of dwelling is about "the capacity to achieve a spiritual unity between humans and things".

The work of Harvey meshes with notions of critical 'humanistic geography' in *Textures of Place: Exploring Humanist Geographies*, edited by Adams, Hoelscher and Till (2001). One of the contributors, Kenneth Olwig (2001, p. 93) contends that the complexities of place cannot be subsumed as mere location under the geographer's concept of space. Different concepts of place are discussed in the chapter by Yi-Fu Tuan (2001). He suggests they range from 'hearth' which "is local, cosy, familiar, nurturing [...] a small, circumscribed place, accessible to the sort of direct experience in which all the senses are engaged" (a bodily experience) to 'cosmos' which "implies the large, the abstract, and the impersonal, accessible only to mediated experience — to the eye, possibly, to the mind's eye, essentially" (a mental experience) (p. 319). Denis Cosgrove (2001; 2004) discusses the influences of pre-modern cosmography and sacred geography in current European concepts of place.   Table 6.5 lists key concepts.

Table 6.5: Key landscape concepts from some authors in Adams, Hoelscher & Till (2001)

Code	Landscape Concept
Ol-1	Each place is a special ensemble, with a history and meaning, incarnating the experiences and aspirations of a people.
Tua-1	Places range from the small, confined, nurturing and cosy, experienced primarily in a bodily way, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.
Co-1	Relationships with European landscape include remnants of pre-modern cosmography and sacred geography.

Of particular importance to this dissertation is the convergence between geography and philosophy regarding place, with Edward Casey being one of the key contributors (Chapter 5).

In his 2001c publication, he suggests that: "philosophy and geography now need each other – especially when it comes to matters of place" (p. 403).

Borders and place

The issue of borders is considered by authors in the collection of articles *Landscape and Transfrontier Co-operation* edited by Palmer and Therond (2010). One of the contributors, Andreas Stalder (2010, p. 3), discusses the *European Landscape Convention*, noting that it requires a collaborative and participatory approach between governments, disciplinary experts and publics in member countries. Issues include: the nature of frontiers (natural and fiat); consequences of fiat boundary-making; natural vs developed differences in landscape either side of frontiers; key role of river systems, including as boundaries (and consequences for river management); progressive loss of landscape character and identity; and the role of virtual landscapes. This highlights a range of ways that borders are involved in utilitarian, social and cultural issues.

In the Presentation section of Palmer and Therond (2010), Graham Fairclough emphasizes the significance of landscape in people's lives: "Landscape […] provides a common 'language' that arises simply from being human […] transcending nationality, race, religion or culture" (p. 4). This is not just a matter of topography; culture is important in determining landscape. Of course, land use types, such as agriculture, and social structures are also important. Boundaries play a key role, although they may be relatively 'young' and been historically subject to multiple changes. Hence, cross-border projects can help harmonise approaches to landscape management.

The "Conclusion", by Maguelonne Déjeant-Pons (2010), includes discussion of political integration efforts across Europe and the role of cross-border collaboration, particularly regarding landscape management. This applies especially to "conservation and sustainable use of natural resources (particularly in the case of mountain and coastal regions, forests and wetlands, etc.) and of water resources" (p. 46). The European Landscape Convention, the journal and this collection of articles, all emphasize the importance of landscape in the overall European culture and protocols of co-operation. This was alluded to in Chapter 2 (Section 2.7.2) and Appendix 3, regarding discussions at the ESF Exploratory Workshop on landscape. Table 6.6 lists some relevant issues.

Table 6.6: Key landscape concepts from Palmer and Therond (2010)

Code	Landscape Concept
St-1	Role of international conventions regarding landscape definition and management, especially influencing collaborative transfrontier landscape projects.
St-2	Importance of boundaries (natural and fiat) in landscape.
St-3	Key role of river systems, including as boundaries (and consequences for river management).
St-4	The progressive loss of landscape character and identity.
St-5	The role of virtual representation in understanding landscapes.
Fa-1	Landscape importance transcends nationality, race, religion or culture.

The issue of boundaries was also addressed by this author, in his book chapter, "Representations of tribal boundaries of Australian Indigenous peoples and the implications for geographic information systems" (Turk, 2006). This publication sought to provide at least a partial understanding of the nature of Australian Aboriginal boundaries, especially variations which occur in the physical definition of boundaries and their (intentional and unintentional) indeterminacy. This work drew on Peter Sutton's (1995) *Country: Aboriginal Boundaries and Land Ownership in Australia*, that provides an effective critical analysis of Stephen Davis and Victor Prescott's (1992) *Aboriginal Frontiers and Boundaries in Australia*.

Sutton (1995) assembled detailed evidence about Aboriginal land tenure over a wide range of 'country' across Australia, provided by Aboriginal informants and 40 leading anthropologists, linguists, geographers and historians. He explains the nature of boundaries as zones and how people develop complex relationships with particular areas of territory through their parents and life experiences, providing them with rights, privileges and responsibilities to care for 'country'. He references key texts on this topic, including Petersons' *Tribes and Boundaries in Australia* (1976) and Tindale's *Aboriginal Tribes of Australia* (1974). Tables 6.7 and 6.8 provide summaries of key aspects of Australian Aboriginal concepts of rights and responsibility for 'country', and hence borders.

Table 6.7: Key aspects of Aboriginal territories from Sutton (1995)

Code	Aboriginal concept of territories
Sut-1	Particular Aboriginal groups (*tribes, bands* and *clans* in Tindal's terminology) are "simultaneously both descent-based categories *and* physical occupiers of defined land areas which are their territories" (p. 40).
Sut-2	People currently dwelling in a particular area may not be the same as those who 'own' that 'country'.

Sut-3	Individuals may well have rights and responsibilities in overlapping territories (perhaps via marriage).
Sut-4	Land rights laws have increased the political importance of language groups as a way of differentiating one group from another.
Sut-5	Maps of 'tribal areas' are inherently problematic and could be unreliable due to the purpose of the cartographer.
Sut-6	Coastal people's occupation of territory was reasonably stable prior to colonization.
Sut-7	"In the most arid areas, the negotiability of land-based identity is high indeed" (p. 50)
Sut-8	"In some areas, perhaps many, a single clan estate may consist of several sections separated by lands of other land-owning units" (p. 51).
Sut-9	Succession of ownership by another group to land previously owned by a now deceased group is required (to look after country) and may take more than one generation.
Sut-10	'Transitional zones' exist between territories and a good way to determine the edge of a territory is to note the 'handover points' on Dreaming tracks ('song lines'), however, they "do not inevitably define possessory interests in land" (p. 55).
Sut-11	"Debates and disputed succession are integral to land tenure systems under Aboriginal tradition, not a sign of their decay" (p. 59).

Table 6.8: Key border and 'country' concepts from Sutton (1995)

Code	*Landscape Concept*
Su-1	Australian Aboriginal territories include particular areas of landscape defined by issues of inheritance and occupation.
Su-2	Australian Aboriginal individuals may well have rights and responsibilities in overlapping territories (perhaps via marriage).
Su-3	A single Australian Aboriginal clan estate may consist of several sections, separated by lands of other land-owning units.
Su-4	'Transitional zones' exist between Australian Aboriginal territories.

Conclusions

Discussion in subsection 6.3.2 has demonstrated that there has been considerable development in geography regarding the concept of space over the last century, and especially in recent decades. This reflects a certain fragmentation of the discipline into sub-disciplines, each promoting specific notions regarding place. There has also been increasing interdisciplinary (even transdisciplinary) involvement of geographers in discussion about place, including engagement with other fields of social science and humanities. As discussed in Section 6.5, landscape concepts listed in phenomenographic Tables 6.1 to 6.8 contribute to Table A7.1 in Appendix 7. Table A7.9 in Appendix 7 includes additional references for indicated specific topics discussed in this section.

6.3.3 Concepts of place from social science and humanities disciplines other than geography

Introduction

From the 1990s there was increased interest in issues of place and space within the social sciences and humanities disciplines, in some instances driven by ideas from postmodernism. Benko and Strohmayer (1997) survey such developments in their edited book *Space & Social Theory: Interpreting Modernity and Postmodernity*. Although 13 of the 18 contributors are geographers (with a strong social/cultural perspective), the book also includes contributions from researchers in planning and regional development, economics and cultural theory. Contributions include discussion of: 'postmodernism'; the crisis of representation (a critique of established scientific categories and 'deconstructive' practices); and the resulting postmodern turn in the social sciences (including geography). Authors emphasise the indivisibility of the social world, requiring heightened collaboration between sub-groups of geography and other social science disciplines, especially with respect to rising multiculturalism.

Landscape and its role in society-environment relations has been discussed by authors in several other social science and humanities disciplines. These include anthropology, philosophy, ethnoecology, cultural studies, landscape architecture, sociology, and environmental science. Some of these contributions are briefly reviewed in this sub-section, grouped under the principal disciplines involved.

Anthropology

The "Afterword" to the book *Senses of Place* (1996), edited by Feld and Basso, notes that this collection marks an advance in the way anthropology discusses the 'ubiquity' of the sense of place. Geertz (1996) notes: "To study place, or, more exactly, some people or other's sense of place, it is necessary to hang around with them – to attend to them as experiencing subjects, as the responsive sorts of beings for whom, in Casey's words, 'the world comes bedecked in places'" (p. 260). This is the 'embedded' ethnographic approached used for ethnophysiography case studies. Geertz emphasizes that this is not just a matter relating to the past or to indigenous peoples living a stable traditional lifestyle; "for all the loss of local stabilities and local originalities, the sense of place, and of the specificities of place, seems, however tense and darkened, barely diminished in the modern world" (p. 261).

In her AIATSIS Wentworth lecture, Australian Aboriginal anthropologist Professor Marcia Langton (2019) examined several instances of ancient Australian indigenous knowledge and their relevance to modern problems in Australia. She emphasised the complex Aboriginal

relationships with 'country' developed during the past 65,000 years, including an ice age, major sea level changes and extinction of flora and fauna. There are hundreds of indigenous traditional stories, from across Australia, which tell about the major events. This ITK is part of the complex socio-cultural system that structures Aboriginal lifeworlds [see also Boyce, 2010; 2012; Gammage, 2012; Griffiths, 2018; Pascoe, 2014].

Transdisciplinary and inter-cultural methods for ethical and effective understanding and application of ITK from indigenous Australians, in research and teaching, are discussed in Christie, 2006; 2008; 2013; 2015; 2016; Christie et al., 2010; Christie and Verran, 2010. Investigation of indigenous knowledge systems can assist understanding of phenomenology and its role in social sciences. Christie (2015, p. 93) notes: "The knowledge practices of Indigenous people may provide valuable insights and strategies in our struggle to understand the processes and effects of globalisation on the social sciences and humanities."

Philosophy

A detailed discussion of philosophical aspects of the topic of place is provided in Chapter 5, with only some specific additional aspects addressed here. A phenomenological perspective of the sense of place, as one's own place, is explored by Casey (1996, p. 18): "There is no knowing or sensing a place except by being in that place, and to be in a place is to be in a position to perceive it. Knowledge of place is not, then, subsequent to perception – as Kant dogmatically assumed – but is ingredient in perception itself […] Local knowledge is at one with lived experience if it is indeed true that this knowledge is of the localities in which the knowing subject lives". To love a place is to know it. Such knowledge is assembled through a multitude of lived experiences in that place; physical, utilitarian, social, cultural and spiritual.

In the discussion of place by Christopher Preston (2003; 2005), ecology and dwelling are examined in the context of aesthetics, ethics, epistemology and phenomenology; constituting 'Environmental Philosophy'. He emphasises that knowledge is 'grounded' in where we acquire it, which applies in a general sense, but specifically with respect to particular places and the knowledge relating to activities that are linked to landscape as taskscape. The shape of landscape influences cognitive processes and hence the landscape language used by any particular group of people. Key concepts from this review are listed in Table 6.9.

Table 6.9: Key landscape concepts from Preston (2003)

Code	Landscape Concept
Pr-1	Landscape forms impact on ontology and epistemology and hence conceptualisations of landscape and language terms.
Pr-2	Embodiment is an important part of the way landscape influences conceptualisations and terms.

Although social and cultural factors are important, the nature of the physical environment is critical. As Code (2005) notes, lived experience is relevant to consideration of all types of phenomena, including aspects of embodiment. Such considerations are included in the independent set of factors in the EDM constructed in Chapter 2, and revised in Section 6.9.2 of this chapter. A crude example concerns the particular approximate height of a feature considered to be a mountain, rather than a hill. This depends at least partly on the range of sizes of eminences existing in the locality where that language was developed and is currently used.

Ethnoecology

Researchers from the field of ethnoecology have made key contributions to ethnophysiography (and landscape language) research. An important milestone was the edited book by Johnson and Hunn *Landscape Ethnoecology: Concepts of Biotic Physical and Space* (2010a). The chapters emphasise the importance of vegetation (at landscape scales) as part of the physical aspects of landscape. Flora and fauna are key landscape resources, especially for indigenous peoples, and hence a critical aspect of their lifeworld and how landscape is taskscape. Ethnoecology seeks to find commonalities across particular modes of dwelling in different topographic environments.

In the "Introduction", Johnson and Hunn (2010b) state that: landscape ethnoecology examines "understandings and classifications of landscape elements cross-culturally" and "underscores the holistic construction of meaning in understandings of landscape, developing a conceptual and moral dimension of 'being in the world' or dwelling in particular environments" (pp. 3-4). Hence, the book is relevant to this dissertation.

Johnson and Hunn (2010b) define 'ecotopes' as 'the smallest units of landscape' with respect to a 'kind of place', especially as recognized by those who dwell there. A *folk ecotope*, or perhaps a *cultural ecotope*, is an area of land with particular "biotic, abiotic, and cultural or anthropogenic types" (p. 2). Hunn and Meilleur (2010), note that a "subsistence space" may be partitioned into patches (ecotopes), with either sharp or diffuse boundaries (p. 15). A particular

type of vegetation stretching over a substantial area of landscape could be an ecotope. Ecotope terms can influence placenames (toponyms) (e.g. in Manyjilyjarra; Chapter 8).

The contribution by Mark, Turk and Stea (2010), in Johnson and Hunn, 2010, reviews the development of ethnophysiography and approaches to generation of landscape terms and toponyms. They discuss the role of *ecotopes* in landscape conceptualization and language for Australian Aboriginal peoples, indicating some examples from their own work (p. 32) and quote Layton's (1997, p. 132) discussion of relevant terms for elements of landscape in the language of the Alawa people of Northern Australia, and the work of Koford (2003) writing about 'topographical nominals' in the Gija language in Northwestern Australia. Some key concepts from contributors to Johnson and Hunn (2010) are listed in Table 6.10.

Table 6.10: Key landscape concepts from chapters in Johnson and Hunn (2010)

Code	Landscape Concept
J&H-1	Importance of vegetation (at landscape scales) as part of the physical aspects of landscape; as identified via ethnoecology studies.
J&H-2	Definition of 'ecotopes' as 'the smallest units of landscape' with respect to a 'kind of place'.
H&M-1	Ecotope terms may influence placenames (toponyms).
Ko-1	In the context of indigenous land claims, having a detailed lexicon of terms that fit the landscapes in a particular region is evidence that those people 'belong' in that landscape.

In other landscape language case studies (e.g. Cuéllar, 2019), particular parts of the topographic environment, including ecotopes, have been be associated with particular activities and hence with specific groups within a language community, or even body parts. In an Australian indigenous context, such an activity could be digging for wild root vegetables, and perhaps associated with the hands of older women. This can impact on the ontology of landscape terms and topics used for toponyms. Burenhult, Hill, Huber, van Putten, Rybka, K. and San Roque (2017) and Rybka (2017) review the role of vegetation in landscape language, as demonstrated in a range of case studies in different topographic environments in various parts of the world.

The term 'ethnogeomorphology' was introduced by Wilcock, Brierley and Howitt (2013) to cover an approach to landscape that considers cultural (living) aspects, together with geomorphological ones; recognizing that "landscapes are necessarily and simultaneously cultural and biophysical" (p. 573). They aim to move beyond consideration of research in particular disciplines, and their associated epistemologies, "towards a shared (if contested)

platform of knowledge transfer and communication that reflects multiple ways of connecting to landscapes" (p. 573). Their proposition is advanced via review of ethnographic case studies on indigenous communities in Australia and Canada, noting that "geographic and historical considerations underpin many Indigenous knowledges and associated relationships to place, typically expressed through 'whole of system' understandings" (p. 574). The challenge is to identify common, perhaps universal, ways that ecology impacts on landscape language.

Wilcock, Brierley and Howitt (2013) provide a review of cultural geography approaches to ecology, landscape and place, including the work of Wylie (2007; 2009). They also cite Sauer's (1963) notion of 'culture as agent, landscape as medium' and suggest that a more 'mutually constituted' view is required, integrating considerations from multiple disciplinary approaches, recognizing the connection between nature (landforms and climate) and culture. This is akin to a 'cultural studies' view and aligns with the phenomenological approach adopted in this dissertation. They discuss their approach in the context of ethnographic case studies with indigenous peoples, the Yorta Yorta in Australia, and Stuart Lake Keyohs in Canada.

In their discussion section, Wilcock, Brierley and Howitt (2013) summarise their approach as: "Seeing the landscape not as the sum of its constituent parts, but rather as a dynamic entity that is capable of highly complex and emergent process interactions, be they biophysical or cultural, has potential to open doorways of intercultural approaches to landscape analysis" (p. 591). They note the importance of considering indigenous connections with landscape in terms of their cultural/spiritual framework, such as 'The Dreaming' (*Jukurrpa*) or equivalent cultural worldviews. This equates to a Heideggerian topological approach. Further discussion of *Jukurrpa* is provided in Section 6.8, Chapter 8 and Appendix 13.

Wilcock, Brierley and Howitt (2013) cite Tsing's (2004) contention that place-making is 'sticky' and irrevocably local, but it is also a universal process. The key topics from this publication are listed in Table 6.11.

Table 6.11: Key landscape concepts from Wilcock, Brierley and Howitt (2013)

Code	Landscape Concept
WBH-1	No ontological separation between nature and culture.
WBH-2	Lakes and streams connect surface and sub-surface water.
WBH-3	Physical places are viewed in relation to other sites as well as in multiple times – e.g. in narratives, channels connect underground the river, weaving

	through and across the river. These stories connect spaces and are spoken about in the past/present/future in one moment.
WBH-4	Narratives of the Dreaming give a context of multiple times, connecting human history and geomorphological history through talking about particular events.
WBH-5	The messages in the storytelling for a river demonstrate ontological connections between biophysical and cultural landscapes.
WBH-6	Landscape is sentient and imbued with spirit, capable of responding to human action.

Ecology, landscape architecture and planning

As discussed in Chapters 4 and 5, Seamon has published widely concerning concepts of place over many years, across several disciplines. He also edits the *Environmental Architecture and Phenomenology Newsletter*, in which he published in 2000 a review of literature regarding concepts of place: *Phenomenology, Place, Environment, and Architecture: A Review of the Literature*. Seamon (2006, pp. 53-86) argues for a 'phenomenological ecology' and contends that: "Ecology, both as a science and as a world view, emphasizes the study of relationships, interconnections, and environmental wholes that are different from the sum of their environmental parts" (p. 53). Seamon also discusses living in place as being in the 'world of praxis'. This includes interactions with landscape which involve 'everyday movements', involving the 'body-subject' in intentional acts, performed as part of regular activities of a lifeworld (citing Merleau-Ponty, 1962, p. 138-9). Seamon terms each of these activities a "*body routine* – a set of integrated gestures, behaviours, and actions that sustain a particular task or aim [or] *time-space routine* – a set of more or less habitual bodily actions that extends through a considerable portion of time – for example, a getting-up routine or a weekday going-to-lunch routine" (p. 55). This approach facilitates identification and labelling of everyday procedures of the lifeworld in taskscape.

Seamon (2006) extends this concept to include a term for a set of such actions, which are performed communally. He calls this a "*place ballet* – an interaction of time-space routines and body routines rooted in space, which often becomes an important place of interpersonal and communal exchange and meaning" (p. 55). He suggest that these constitute "bodily routines", that are part of "habituality", given that they "exist largely in the natural attitude outside of self-conscious awareness" (p. 68). Such regular lifeworld sets of movements involve unquestioned repetition and routine; which can be linked to the concept of mimesis (Gibbs, 2010) (see Section 6. 4).

Seamon (2014c, p. 11) notes: " An important phenomenological question is whether place attachment is a phenomenon unto itself or only one dimension of a more comprehensive lived structure identified *as place and the experience of place*". Clearly, the latter is the case. He notes: "Phenomenologically, place is not the physical environment separate from people associated with it but, rather, the indivisible, normally unnoticed phenomenon of person-or-people-experiencing-place." (p. 11). Reductive and objectivist approaches do not do justice to the wholeness of the diverse real-world relationships. This point is very important regarding the role of the EDM proposed in this dissertation. Key landscape related concepts of place from publications by Seamon are summarized in Table 6.12.

Table 6.12: Landscape concepts from Seamon (2006 [Se]; 2014 [Sea])

Code	Landscape Concept
Se-1	Interaction with landscape involves sets of regular movements (*place ballet*) to accomplish every-day tasks as part of a person's and group's lifeworld activities.
Sea-1	Reductive and objectivist approaches do not do justice to the wholeness of the diverse real-world relationships between people and places.
Sea-2	Movement (and being stationary), at differing spatial-temporal scales, is part of the dialectic between bodies and landscape.
Sea-3	In terms of bodily awareness, one can experience places as enfolding (being within them) or external, even distant (such as a mountain on the horizon).
Sea-4	Places are constituted, sustained or undermined by: '*place interaction*' (typical every-day activities in a place) whether by individuals or formal or informal groups.
Sea-5	Places are constituted, sustained or undermined by: '*place identity*', which refers to how people dwelling in a place can make it a significant part of their personal and/or communal identity.
Sea-6	Places are constituted, sustained or undermined by: '*place release*', which involves an environmental serendipity of unexpected encounters and events.
Sea-7	Places are constituted, sustained or undermined by: '*place realization*', which refers to what physically exists in a particular landscape, coupled with the effects these constituting features have on actual or potential activities, or affective states, for individuals or groups. Important characteristics of places may not be just about utilitarian activities but may relate to beauty, awe and sacredness.
Sea-8	Places are constituted, sustained or undermined by: '*place creation*', where characteristics (positive and negative) result from human agency/intervention.
Sea-9	Places are constituted, sustained or undermined by: '*place intensification*', which refers to mechanisms (e.g. human agency), which increase (or diminish) the characteristics of a place, making it a more (or less) complex place with additional (or fewer) attributes.

Discussion of place has also been central to theoretic developments in the fields of Urban and Regional Planning, which overlap with Landscape Architecture. Edward Soja (1997) discussed developments in scholarly discourse (regarding epistemology and ontology) in response to the

postmodern 'turn' in social sciences, including geography and planning. There has been a challenge to the previously dominant theory in planning; the 'scientific method', which has been the basis for rational development of ways to improve society through planning of cities and regions. Some approaches involved a 'critical' epistemology, blending Maxist critiques with social theories (p. 240). These 'late modernist' theories were then challenge by postmodernism, including the influences of Henri Lefebvre and Michel Foucault (Soja, 1989). He suggests that a new approach needs to be built on these foundations. This requires "an epistemological openness and flexibility that are suspicious of any attempt to formalize a single, totalizing, way of knowing, no matter how progressive it may appear to be" (p. 245). Such openness should be used to interrogate "ambiguity, fragmentation, multiplicity, and difference, for these are the material social realities of the contemporary world" (pp. 245-6). The phenomenological methodology proposed in this dissertation seeks to implement these objectives. Table 6.13 lists key landscape concepts from Soja.

Table 6.13: Landscape concepts related to planning - from Edward Soja (1997)

Code	Landscape Concept
So-1	Understanding landscape requires an epistemological openness and flexibility, rather than formalized single, totalizing, way of knowing.
So-2	Understanding landscape requires interrogation of ambiguity, fragmentation, multiplicity, and difference in social realities.
So-3	Ontological approaches and subjective methodologies need to incorporate spiritual aspects of concepts of place.

Space and place in cultural theory

Cultural theory is discussed in a vast literature. Here only a few contributions are considered which relate directly to concepts of place. The first two are drawn from the edited collection by Benko and Strohmayer (1997), which was introduced above in the sub-section regarding concepts of place in geography. This collection captures the mood at the 'turn towards postmodernism', which influenced many social science and humanities disciplines, and facilitated an up-surge of interest in cultural theory, especially regarding relationships with place.

The relationships that people have with places are strongly linked to identity. Natter and Jones (1997) pursue this complex and uncertain theme in the context of a postmodern cross-disciplinary approach to place within social science and the humanities. They examine the role of categorization in 'identity theory' and suggest that a key relevant notion is 'boundaries'; "as

in where and how identity becomes circumscribed" (p. 142).

Aspects of identity are also linked to what Shields (1997) terms 'social spatialization'; "Bodies are understood and lived spatially as much as are topographical sites in the landscape" (p. 186). This requires that "issues of cultural spatiality not be reduced to an empirical notion of objects-in-space" (p. 186). He also discusses the overcoming of class and ethnic divisions and "the certainties of place- and space-based systems of linguistic reference and conceptual shortcuts" (p. 187). Instead, it is necessary to interrogate 'social significance' of places (Massey, 1984).

The spatial culture of nomads is discussed by Cresswell (1997) so as to interrogate the impact of mobility on identity. He suggests that this is a hot topic; with 'metaphors of movement' common in texts of "cultural theorists, social theorists, geographers, artists, literary critics (e.g. Deleuze and Guattari, 1986; 1987)" (p. 360). Such concepts of movement are important aspects of relationships with landscape. Thus, in some ways, the postmodern aligns with the pre-modern, a concept that is addressed in other parts of this dissertation. Phenomenographic Table 6.14 lists concepts discussed in this subsection.

Table 6.14: Landscape concepts related to boundaries

Code	Landscape Concept
B&S-1	Spatial boundaries play a key role in categorization of people's identities.
Sh-1	Identity with respect to landscape may not necessarily align with linguistic reference or social conceptual shortcuts, such as social and financial circumstances or race or class.
Sh-2	Naming of places is related to habitual spatial practices, representations of the world, and a spatial, imaginary geography, linked to culture and spirituality.
Cr-1	Physical movements, of many types, can be a key aspect of people's relationships with landscape.
Cr-2	Paths of movement may be habitual, as part of a person's lifeworld and taskscape.

Dorfman (2007) reviews the theoretical grounding of cultural studies since the late 1970s. He suggests that it is possible to integrate classical cultural studies theories with forms of phenomenology; the most dominate current paradigm. In 2011, philosopher Tõnu Viik applied phenomenology to the analysis of perception of landscapes. 'Meaning formation theory' (Husserl) indicates that a specific meaning is developed ('grasped') by each individual observer. Viik (2011) asserts that: "When the 'grasping sense' becomes intersubjectively valid and institutionalized, it obtains the status of a cultural form which functions as a meaning-

bestowing automaton for interpreting the world for entire societies" (p. 103). Thus meaning of places relates to language and culture.

In a recent book edited by Janet Donohoe, *Place and Phenomenology* (2017a), key authors discusses a cross-disciplinary approach to phenomenology of place. The book covers a wide range of relevant topics from embodiment, identity, sacred places and responses to particular landscapes. This book and other publications related to cultural theory and philosophy are discussed in Chapter 5.

There are many other researchers on this topic who could be quoted here, if there was space. For instance, Hubbard, Kitchin, and Valentine's edited collection (2004) includes reference to 60 key thinkers regarding concepts of place, especially within the social sciences (including: in geography, sociology, urban studies, cultural studies and anthropology). It includes discussion of: biographical information about researchers and their theoretical context; explication of their contribution to spatial thinking; an overview of key advances and controversies; and bibliographies of primary and secondary literature.[33] Review essays on this book appear in the journal *Environment and Planning A* (2005), volume 37, pages 161 to 187. At least one reviewer (Michael Samers, pp. 174-176) considers that the book concentrates too much on geographers from the 'white-dominated Anglo-American academy'. Mark Purcell (pp. 177-180) suggests that an ideological bias has led to exclusion (or limited consideration) of at least some radical voices (e.g. Benedict Anderson re theorization of 'nation'). Elspeth Graham (pp. 181-183) also notes the Anglo-American bias but is generally more positive, noting that the book is highly readable and raises key questions about place in the context of geography and other relevant disciplines.

Subsection conclusions

The authors reviewed in subsection 6.3.3 include a wide cross section of writers in this field from a range of social science and humanities disciplines. Thus the key concepts listed in Tables 6.9 to 6.14 provide a useful contribution to the collection of aspects of landscape that are utilised in the concatenated phenomenographic Table A7.1 in Appendix 7 (see Section 6.5).

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[33] https://us.sagepub.com/en-us/nam/key-thinkers-on-space-and-place/book234108 [accessed 12 th February, 2020]

Table A7.9 in Appendix 7 includes additional references for indicated specific topics discussed in this section.

6. 4 Landscape, Affect, Emotion, Mimesis and Refrains

6.4.1 Introduction to section

From the discussions in Chapters 2 and 5, and earlier section of this chapter, it is clear that people's relationships with landscape involve strong and complex feelings; affects. Affect plays a complex and central role in the lives of individuals and groups, permitting consideration of aspects of thought often previously dismissed as unimportant or magical. Under a variety of circumstances, affects can be expressed as emotions, for instance when a striking scene suddenly increases the intensity of affect. Malpas (2018, p. 1) discusses the phenomenological linkage of emotions to places:

> In phenomenological terms, emotion is essentially disclosive of the world. Yet in
> being so, emotion is also tied to the felt bodily locatedness – the 'being-placed' – of
> the subject. Emotion thus belongs not to phenomenology alone, but to the essential
> topology of the human, and as part of that topology, emotion belongs to the
> externality of things no less than to the internality of the self.

The notion of 'affect' used in this chapter is different from the way the word has often been used before in academic literature, especially in the discipline of psychology, to mean emotions. The use of affect by recent writers, from a range of disciplines, adopts a more complex and central role for affect in the lives of individuals and groups, permitting consideration of aspects of thought often previously dismissed as unimportant or magical. Under a variety of circumstances, affects can be expressed as emotions, for instance when a striking scene suddenly increases the intensity of affect.

Leys (2011, p. 436) notes that affect theorists contend that "most philosophers and critics in the past (Kantians, neo-Kantians, Habermasians) have overvalued the role of reason and rationality in politics, ethics, and aesthetics, with the result that they have given too flat or 'unlayered' or disembodied an account of the ways in which people actually form their political opinions and judgments". This unbalanced approach has also had a significant impact on discussion of dwelling in landscape.   An objective of this dissertation is to address this problem.

Subsection 6.4.2 discusses the 'turn to affect' in literature and social sciences, and applies this to geography, place and landscape. This includes the role of atmosphere and mimesis in transfer of affects. Subsection 6.4.3 examines the concepts of 'sense of place', 'place attachment' and 'topophilia', as introduced by Y-F Tuan in his book *Topophilia: A study of environmental perception, attitudes and values* (1974).

6.4.2 The turn to affect and the concept of atmosphere

Since 2000 there has been a 'turn to affect' in the humanities and social sciences. This subsection seeks to put flesh on Massumi's (2002) skeletal definition of affect (p. 28) quoted below, to assist in understanding the seemingly boundless alternative definitions he provides (at page 33), and to focus on the version he provides in the "Introduction" to *A Thousand Plateaus* (Deleuze and Guattari, 1980/1987). This exploration of the meaning of affect is aided by review of chapters in Gregg and Seigworth's *The Affect Theory Reader* (2010). Several approaches to understanding affect are needed, since the meaning of the term, and its relationship to emotions, are complex, slippery and disputed. This is also the reason for including several long quotations below.

Brian Massumi (2002, p. 28), a frequently quoted author on this topic, discusses the relationship between 'affect' ('intensity') and 'emotion':

> An emotion is a subjective content, the sociolinguistic fixing of the quality of an experience which is from that point onward defined as personal. Emotion is qualified intensity, the conventional, consensual point of insertion of intensity into semantically and semiotically formed progressions, into narrativizable action-reaction circuits, into function and meaning. It is intensity owned and recognized [although] unqualified. As such, it is not ownable or recognizable and is thus resistant to critique.

This definition of affect as intensity, and emotion as its manifestation, may seem too open or obscure to be immediately useful. Massumi (2002) provides some further oblique clues. He notes that affect operates at a variety of levels: "The levels at play could be multiplied to infinity: already mentioned are mind and body, but also volition and cognition, at least two orders of language, expectation and suspense, body depth and epidermis, past and future, action and reaction, happiness and sadness, quiescence and arousal, passivity and activity, and so on"

(p. 33). Affect is implicated in some way in most of (perhaps all) every-day activities in ways that range from bodily responses to the most abstract ideas.

Cleary Massumi (2002) sees affect operating over an extensive field within the lifeworld of individuals and communities. Each of the aspects mentioned above are considered as "resonating levels" rather than "binary oppositions or contradictions" (p. 33). He continues: "Affect is their point of emergence, in their actual specificity, and it is their vanishing point, in singularity, in their virtual coexistence and interconnection – that critical point shadowing every image/expression-event" (p. 33). Affect can be experienced in oneself, and observed in others, via its actualisation as emotions, while it is itself the deeper reasons for particular instances of display of emotions.

Massumi provides a somewhat more tractable definition in the Introduction (p. xvi) to his translation into English of Deleuze and Guattari's *A Thousand Plateaus (1980/1987):*

> AFFECT/AFFECTION. Neither word denotes a personal feeling (sentiment in Deleuze and Guattari). L'affect (Spinoza's affectus) is an ability to affect and be affected. It is a prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. L'affection (Spinoza's affectio) is each such state considered as an encounter between the affected body and a second, affecting, body (with body taken in its broadest possible sense to include 'mental' or ideal bodies).

Genosko (2002), in discussing influences from Guattari, suggests that Massumi (1995, p. 96) equates intensity and affect, which can be problematic regarding the autonomy of affect itself: "What makes affect autonomous is that it escapes confinement (by a particular body) and limitation by what actualizes it (emotions, for instance, or perceptions): 'something remains unactualized, inseparable from but unassimilable to any particular, functionally anchored perspective'" (p. 52). This suggests that affect can be experienced as a communalised response to place, not just individual feelings.

A critical approach to affect theory is adopted by Leys (2011), who suggests that: "affects must be viewed as independent of, and in an important sense prior to, ideology – that is, prior to intentions, meanings, reasons, and beliefs – because they are nonsignifying, autonomic processes that take place below the threshold of conscious awareness and meaning" (p. 437).

This infers that affects must be 'noncognitive, corporeal processes or states'. This aligns with Massumi's assertion that affect is "irreducibly bodily and autonomic" (p. 437). The quotation above from Leys (2011) seems at odds with descriptions of affect by at least some other authors. Perhaps we are in such an early stage of 'the turn to affect' that it's meaning is naturally emergent and hard to define.

Disagreements about affect, arising from the work of new phenomenologists, can perhaps be addressed by reviewing affect and emotion from the perspective of traditional phenomenology. Heidegger's approach to the concept of affect (termed 'mood') is discussed by Lauren Freeman (2014). She notes that Heidegger contends that, although mood is affected by immediate circumstances, it fundamentally involves deep-seated aspects of an individual's mind. Hence, investigation of these aspects can benefit from an interdisciplinary approach, including both psychology and phenomenology.

A collective affect, generated by a particular place, can be termed 'atmosphere'. See Chapter 4, Section 4.2.5 (Elsenlohn, 2018; Ingold 2016). Friedlind Riedel (2019, p. 85) provides a definition:

> 'Atmosphere' refers to a feeling, mood, or Stimmung that fundamentally exceeds an individual body and instead pertains primarily to the overall situation in which bodies are entrenched […] Atmospheres are thus modes in which the world shows up or coalesces into an indivisible and intensive situation or in which a group of bodies comes to exist as a felt collective.

Riedel (2019) credits introduction of the term 'atmosphere' to German phenomenologist Hermann Schmitz (in the 1960s), who "considered atmospheres as meaningful situations and as spatially extended non-subjective feelings" (p. 85). Since then the term has been used in various disciplines, not necessarily linked to phenomenology. A particular place could be considered to be 'governed' by its atmosphere, perhaps because of spiritual associations, as is the case for Martu people at *Yimiri,* and Yindjibarndi at *Nunganunna.* An atmosphere can be negative, such as a traditional taboo (not to be entered) place (*ngurlu* in Manyjilyjarra). An atmosphere for a place can also be newly created, especially in an urban setting (Bille, Bjerregaard and Sørensen, 2015).

In a metaphorical sense, atmosphere could be considered to operate like a 'virtual landscape', within which, thoughts, feelings and actions occur, each person being influenced by the flux of affect; by analogy, like a body moving through and physically experiencing landscape (topography), influenced by variations in elevation, surface, vegetation, etc.[34] The variations in the fields of affect are not random, rather they are the result of historical processes, as well as geomorphology, which over time and space produce a certain order (topology), albeit imperfect, potentially temporary, and hard for the uninitiated to discern.

Slaby (2017) claims "Martin Heidegger's perspective stands out among the many proposals for understanding affect in the phenomenological tradition" (p. 7). She notes that affect is more than a feeling; it is a radical expression of the radical situatedness of an agent in their factual surroundings" (p. 8). Affectivity exists continuously but varies across time, and thus has temporality: "what affectivity gets us in touch with is the concrete past - lived, ongoing history - insofar as this past continues to weigh on and sets the stage for present and future comportment" (p. 8). See also Elpidorou (2013), Elpidorou and Freeman (2015), Golob (2017) and Ratcliffe (2013).

There is also a strong research tradition of using phenomenology to assist in understanding the role of affect and emotion in the lifeworld of communities. As Heidegger states, all *sein* (being) is *mitsein* (being with others). This applies to affect, which is shared among a work group, family or community. Emotion, the instantiation of affect, may seem more personal but is also often a group manifestation of shared affect. This can be applied in analysis of relationships with landscape, for instance, regarding topophilia (Tuan, 1974), and communal responses to sacred sites. Indeed, affect can have an influence of a much broader geographical domain, involving a much higher number of people. Campbell (2016) discusses how affect can influence people living across geographic/administrative regions. Similarly, an entire Australian Aboriginal language group is subject to affects (atmosphere) that apply to their whole 'country', the region where they have environmental social, cultural and spiritual rights and responsibilities. See Chapters 8 and 9 (Section 9.3.3) and Kelly (2019). Communal affect can be strongly influenced by mass communications (Bertelsen and Murphie, 2010).

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[34] This relates to concepts raised by Simpson (2010, pp. 129-134), following on from ideas in Lorimer, 2008; McCormack, 2008; Thien, 2005; Thrift, 2007; Tolia-Kelly, 2006; Tolia-Kelly, D., Waterton, E. and Watson, S. (Eds.), 2017 and others.

Communal affect can influence feelings and actions of many people, at a particular time, and potentially, over long periods. In a landscape context, affect can, for instance, be the basis for involvement in ritual activities at sacred sites. Indeed, feelings are a central feature of all forms of socio-cultural frameworks. Aboriginal elder Bill Neidjie (1989, p. 19) explains (in Aboriginal English) that some feelings, as full body experiences, result from knowing *Jukurrpa* stories about the sky, the land and its vegetation and animals:

> Listen carefully, careful
> and this spirit e come in your feeling
> and you will feel it…anyone that.
> I feel it…my body same as you.
> I telling you this because the land for us,
> never change round, never change.
> Places for us, earth for us,
> star, moon, tree, animal,
> no-matter what sort of a animal, bird or snake…
> all that animal same like us. Our friend that.
>
> This story e can listen careful
> and how you want to feel on your feeling.
> This story e coming through you body,
> e go right down foot and head, fingernail and blood…
> through the heart.
> And e can feel it because e'll come right through.
> And when you sleep you might dream something.

This quotation demonstrates how powerfully affect applies to indigenous relationships with landscape. Of course, strong affects regarding landscape can be experienced by all peoples dwelling in all places, in any part of the world. Other references relating to affect, mimesis, refrains, in the context of landscape, are included in Table A7.9 in Appendix 7.

6.4.3 Sense of place, place attachment and topophilia

Investigations of individual and communal relationships with landscape span many disciplines and traditions. Lewicka (2011) provides an extensive review of several hundred empirical and

theoretical papers and chapters regarding place attachment over the preceding forty years. Her review "reveals that despite mobility and globalization processes, place continues to be an object of strong attachments" (p. 207). She finds that concentration on place attachment by individuals has received disproportionately more attention than the nature of places and processes of attachment, which has probably inhibited the development of appropriate theory. To remedy this situation, she suggests that more attention be paid to "theories of social capital, environmental aesthetics, phenomenological laws of order, attachment, and meaning-making processes that stem from movements and time-space routines (p. 207). See review of Lewicka (2014) below for discussion of some of these issues.

Cross (2001) suggests that 'sense of place' is a complex concept, with no one meaning or definition. It usually relies upon a whole set of cultural preconceptions. She cites Low and Altman (1992) as suggesting that the concept 'sense of place' is also referred to as place attachment, topophilia, insidedness, and community sentiment. She quotes definitions of sense of place from different disciplines (pp. 1, 2):

Anthropology: Low and Altman (1992), "Symbolic Ties that Bind: Place Attachments in the Plaza"

"*Place attachment* is the symbolic relationship formed by people giving culturally shared emotional/affective meanings to a particular space or piece of land that provides the basis for the individual's and group's understanding of and relation to the environment [...] Thus, place attachment is more than an emotional and cognitive experience, and includes cultural beliefs and practices that link people to place."

Environmental Psychology: Steele (1981)*"Sense of Place:* the particular experience of a person in a particular setting (feeling stimulated, excited, joyous, expansive, and so forth)."

Landscape Architecture/History: Jackson (1994) "A *sense of place* is something that we ourselves create in the course of time. It is the result of habit or custom [...] A sense of place is reinforced by what might be called a sense of recurring events."

Sociology: Hummon (1992) "By *sense of place*, I mean people's subjective perceptions of their environments and their more or less conscious feelings about those environments. Sense of place is inevitably dual in nature, involving both an interpretive perspective *on* the environment and an emotional reaction *to* the environment [...] Sense of place involves a personal *orientation* toward place, in which ones' understanding of place and one's feelings about place become fused in the context of environmental meaning."

Each of these definitions applies well to this dissertation's transdisciplinary examination of landscape as involving peoples' relationships with the topographic environment. The issue is how to most effectively integrate them, in a manner which operationalises their use in the PTM-ECS and EDM. This is aided by phenomenographic analysis of texts discussing sense of place.

Cross (2001) discusses interviews with residents in Navada about sense of place, in a manner similar in some ways to an ethnophysiography case study. This led her to suggest that the general sense of place consists of two components: "The first aspect, *relationship to place*, consists of the ways that people relate to places, or the types of bonds we have with places. The second aspect, *community attachment,* consists of the depth and types of attachments to one particular place […] two separate but related aspects of sense of place." (p. 2).

From analysis of her interview data, Cross (2001), (in Table 1, p. 3), lists six types of relationships (bonds) to place: biographical (historical, familial); spiritual (emotional, intangible); ideological (moral, ethical); narrative (mythical); commodified (cognitive; based on choice and desirability); and dependent (material). These categories of sense of place, and other aspects of attachment discussed by Cross (2001), are summarized in Table 6.15.

Table 6.15: Landscape concepts from Cross (2001)

Code	Landscape Concept
Cro-1	*Sense of place* can be broken into two components: "*relationship to place* (generic ways that people relate to places; types of bonds we have with places) and *community attachment* (depth and types of attachments to one particular place).
Cro-2	Six types of relationships (bonds) to place: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material).

Cross (2001) also cites a set of general conclusions regarding place attachment (p. 13) from Steele (1981), summarised in Table 6.16. The aspects of place included in Tables 6.15 and 6.16 are added to the other placed-based factors, in Table A7.1 (in Appendix 7), and will be reviewed in later sections of this chapter, with respect to indigenous attachment to 'country'.

Table 6.16: Landscape concepts from Steele (1981)

Code	Landscape Concept
Ste-1	The relationship between people and environment is transactional: people take something (positive or negative) from and give or do things to the environment; these acts may alter the environment's influence on the people.
Ste-2	The concept of place should actually be psychological or interactional, not just physical. The environment is made up of a combination of physical and social features; the sense of place is an experience created by the setting combined with what a person brings to it. In other words, to some degree we create our own place, they do not exist independent of us.
Ste-3	Certain settings that have such a strong "spirit of place" that they will tend to have a similar impact on many different people. The Grand Canyon and the left bank of the Seine in Paris are excellent examples.
Ste-4	Settings obviously have an impact on people, both short-term and long-term, and there are some patterns to this impact.

Cross (2001) includes in her discussion of sense of place (in different disciplines) the concept of 'topophilia' from geography. Tuan (1974) discussed environmental perception, attitudes and values about place and coined the term 'topophilia' – "the affective bond between people and place or setting" (p. 4). He explains that: "Natural environment and worldview are closely related: world view, unless it is derived from an alien culture, is necessarily constructed out of the salient elements of a people's social and physical setting" (p. 79). The affective bond is strong if it is with respect to one's own place. This account of relationships with landscape accords with the TSCS-MOD approach adopted in this dissertation.

Tuan (1977) discusses the importance of place, with feelings about landscape built up through the "shifting stream of experience" (p. 10), providing an "accretion of sentiment over the years" (p. 33). This applies to people everywhere. Tuan uses a very broad range of examples to make his case, including examples from many indigenous peoples, such as: Australian Aboriginal language groups; Bushman peoples from Africa; Inuit; Indonesian peoples; Native Americans; and Pacific Islanders .

Similarly, Lopez (1990) discusses high levels of 'sense of place' and 'place attachment' for indigenous peoples in remote regions of North America. He notes high rates of erosion of sense of place in western societies and compares this with that for relatively undisturbed indigenous peoples: "If one were to pass time among Basawara people in the Kalahari Desert, or with Kreen-Akrora in the Amazon Basin, or with Pitjantjatjara Aborigines in Australia, the most salient impression they might leave is of an absolutely stunning knowledge of their local

geography, geology, hydrology, biology, and weather. In short, the extensive particulars of their intercourse with it" (n.p.).

Scannell and Gifford (2010) (cited in Mihaylov and Perkins, 2014, p. 62) note: "The person dimension of place attachment refers to its individually or collectively determined meanings. The psychological dimension includes the affective, cognitive, and behavioural components of attachment. The place dimension emphasizes the place characteristics of attachment, including spatial level, specificity, and the prominence of social and physical (both built and natural) elements." Place attachment, in the context of landscape, can be considered as a subset of 'sense of place'.

Expressions of affection for one's place are common in literature. A classic example is the section of poetry usually referred to as "Breathes there the man" (*The Lay of the Last Minstrel. Canto vi. Stanza 1*) by Sir Walter Scott, which begins:

> Breathes there the man with soul so dead
>
> Who never to himself hath said,
>
> This is my own, my native land!

Such extreme forms of topophilia are associated with patriotism, which is usually defined as love of country, in the context of a 'nation state'. However, Sir Walter Scott was not thinking about the 'United Kingdom', but rather, as stated in the preface to his set of poems, 'the Borders of England and Scotland*,* a much more restricted and homogeneous region.

Strong affective relationships to place are not always positive. An unusual, but powerful, way of understanding terrain as landscape is provided by Swaffield (2013). He discusses the nature of terrain that is subject to earthquakes, hence, spatially variable (at human scales). This topographic condition has considerable significance with respect to peoples' relationships with landscape; long-lasting unease, uncertainty, even fear. For instance, New Zealand is sometimes known as 'The Shaky Isles' because of frequent seismic activity.

Cross (2001) proposes the term 'place attachment' as a generic terminology for discussing affective relationships with place. There is a long history of publications in this field, however, the brief discussion here will concentrate on contributions collected in a 2014 book edited by Manzo and Devine-Wright, *Place Attachment: Advances in Theory, Methods and Research.*

These authors discuss place attachment, which is defined (by Scannell and Gifford (2010), cited in Mihaylov and Perkins (2014, p. 62) as follows: "The person dimension of place attachment refers to its individually or collectively determined meanings. The psychological dimension includes the affective, cognitive, and behavioural components of attachment. The place dimension emphasizes the place characteristics of attachment, including spatial level, specificity, and the prominence of social and physical (both built and natural) elements." This is a subset of 'sense of place' and can be considered to reference landscape, in the context of how it is defined in this dissertation.

The theoretic discussion by Seamon in his chapter in Manzo and Devine-Wright (2014) has already been reviewed in section 6.3.3. Contributions to this collection by some of the other authors are briefly summarized in paragraphs below. The key landscape related concepts that they raise are listed in phenomenographic Table 6.18.

As discussed by Lewicka (2014), memory plays an important enabler role in place attachment; whether it is a 'true' memory or at least partly fabricated or embellished. This especially applies to people who have moved away from their traditional territory through forced or voluntary migration (Basso, 1996a; 1996b). Long duration of dwelling in the same place usually intensifies feelings of place attachment, however, even a brief, but highly charged, encounter with an unfamiliar place can trigger strong memories and affective responses. Lewicka notes that memory commences on arrival in a new place and, at a sub-conscious level at least, memories of multiple places will probably interact to produce, for instance, more complex relationships with particular landscapes (e.g. 'those hills remind me of where I grew up').

Seamon (2019b) discusses memory of place, quoting (p. 239) from Tournier (1968, p. 14) "All the places we have lived in remain with us, like the pegs in a vast storehouse, on which our memories are hung". Seamon notes: "Tournier highlights how the places of our lives gather and hold experiences, actions, feelings, and recollections" (p. 239).

If it is a place where we have some legal, family, social, cultural, spiritual or ethical associations, the memory can concern, or be evidence of, recognition and respect for our rights to that place. For instance, in Australian Native Title cases, lawyers ask Aboriginal elders to produce memories of their places and past activities, as proof of their continuing association

with, and rights to, traditional 'country'. There is an emphasis on places of cultural and spiritual significance. The evidence is more believable by the judge if it illustrates details of activities associated with dwelling in place. In part of the ultimately successful Ngulama/Yindjibarndi Native Title Claim in the mid 1990s (attended by this author), evidence was being taken in a river-bed on 'country'. A lawyer appearing for a mining company, which opposed the Native Title claim, asked an elder to recall how she and her family travelled (many decades earlier) from town to a distant sacred site: Was it by car, given it was too far to walk? Whose car was it? What make of car? How long was the journey? How much petrol was used? What did it cost to buy the petrol? Where did you get the money from? These were questions he thought the elder could not answer. This lawyer did not ask about the cultural and spiritual aspects of the sacred place, or even its physical appearance, which he expected the elder to remember.

Mobility around the place in which you dwell is also important for building affective relationships, for instance, in terms of embodiment and different visual perspectives. Emplaced experiences are an enabler of place attachment. Lewicka (2014) notes that it can be useful to consider "the distinction between declarative (*'I know that'*) and procedural (*'I know how'*) memory" (p. 51). Lewicka explains that: "Declarative memory may be either episodic (*what, where*, and *when* something is remembered) or semantic (*what* is remembered)" (p. 51). Procedural memory is " largely unconscious (implicit), and it consists of automatized routines, skills, and ways of doing something" (p. 52); it relates to mimesis (Gibbs; 2010). Each of these types of memory can relate to the physical, utilitarian, cultural and spiritual activities we undertake in landscape (as taskscape).

It is important to remember that affects produced by interaction with landscape are not just temporary. Macfarlane (2012) explains that, although landscapes affect us in an immediate sense, their influence also lingers. We remember them fondly (or perhaps less favourably) and we miss them as places from our past. He notes that "Adam Nicolson (2001, p. 4) has written of the 'powerful absence(s)' that remembered landscapes exert upon us, but they exist as powerful presences too, with which we maintain deep and abiding attachments" (p. 198). Such recollections can be reinforced by mimesis and reduced, expanded or manipulated by forgetting, misremembering and/or imagination. They are key components of relationships with landscape.

There is a complex interaction between an individual's affective response to place and that of any group or community of which she or he is a member, especially regarding cultural or spiritual associations with landscape. This topic is discussed by Mihaylov and Perkins (2014), in the context of community cohesion and engagement of individuals in the group's objectives, such as responses to environmental threats. The feelings of a community about 'their' place may be influenced by the feelings that other communities express about the first community's territory and/or their own. These authors focus on built environments, however, similar processes apply to landscape and related factors involving indigenous communities living in rural or wild locations.

Mihaylov and Perkins (2014) present a model of development and adaption of communal place attachment. It involves a series of stages that are influenced by the 14 factors listed in the left-hand column of Table 6.17. This model of place attachment could, for instance, be used to analyse how an Australian Aboriginal language group responded to European colonization and its impact on their relationships to landscape in their traditional 'country'. An example is how Yindjibarndi people (see Chapter 2) responded to European colonization from the 1860s, which resulted in gradual removal of most Yindjibarndi from their traditional 'country' (on the flood plain of the Fortescue River and nearby uplands) to coastal towns, in another language group's 'country'. Their communal responses can be briefly summarised (in terms of Mihaylov and Perkins' 14 factors) as displayed in the right-hand column of Table 6.17. Understanding of the Yindjibarndi peoples' responses to colonization played a crucial role in the Federal Court determination regarding their Native Title application in the 1990s, which recognised their continuing association with their 'country'. Through community processes their language and culture survives, and has in some ways grown stronger since the 1990s, despite restricted access to sacred sites and other on-going negative consequences of colonisation and social disadvantage. The rights of Yindjibarndi people over their country were confirmed by a court ruling in October, 2019, after the continuing strength of their association with country was challenged by a iron ore mining company.

Table 6.17: Mihaylov and Perkins (2014) model of 14 factors and Yindjibarndi examples

Mihaylov and Perkins (2014) 14 factors relevant to place attachment	Example application of the 14 factors to Yindjibarndi people
'environmental disruption' (any significant environmental change)	suffering displacement from 1860s because of government land grants to colonisers for sheep and cattle stations

'interpretive processes' (individual and community responses to change)	passive resistance to invasion and strong intention to maintain culture
'place definition' (the socially-constructed boundary and the features and characteristics of its identity)	retention of definition of Yindjibarndi country within defined boundaries
'place dependence' (how well the place fulfills the needs of the group)	replacement of hunter/gatherer lifestyle; initially by dependence on government rations
'place identity' (how individuals and groups define themselves in terms of salient aspects of the place)	continuation of their particular law/lore practices directly related to place and spirituality
'place bonding' (emotional ties to the place where they dwell)	refusal to forfeit rights to, and responsibilities for, Yindjibarndi country
'social capital' (the social dimensions of community, with respect to others; the perceived 'worth' of their place)	on-going belief in importance of traditional Birdarra law, representing culture of place
'collective efficacy' (empowerment of individuals and the community provided by that place)	continuation of ceremonies at sacred places (to extent permitted by colonisers)
'sense of community' (the social bonding produced via dwelling in that place)	being a cohesive group speaking their traditional language (as well as English)
'neighboring' (assistance that group members provide to each other)	retention of language group identity and practices despite being forced to live in adjacent Ngulama 'country'
'citizen participation' (the way individuals contribute to group processes)	participation in annual 'law business' ceremonies, in collaboration with members of neighbouring language groups
'place-based social interactions' (activities that build or sustain networking and social cohesion)	on-going adherence to, and teaching of, law/lore (including to non-indigenous people) and ceremonies on-country
'bridging social capital' (ways of interacting with others within the group and neighbouring groups)	positive collaborations with neighbouring language groups suffering similar challenges
'community response' (various potential responses to place disruptions)	continuation of traditional social, cultural and spiritual system and constant fight for land rights and cultural recognition/respect

Methods of investigation of place attachment are linked to alternative conceptualisations of its meaning and models of its components, as discussed in chapters of Manzo and Devine-Wright (2014). Key aspects addressed by selected authors are summarised in Table 6.18.

Hernandez, Hidalgo and Ruiz (2014) offer their own set of contributing factors and methodological techniques, including discussion of validity of measures of aspects of place attachment. Data analysis can include statistical techniques, however, such an approach may be less robust than a phenomenological analysis of qualitative data, perhaps informed by some type of synergistic quantitative data analysis.

Stories (narratives) have always been a key way of building communal relationships with place. Rishbeth (2014) explores this process and how narratives can reveal details of current attachments to place, with "each story an intersection of site, time and human experience" (p. 100). Narratives provide specific details, clues to authenticity and the provenance of particular aspects of attachment to place for an individual or community; revealing the 'zone of engagement' (entanglement) with landscape (Ingold, 2008) [see also Basso 1996a, discussed in Chapter 5]. Eliciting such narratives can be a valuable qualitative research method and Rishbeth (2014) describes various techniques.

There is a relationship between people's feelings about landscape and their physical impacts on the topography. Michael (2017) discusses how her photography and paintings seek to capture the nature of landscape, as place, in rural South Australia and how this impacts on the associated sense of dwelling. She asks (p. 13): "do physical geography, weather, climate, and genius loci play a role in shaping the material and lived nature of homes in this region?" Michael notes how each of her photos of the mid-north landscape "graces me with a calm energy and serenity that emanates from the land itself" (p. 14). In her photos (reproduced in this article), there are not many people, since the area is sparsely populated: "They (the unseen people) seem transient and superficial compared to the more interesting place qualities at work" (p. 14). It is a peopled landscape, but their impact is relatively subdued, or perhaps overwhelmed by the impact of the natural topography. People enter the landscape, which also enters them, changing their ideas, as part of symbiotic dwelling. Michael provides a much deeper exploration of the 'artist-as-geographer' in her 2018 PhD dissertation *Expanded Understandings of Place through Genre Painting: a heuristic study of the Mid North of South Australia*.

A qualitative approach to eliciting details of place attachment can also involve participants taking photographs of significant scenes in their environment and/or researchers requesting participants to show them significant photos that were previously taken. Indeed, the act of taking photos, and/or viewing old photos, can be an important mechanism for building relationships with place (including landscape). Stedman, Amsden, Beckley and Tidball (2014) discuss photo-based methods and how these can demonstrate how place attachment is constituted by a set of 'place meanings'. These meanings "can be conceived of as symbolic statements about the essence […] of a place [which] are populated with descriptive content and are created through human activities" (pp. 112-113). Such a search for essences, via

examination of everyday activities, fits with a phenomenological approach to understanding relationships with landscape.

Use of 'discursive' practices in the formulation of place attachment, and in elicitation of its meanings, is discussed by Di Masso, Dixon and Durrheim (2014). These authors explain that: "rather than treating attachment as a deep-seated, internalized, emotional affinity that individuals experience towards particular places, discursive research treats it as a phenomenon that is linguistically *constructed* as individuals, together, formulate the everyday meanings of person-in-place relationships" (p. 75). They note that this is linked to the 'discursive turn' in social sciences and humanities in the 1990s, which promoted a constructionist philosophy of language, which "treats language as *constitutive* of both mind and reality" (p. 75). They further explain that: "It holds that both our lived experiences (e.g. our thoughts, feelings, motivations) and the meanings we attribute to the world 'out there' are actively created through day-to-day linguistic practices and that this process is, in turn, delimited by the shared language that culture makes available to us" (p. 75).

Di Masso et al. (2014) also discuss discursive methods of elicitation of place attachment meanings from participants and discourse analysis techniques for analysing linguistic data. They suggest that this methodology can aid in treating "place attachment as a *social practice* that cannot be understood outside of the interactional, cultural, and institutional contexts in which it emerges" (p. 81). This accords with the communalised intentionality and TSCS-MOD approaches adopted in this dissertation (Chapters 4 and 5).

Table 6.18: Landscape concepts from authors in Manzo and Devine-Wright (2014)

Code	Landscape Concept
Le-1	There is usually a strong attachment to the landscape where you dwell, especially if you live there for a long time or during a significant stage in your life.
Le-2	Mobility around the landscape in which you dwell is important for building affective relationships; e.g. in terms of embodiment and different visual perspectives.
M&P-1	Processes of community attachment to landscape (as place) depend on cohesion and engagement of individuals in the group's objectives.
M&P-2	Development and adaption of communal place attachment involves: 'environmental disruption'; 'interpretive processes'; 'place definition' 'place dependence'; 'place identity'; 'place bonding'; 'social capital'; 'collective efficacy'; 'sense of community'; 'neighboring'; 'citizen participation'; 'place-based social interactions'; 'bridging social capital'; and 'community response'.

Ri-1	Stories (narratives) are a key way of building attachments to landscape, and for representing those relationships. Narratives provide specific details, clues to authenticity and the provenance of particular aspects of attachment to place for an individual and/or community.
St et al-1	Place attachment is constituted by a set of 'place meanings', which can be conceived of as symbolic statements about the essence of a place, which are populated with descriptive content and are created through human activities.
Di et al-1	Rather than place attachment just being a deep-seated, internalized, emotional affinity that individuals experience towards particular places, discursive research regards it as linguistically constructed as individuals, together, formulate the everyday meanings of person-in-place relationships.

6.5 Reordering and Concatenation of Concepts of Place

The purpose of this section is to discuss an integrated (concatenated) summary of landscape aspects of concepts of place (Table A7.1 in Appendix 7), based on the material in Tables 6.1 to 6.18, except Table 6.7 and Table 6.17, which detailed other specific topics. In constructing Table A7.1, there has been some minor rewording and major reordering of concepts and concatenation, where similar concepts were recorded from different authors, reducing the number of entries from the initial 69 concepts to 39, spread across 7 categories. The categories (chosen for relevance to ethnophysiography research) are: Theory and Methods; Nature of Place; Embodiment and Movement Through Landscape; Sense of Place and Place Attachment; Aspects of Landscape as Place; Australian Aboriginal Concepts of Territory; and Toponyms. An example pair of rows from Table A7.1 is shown in Table 6.19.

Table 6.19: Example pair of rows from Table A7.1 (Appendix 7)

3.	Embodiment and Movement Through Landscape	
3.1	Embodiment is an important part of the way landscape influences conceptualisations and terms. In terms of bodily awareness, one can experience places as enfolding (being within them) or external, even distant (such as a mountain on the horizon).	Pr-2 Sea-3

This table provides a summary of concepts of place that are useful for ethnophysiography research projects. Issues identified in Table A7.1 (in Appendix 7) that are of significance for revision of the EDM to Version 5 (Section 6.6), are shown in *italics*. These 12 concepts are coded: 1.3; 1.4; 2.2; 2.3; 2.5; 4.1; 4.3; 4.6; 5.2; 5.5; 7.1; and 7.2.

Additional aspects of indigenous relationships with landscape as place are discussed in Section 6.8. As discussed in Section 6.9.1, they are summarised in Tables A7.4, A7.5 and A7.6.

Section 6.9.2 discusses the use of these concepts to again revise the EDM, to produce Version 6.

6.6 Revision of the Ethnophysiography Descriptive Model (EDM)

Those concepts listed in Table A7.1 (in Appendix 7) in *italics* are significant additional concepts of landscape derived from the process of comparison with similar lists in Chapter 2 (as discussed in Section 6.1). This enables the revision of the previous Version 4 of the EDM (Chapter 2) to produce the new Version 5, as shown in Tables A7.2 and A7.3 (in Appendix 7) by adding new factors or adjusting existing factors, which represent those of the additional landscape concepts from Table A7.1 (shown in *italics* in Tables A7.2 and A7.3) which will enhance the EDM.

EDM Version 5 includes 15 Independent Factors (which might, independently and/or in combination, influence a language to refer to landscape differently) and 14 Dependent Factors (differences in the way landscape is conceptualized and treated in the language; perhaps influenced by one or more of the independent factors).

6.7 Conclusions for Sections 6.2 to 6.6

These sections have reviewed a wide range of literature relevant to landscape as place by authors from many disciplines, including: geography; philosophy; anthropology; linguistics; history; ethnoecology; environmental sciences; landscape architecture; urban and regional planning; cultural theory and other aspects of humanities. This review yielded 16 phenomenographic tables listing 69 key concepts related to landscape. These concepts were gathered together, reworded and reordered as necessary, and concatenated to provide 39 integrated concepts (in 7 groups) (in Table A7.1). The 12 of these that provided guidance additional to the lists in Chapter 2 were then used to revise the EDM, producing Version 5, including 15 Independent Factors and 14 Dependent Factors (in Tables A7.2 and A7.3). These sections and phenomenographic tables also provide input to the design of the PTM-ECS in Chapter 7.

These sections have significantly enhanced the list of key concepts of landscape as place relevant to ethnophysiography. The following sections of this chapter will continue this process by concentrating specifically on indigenous concepts of place, focusing on language groups involved in past ethnophysiography case studies.

6.8 Indigenous Concepts of Landscape as Place

6.8.1 Introduction to section

The sections above have provided a detailed review of concepts of place discussed in a wide range of disciplines. It included a summary of the key concepts relevant to this dissertation (Table A7.1 in Appendix 7), which led to revision of the EDM to Version 5 (Tables A7.2 and A7.3). Although those earlier sections considered some aspects of the relationships that indigenous peoples have with landscape, the main treatment of that topic was reserved for this section.

There are places around the world where indigenous people have lived relatively undisturbed for thousands, perhaps tens of thousands, of years. Thus they have developed a very deep set of relationships with landscape. However, there are many more places where colonisation has occurred, such as Australia and the USA. Here, indigenous people share occupation of the land, and in many cases maintain the most important elements of their culture regarding dwelling in landscape. This may be thought of as there being different sets of relationships (for each cultural group) with one place, or, alternatively, as various places (one for each cultural group) co-existing over a particular area of topographic environment. Mathew Trinca and Andrea Gaynor, in the Introduction to Gaynor, Haebich and Trinca (2002) *Country: Visions of Land and People in Western Australia*, discuss how places involve "histories of our discursive approaches to land, of the ways in which we have imagined ourselves on the western third of this continent" (p. 1). In this case it is the attitude of 'settlers', either as 'pioneers' or 'invaders', or more realistically, as both, that can be compared with the attitude of the indigenous Aboriginal peoples. This dissertation seeks to identify effective ways to discuss those differences in relationships with landscape.

Trinca and Gaynor (2002) quote geographer and ecologist George Seddon (1970, p. 1): "Landscape is dynamic, a process as well as a product, and people and pelicans are as much a part of it as trees, rocks and water". Trinca and Gaynor note how social and feminist historians have included these notions in their discourse about place since the early 1980s. They cite an influential book *Spoils and Spoilers* (1981/1992) by famous Western Australian historian Geoffrey Bolton (1981): "Bolton expressed a hope in the first edition (1981) that, given the increasing interest in Aboriginal culture, Australians might learn a 'religious respect for the land'. However, in the second edition (1992, p. 178), he notes that the notion of Earth as

mother is regarded as 'insufficient' for a predominately urban population and the hope is perhaps a more modest one: that we might learn from the lessons of the past" (p. 7). This requires knowledge about, and respect for, indigenous relationships with landscape as place.

In a chapter in Gaynor et al. (2002), writer, researcher and filmmaker Steve Kinnane[35] (who, on his grandmother's side is a Mirriwung man from the East Kimberly) regrets that: "I am unable to physically visit my grandmother's country. It is underwater" (Kinnane, 2002, p. 21). The country was drowned by construction of Lake Argyle in 1971 (see footnote 2, in Section 6.3.2), a strong example of how large-scale changes to landscape, carried out by one group, can utterly alter the relationship with landscape for others. He discusses how 'speaking for country' is limited for indigenous Australians: "Only Law people (traditional owners) who have knowledge, specific relationships, and special rights and responsibilities can speak for country' (p. 21). He speaks from an inter-cultural perspective, describing himself as *marda-marda*[36] (two skins), being both Aboriginal and '*kartiya*'[37] (non-indigenous). He explains: "People have to understand, particularly non-Aboriginal people have to understand, that there is another way of relating to land that they may not even have thought about. It's a closer relationship to land that Aboriginal people have, a more personal relationship. It's like we treat our land like it's our own family, our own relation" (p. 25). This is the basis of Aboriginal attachment to country.

The holistic system of thought which Kinnane (2002) describes, is termed in this dissertation, their TSCS-MOD. He explains: "these relational understandings of country are maintained through systems of skin [social marriage 'sections'], language, land use and spirituality" (p. 25). He goes on to note how Kimberly elder Mick Dodson (1996) describes this Aboriginal understanding as "another dimension that invests land with meanings and significance – which transforms land and environment into landscape and into country" (p. 25).

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[35] Steve Kinnane's publications include: *Shadow Lines*, 2006, Fremantle Press (Western Australian Premier's Award winner 2006). His film credits include: 1995, Producer/ Co-Writer/ Assistant Director/ Researcher – *The Coolbaroo Club* (ABC TV): an hour-long documentary describing the East Perth dance club — the Coolbaroo Club — run by and for Aboriginal people and their (few) white supporters between 1946 and 1960. https://www.greenleft.org.au/content/little-known-chapter-aboriginal-history [Accessed 27th May, 2018].

[36] Gaynor, Haebich and Trinca (Eds.) (2002), p. vii.

[37] Kinnane (2002, p. 30) footnote 5 – *kartiya* is the term used by East Kimberly Aboriginal peoples for non-indigenous people. It is sometimes spelled and pronounced as *guddia* or *gardia*.

Indigenous knowledge needs to be maintained, through modern as well as traditional methods, but this must involve access to country. Kinnane (2002) references Dixon and Morris (1998) and explains: "Indigenous conceptions of ownership involve the understanding of control, as much as sharing and obligation. For this to be possible, access to country is essential, to allow for the teaching of knowledge and disciplines that are required to raise children, share culture, ensure the future management of a resource, and fulfil religious and social obligations" (p. 27). These rights and responsibilities are discussed further in later sections.

As this Western Australian example illustrates, the focus in this section is on explicating the strong holistic relationship with landscape that indigenous people exhibit. The potential broader application of such knowledge can then be explored. The discussion below concentrates on examples of indigenous relationships with landscape for the language groups involved in ethnophysiography case studies carried out by this author and his collaborators, or other nearby language groups (Chapters 2 and 8).

Of course, every different indigenous language group, living in its own particular landscape, has a unique, and constantly changing, set of relationships to place. A brief review of a geographically wide range of case studies, mostly by other researchers, was provided in Chapter 2 (e.g. Burenhult, 2008a). The examples explored in the sections below do not provide in any way a comprehensive review of indigenous concepts of place, rather, their purpose is to explain key aspects that are representative of the much broader array of indigenous relationships with place.

The Oxford dictionary defines indigenous as: "Originating or occurring naturally in a particular place; native", whereas the (Australian) Macquarie Dictionary has: "originating in and characterizing a particular region or country; native; inherent; natural; relating to Aboriginal and Torres Strait Islander people". Given the often-contested nature of the term, it is important to adopt a definition of 'Indigenous people', and ways of dealing with discussions of their conceptualisations of landscape, which are not racist. This includes not referring to groups of people by the term 'race' (as it is arguably not applicable to the human species) and preferring to use the less loaded and more explicitly appropriate term 'language group' instead of 'tribe', which often carries with it primitive connotations (Jackson and Penrose, 1993; Langton, 2013; Malaspinas, Westaway, Muller and 72 other authors, 2016).

The United Nations Permanent Forum on Indigenous Issues[38] notes: "It is estimated that there are more than 370 million indigenous people spread across 70 countries worldwide. Practicing unique traditions, they retain social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live" (n.p.). Thus their relationships with landscape are in the context of unique socio-cultural frameworks, which differ from modern 'Western' worldviews. The UN has adopted a modern approach to the definition of indigenous peoples, containing the following elements:

- Self-identification as indigenous peoples at the individual level and accepted by the community as their member;

- Historical continuity with pre-colonial and/or pre-settler societies;

- Distinct social, economic or political systems;

- Distinct language, culture and beliefs;

- Form non-dominant groups of society;

- Resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities.

There is not space here to cover the current debates about what the term 'indigenous' means and the various types and levels of identity politics that disagreement fuels. For example, see Harris, Nakata and Carlson (Eds.) *Politics of Identity: Emerging Indigeneity* (2013).

In this section, and the dissertation in general, there is no intention to infer that all Europeans (or other 'Western' peoples) are not indigenous in the context of sense of place. Feld and Basso (1996) address this issue with respect to how anthropologist "hungry for the taste of the exotic" (p. 230) often regard the English as not having a specific culture, which is obviously not true: " Anthropologists have long struggled to accord cultural dignity and intellectual interest to the strange practices of peoples of the world ignored by other disciplines. The struggle has been so successful, at least within anthropology, that culture, and therefore intellectual interest, has become tacitly identified with exotic practices" (p. 230). One could point to many examples of efforts to address this problem, including writings in several disciplines about European people's relationships with land.

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[38] http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf [accessed 14th May, 2019]

This section reviews indigenous concepts of landscape as place, using some findings from ethnophysiography and other research projects carried out by this author and his collaborators. Additional concepts and explanations are from publications by other authors, as noted. For instance, an examination of peoples' relationships with landscape as place is provided in the seminal book by Yi-Fu Tuan (1977), *Space and Place: The Perspective of Experience*. Tuan sets out the importance of place, with feelings about landscape built up through the "shifting stream of experience" (p. 10), providing an "accretion of sentiment over the years" (p. 33).

Contributions from various authors are reviewed and summarized in Section 6.8.2. This includes an introduction to the Australian Aboriginal concept of *Jukurrpa*, which provides the organizing principles underlying their relationships with landscape. Linguistic research aspects of landscape terms are not discussed to any great extent in this chapter, as key aspects are explored in Chapters 2, 5, 7, 8 and 9. Only a brief discussion can be provided in this section, with detailed summary tables provided in Appendix 7.

Section 6.8.3 reviews the role in landscape language of *Jukurrpa* for Yarnangu peoples, and its equivalents in other Australian indigenous languages, which provide a culture-based system of ontology and epistemology. This facilitates discussion of the issue of commensurability between Western philosophy (specifically phenomenology) and Indigenous lifeworlds, lore, law, culture and spirituality. This is necessary to address the potential that using phenomenology as an overarching transdisciplinary paradigm has to 'colonise' and/or 'appropriate' indigenous knowledges. These topics were introduced in Chapter 1 and are discussed more fully in Chapters 8 and 9.

Section 6.9.1 discusses compilation of lists of key aspects of concepts of place for some indigenous peoples in SW of USA and Australia are provided in Tables A7.4 and A7.5 (in Appendix 7). They are brought together into a concatenated Table A7.6 to facilitate (as in Section 6.6 above) revision of the EDM (Section 6.9.2) (from Version 5 to Version 6), as shown in Tables A7.7 and A7.8.

Section 6.10 provides conclusions for the second set of sections in this chapter. This includes discussion of the transition to Chapter 7.

6.8.2 Introduction to concepts of place for example indigenous groups

The discussion of 'sense of place' and 'place attachment' in Section 6.4 emphasised how strongly these concepts apply to indigenous peoples dwelling in their traditional landscape. Lopez (1988) discusses his travels to remote regions of North America to explore the interaction between humanity and nature. He notes high levels of erosion of sense of place in western societies and compares it with that for relatively undisturbed indigenous peoples[39]: "If one were to pass time among Basawara people in the Kalahari Desert, or with Kreen-Akrora in the Amazon Basin, or with Pitjantjatjara Aborigines in Australia, the most salient impression they might leave is of an absolutely stunning knowledge of their local geography, geology, hydrology, biology, and weather. In short, the *extensive particulars of their intercourse with it*" [emphasis added] (n.p.).

Tuan (1974, pp. 99-100) discusses the depth of Australian indigenous peoples' association with their country, citing Strehlow (1947, p. 30-31): "Strehlow, an ethnologist who knows the Australian aborigines intimately, says of the Aranda that he 'clings to his native soil with every fibre of his being' […] Mountains and creeks and springs and water holes are to the Aranda not merely interesting or beautiful scenic features; they are the handiwork of ancestors from whom he himself has descended". Hence, the study of Australian indigenous concepts of place provides a set of strong examples, from which key generic factors can be identified.

Reviews were undertaken of literature regarding indigenous relationships with landscape for some Native American groups from South West of USA and for some Australian Aboriginal peoples[40]. The resulting summaries are provided in phenomenographic Tables A7.4 and A7.5 in Appendix 7, and are discussed in Section 6.9.1. A concatenated table (A7.6) is constructed from Tables A7.4 and A7.5, in Appendix 7. Table A7.6 informs the development of EDM v6 in Tables A7.7 and A7.8. Additional relevant references are included in Table A7.9 in Appendix 7.

6.8.3 Landscape, affect, mimesis, refrain and *Jukurrpa*

The discussion in Sections 6.3 and 6.4 justifies incorporating consideration of the role of affect in discussion of landscape as place, and of its relationship, in this context, to affordance and

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[39] http://www.edweek.org/tm/articles/1990/02/01/5geo.h01.htm [accessed 7 Dec 2017]

[40] Due to the word limit for this dissertation, much of the discussion of indigenous relationships with landscape, within this section, has had to be removed. Summaries are in Appendix 7.

communalised intentionality. This needs to include consideration of the role of mimesis and refrain in communal affective responses to the environment, and how this interacts with language, including gesture, to produce emotions in individuals relevant to their activities in, with and about landscape.

It is important to clarify what is meant when we say that indigenous people have strong feelings about the landscape in which they dwell. This was explored in earlier sections in terms of 'sense of place' and 'place attachment'. Tuan (1977, p. 9) notes that feelings are important, but can be ambiguous. He cites Paul Ricoeur (1967): "Feeling is … without doubt intentional: it is a feeling of 'something' – the lovable, the hateful, (for instance). But it is very strange intentionality which on the one hand designates qualities felt *on* things, *on* persons, *on* the world, and on the other hand manifests and reveals the way in which the self is inwardly affected" (p. 127). Hence, a detailed understanding of specific relationships with, and actions within, landscape is needed to interpret the meanings of feelings, which, in turn, synergistically enriches the understanding of relationships.

In an Australian Aboriginal context, Tamisari (2002, p. 17/18) discusses the role of cultural understanding in legal proceedings related to Native Title rights. She contends that it is not possible to understand the significance of indigenous knowledge (e.g. toponyms) without investigating their cultural context: "To bring about that understanding, however, a movement from the abstract to that of the subjective to the act of *having feelings* – not emotions, but rather a sensitivity to one's surroundings – is explored. Those feelings are extended to other realms, including the Land itself. The significance of those feelings is obvious, in that they bring the human into relationship with the world around them". In this way the true significance of affect about indigenous 'country' is recognised within the legal domain of Native Title.

As discussed earlier, Aboriginal peoples within the regional grouping of Australian Central and Western Desert peoples are collectively referred to as Yarnangu. For Yarnangu, *Jukurrpa* is the basis of their lifeworld, a holistic combination of their worldview, religion, philosophy, lore and law (Cane, 2002).

Myers (1986, p. 12) explains how (for Pintupi) *(T)Jukurrpa* operates as a 'deep structure', 'inner logic' and 'total system' for their way of dwelling in landscape. This also applies to similar versions of 'The Dreaming' for other Australian Aboriginal language groups. For

instance, Rijavec (1995; 2010) provides a detailed description of the version of 'The Dreaming' for Yindjibarndi people (*Bidarra* Law) in the Pilbara region of Western Australia (see also . It is an extremely rich set of concepts, thoroughly integrated into the Yindjibarndi lifeworld. Their engagement with this structure of living is also depicted in the 'When The World Was Soft' and 'Carrying The Law' sections of the *Exile and The Kingdom* film (Rijavec, Harriuson and Soloman, 1995). See also discussion of the Yindjibarndi ethnophysiography case study in Section 2.4.1 of Chapter 2 and Appendix 1, Section A1.1.

Cane (2002) provides a detailed explanation of *Jukurrpa* concepts for the Spinifex people (see Table A13.1 in Appendix 13). Goddard and Wierzbicka (2015) contribute a linguistic explication of *Jukurrpa*, including tables summarising the key aspects. They "focus primarily on Central Australian languages such as Warlpiri, Arrernte and the Western Desert Language (Pitjantjatjara, Yankunytjatjara, Ngaanyatjarra etc.)" (i.e. languages of Yarnangu peoples), and contend that *Jukurrpa* is "a highly ramified and multi-faceted concept, albeit one with great internal coherence" (p. 43). Their analysis of many relevant example cross- translatable words identified 'semantic primes' and 'semantic molecules'. This method of meaning description is called the Natural Semantic Metalanguage (NSM) approach (Goddard and Wierzbicka 2014) and was used to identify and articulate an understanding of the *Jukurrpa* concept via explanatory 'mini-texts' (explications).

The research process used by Goddard and Wierzbicka (2015) also involved collaboration with members Aboriginal language groups and experts on Australian indigenous culture and language. Their final table (V40, pp. 55-6) lists the following high level concepts of *Jukurrpa* (i.e. "When people say 'Jukurrpa' ('Dreamtime', 'the Dreaming'') they think like this"): "how people can know about this (about Jukurrpa); what people often say about this (about Jukurrpa); what people do because of all this (because of Jukurrpa); and what people can't do because of all this (because of Jukurrpa)". The table includes 'mini-text' explanations of each of these listed concepts. See also discussion of key elements of *Jukurrpa* in Chapters 6 and 8 and tables in Appendix 13, at lower levels of abstraction.

Goddard and Wierzbicka (2015) provide a very useful explanation of key aspects of *Jukurrpa*, although they "do not claim to have necessarily arrived at a full, perfect or correct lexical-semantic analysis" (p. 43). This sort of academic work, together with other forms of explanation of *Jukurrpa* (see Chapter 9, section 9.3.3) is important because, as San Roque

(2006, p. 156) explains, "few non-Aboriginal Australians understand or appreciate the significance, value and vitality of *Jukurrpa* as an emotional and intellectual phenomenon". It is hoped that this dissertation can play at least a small role in addressing this situation.

One way to start considering the way that *Jukurrpa* is involved in the mode of Yarnangu dwelling in landscape is to consider the scene depicted in Figure 6.2. Here a group of Martu people (Chapter 8) is standing on the edge of a salt lake in the Percival Lakes area of Western Australia (Davenport, Johnson, and Yuwali, 2005; Lewis, 2008; Tonkinson, 1974; 1991). When this photograph was taken the lake was wet from recent rain, making it difficult to walk on, so the assembled Martu are standing at the edge of the lake and looking towards a significant sacred site called *Yimiri*, a permanent spring of fresh water within a patch of reeds in the salt lake. They have travelled to this place to show their respect to the *Yimiri* spirit, which created this spring at the beginning of time, and still resides there. *Yimiri* is a supremely powerful place (e.g. for rain making) on a *Jukurrpa* 'songline'. Martu elders bring younger people to that place to learn about its significance and the proper ways to demonstrate understanding of *Yimiri*'s role in the Martu lifeworld.

The purpose of Figure 6.2 is to provide a focus for exploration of the role of affect for these Martu when the photo was taken and its relationship to their mode of dwelling with landscape. The assembled group of Martu have brought with them green branches, as is the custom, and the elder, standing apart from the rest of the group, is calling out to *Yimiri* in a ritual, respectful manner. This emphasises that this utilitarian source of fresh water is also imbued with high cultural and spiritual powers, which evoke strong feelings in Martu who go there, or even discuss or think about this sacred place. The 'spiritual topography' stimulates specific affects for people who are part of that culture, resulting in strong emotional responses. This is similar to the feelings expressed by the Yindjibarndi informants regarding the *warlu Barrimindi* at Deep Reach Pool (*Nunganunna*) and the nearby hole where he 'poked up his head' (Chapter 2 and Appendix 1).

The relationships of indigenous peoples with landscape can be considered in terms of the key aspects of affects discussed in Sections 6.3 and 6.4. Gibbs employs the term 'memesis' to explain the way feelings relate to patterns of imitation used in the context of communal actions. The way that the Martu are behaving in Figure 6.2 fits this approach. Traditional practices relating to sacred sites, including verbal and non-verbal language and behaviours, are passed on

to the next generation. Affect can occur as a refrain, a mental script or mantra, related to *Jukurrpa*, in terms of the appropriate rituals for a particular sacred place: "Refrains structure the affective into 'existential territories' (Guattari 1995, p. 15) and refrains are affects 'cycled back' (Bertelsen and Murphie, 2010, p. 139). Affect is "*cross-temporal*, constituting the continuation of experience from the past into the future" (Gibbs, 2010, p. 145/146).

The experiential aspects of Martu culture is like Martu country, the virtual (affective) and the physical domains in which they dwell[41]. One aim of this dissertation is to try to understand the actual, rather than the purely analogical, nature of such links between affect and landscape, via examination of *Jukurrpa*, which is the topology of affect and culture, as well as being grounded in the landscape of their country, via sacred sites and dreaming tracks (songlines; placelines). Discussion of Martu relationships with landscape are provided in Chapter 8, which includes a summary of the landscape language case study with Manyjilyjarra people, one of the Martu language groups.

Another strong example of relationships with place arises from this author's engagements with Yindjibarndi people. Benterrak, Muecke and Roe (1984, p. 12) explain that: "The "dreaming" is not a set of beliefs which is being lost because it is no longer valid, it is rather a way of talking, of seeing, of knowing, and a set of practices, which is as obtuse, as mysterious and as beautiful as any poetry". It is part of the current indigenous 'lifeworld'. See discussion of aspects of the Yindjibarndi cultural and spiritual associations with 'country' in Section 2.4.1 in Chapter 2.

The approach of following 'the turn to affect' has the potential to contribute to what Gibbs (2010, p. 188) calls "the overarching intellectual project of rethinking the human in the wake of a sustained critique of Western rationality". This dissertation seeks to contribute to this 'intellectual project' in a transdisciplinary manner, which brings with it challenges of trying to integrate, via some over-arching paradigm, what Gibbs (p. 188) contends are "incommensurabilities between and even within disciplines". 'Affect' is itself a contested term, however, if one is open to a plurality of theories, this construct can perhaps be useful in at least highlighting the disciplinary 'blinkers', if not necessarily removing them. Gibbs

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[41] An earlier version of this concept was explored in the context of native title, mapping and GIS in Turk and Mackaness (1995) and Turk, Mackaness and Tinlin (1995).

recommends the approach of 'ethnology' (scientific study of behaviours of humans and other animals), which is aligned with the ethnographic methods, comparing behaviours of humans in different contexts, employed within ethnophysiography.

Bertelsen and Murphie (2010) follow Guattari's (1995) lead in promoting research approaches to social practices with flexible and open-ended methodologies that enable a "subjective pluralism engaging with the complexity of affective events" (p. 140). This then is a call for a more nuanced approach to affect in the social sciences, choosing a methodology appropriate for any given context, via a contingency-based meta-methodology (Chapter 7). This is, at least in part, a call for transdisciplinary approaches, and involves, for landscape language studies, an understanding of the appropriate TSCS-MOD, such as *Jukurrpa*.

An important part of indigenous sense of place, and their own ethical and moral responsibilities for place, concerns the physical environment. Spittles (2004) discusses 'indigenous sustainability' in the Australian context. This concerns the natural ecology, but is also rooted in the complete system of traditional, social structure, culture and spirituality, which enfolds traditionally minded indigenous people in a total system. Hence, it is impossible to address sustainability issues in a fragmentary manner, without considering the linkages within the relevant total framework, such as *Jukurrpa*. Spittles summarises the colonial history of dispossession of indigenous Australians and the subsequent need for 'truth-telling' and reconciliation.

6.9 Summary of Indigenous Landscape Concepts and Revision of EDM
6.9.1 Concatenated listing of indigenous concepts of place

Following the brief discussion of indigenous concepts of landscape as place in Section 6.8, it is important to highlight the phenomenographic tables of key concepts regarding each of the chosen example indigenous groups (in Appendix 7). Tables A7.4 (regarding indigenous peoples from SW of USA) and A7.5 (regarding Indigenous Australians) summarise the broader investigations of indigenous peoples living at the two general locations (involving further references). All references are identified by a 'source code' in the phenomenographic tables in Appendix 7. Concatenated Table A7.6 in Appendix 7 integrates the summaries of landscape aspects of indigenous concepts of place from Tables A7.4 and A7.5. This concatenation involves re-ordering, rewording and combining of items to provide a more efficient and effective summary. Typical rows of Table A7.6 (Appendix 7) are shown in Table 6.20.

Table 6.20: Typical rows of Table A7.6 (Appendix 7)

Integrated Code	*Landscape Concept*	*Source code(s)*
5.	**Toponyms (placenames)**	
5.1	Toponyms carry information about specific ways of dwelling in landscape. All placenames are shorthand labels given to significant geographic features for the purposes of finding them again, referring to them, and passing on the knowledge of the place to other people.	HH&S-1 H&S-1 H&S-2

6.9.2 Revision of the EDM

Chapter 1 described the approach used in this dissertation to develop ever increasingly effective versions of the EDM. In the concatenated phenomenographic Table A7.6 of indigenous landscape concepts (in Appendix 7), those entries in *italics* are concepts of landscape additional to those used to produce the version of the EDM-v5, earlier in this chapter (Section 6.6). These are incorporated in the revised v6.   The 10 items in *italics* in Table A7.6 (out if a total of 26 items) are: 1.4; 1.5; 1.8; 2.3; 2.4; 3.2; 4.1; 5.4; 5.5; and 5.8. They come from all 5 categories of concept. Tables A7.7 and A7.8 (in Appendix 7) represent the revised EDM-v6. This version was produced by adding new factors, or revising existing factors.

EDM-v6 includes 16 Independent Factors, A to Q, which might, independently and/or in combination, influence a language to refer to landscape differently. EDM-v6 also includes 14 Dependent Factors; differences in the way landscape is conceptualized and treated in the language; perhaps influenced by one or more of the independent factors.

6.10 Chapter Conclusions

The summary for the first part of the chapter was provided in Section 6.4. The extensive analysis of relevant literature undertaken in the second part of the chapter has followed the sequence of topics outlined in the "Introduction" (Section 6.1). Detailed summaries of key aspects of indigenous peoples' concepts of place were prepared (Tables A7.4 and A7.5 in Appendix 7), including the key role of systemic cultural concepts, such as those termed *Jukurrpa* by Australian Central and Western Desert Aboriginal peoples (Yarnangu).   The landscape concept summaries were concatenated in Table A7.6 then used in Section 6.9.2 to

revise the EDM to produce Version 6 (Tables A7.7 and A7.8).   Table A7.9 in (Appendix 7) lists additional references for indicated specific topics discussed in this section and subsequent chapters.

This chapter also reviewed indigenous relationships with landscape, including the role for indigenous Australians of the over-arching socio-cultural system of *Jukurrpa*, or its equivalents. A consequence of the requirement to incorporate consideration of *Jukurrpa* in Australian indigenous ethnophysiography studies is that, if phenomenology is to be used as an overarching paradigm for transdisciplinary analysis and development of sophisticated theory, then the version of phenomenology chosen, and the manner of its application, must be sufficiently commensurate with *Jukurrpa*. Only then could consideration of *Jukurrpa* be adequately carried out and appropriation and/or colonization of indigenous knowledge be avoided. This issue is discussed in Chapter 9.

The chapter has contributed to addressing the following three Research Questions:

Q3: What are the key aspects of phenomenology which need to be commensurate with (or adapted to) ethnophysiography research if phenomenology is to be used as an overarching transdisciplinary research paradigm, to facilitate enhanced future ethnophysiography research methods, supporting the EDM, to address more effectively social, cultural, spiritual and ethical aspects of dwelling?

Q4: Which form(s) of phenomenology is/are most appropriate to use as an over-arching paradigm for transdisciplinary ethnophysiography research?

Q5: Can phenomenology, as an over-arching transdisciplinary paradigm be legitimately and successfully applied to indigenous worldviews and knowledges, in the context of relationships with landscape?

From the phenomenographic review of literature and discussion provided in this chapter, it can be inferred that a similar situation applies to study of most, if not all, indigenous landscape languages. In each case the conceptual equivalent of *Jukurrpa* (for that particular language/culture group) needs to be researched in order for the true meaning of landscape terms to be understood. Further, if in some form, and to some degree, the same applies to all landscape language, the functional equivalent of *Jukurrpa*, the TSCS-MOD for that language and culture needs to be identified and utilized if a culturally-appropriate analysis of those people's relationship with landscape is to be undertaken in a thorough manner.

A barrier to applying these conclusions arises from the difficulty of identifying the *Jukurrpa*-like principles that apply to any particular indigenous language, although this is assisted greatly in cases where there have been considerable anthropological and linguistic studies undertaken; for example work with Hopi by Whiteley (1998). An even greater difficulty would arise in carrying out a similar process for any particular non-indigenous language, especially in the case of a language like English which is very complex and used by a wide variety of peoples. An ethnographic approach would be required to identify a particular coherent set of language speakers, with a specific history and location, if not lifestyle. Even then, it would be very difficult to explicate a fundamental framework of underlying culture-based ontological and epistemological factors that play the same role, at least with respect to landscape, that *Jukurrpa* does for Yarnangu. This needs to apply to each distinct sub-group (dialect) of the overall language, distinguished by location, social class, or some other set of characteristics. These issues will be further explored in Chapter 7.

The discussion in this chapter 6, together with the literature reviews in Chapters 4 and 5, provides very strong cross-disciplinary support for the concept of using an integrated TSCS-MOD approach to investigation of landscape language. This includes the role of *Jukurrpa* in interpretation of landscape language data (Chapter 8).

Chapter 7 - Ethnophysiography Case Study Methodologies

7.1 Introduction to Chapter

This chapter discusses the development of the proposed new transdisciplinary methodology for ethnophysiography case studies, incorporating aspects of phenomenology. The methodology is designed to be comprehensive, integrated, flexible and contingent. It also needs to interface effectively with the EDM, discussed in earlier chapters. Hence, the concentration is on developing a methodology which aides in linking discipline-based methods via a broad phenomenological approach. The PTM-ECS constitutes an initial implementation of a transdisciplinary approach to landscape language studies, with aspects of phenomenology as an over-arching paradigm.

The *prima facie* correlation of research trajectories between Phenomenology and Ethnophysiography, established in Turk (2007) (Chapter 1) provided initial justification for an analysis of key aspects of phenomenology and how they can be applied in ethnophysiography (Chapter 2 and Appendices 1 to 3). The potential role of phenomenology was considered in more detail in Chapters 4, 5 and 6 and Appendices 5 to 7. In Chapter 4 particular phenomenological methods were reviewed, across a range of historical eras and schools of phenomenology.

The discussion in this chapter results in a recommendation (in Section 7.2) that certain techniques from phenomenology can be inserted, as appropriate, into the traditional ethnophysiography methodology (Chapter 2 and Turk, Mark, O'Meara and Stea (2012)). See also Appendix 8. In Section 7.2 key relevant aspects of ethnoecology and the investigation of toponyms are discussed. The nature of the proposed new methodology, and the extra steps in this investigation required to build it, are identified in Sections 7.3 and 7.4.

The use of phenomenographic tables from previous chapters is discussed in Section 7.5. Section 7.6 indicates how the new methodology will interface with the EDM and Section 7.7 provides chapter conclusions.

The draft new transdisciplinary methodology is reviewed via discussion of the Manyjilyjarra case study data in Chapter 8. The utility of this approach, and the future development of the

methodology, are discussed in Chapter 9. Although a transdisciplinary approach to ethnophysiography may be advanced by using a contingent, multi-faceted methodology, containing some appropriate methods from phenomenology, the main emphasis needs to be on adoption of phenomenology at a more abstract level, as an over-arching paradigm. The Conceptual Model of Transdisciplinarity (Appendix 4) developed in Chapter 3, Section 3.6, is used as part of the review in Chapter 9 and Appendix 16. The final version of the new PTM-ECS (for this dissertation) is discussed in Chapter 9, and provided in Appendix 15, together with the final version of the EDM.

7.2 Pre-existing Methods for Investigating Landscape Language and Toponyms

7.2.1 Ethnophysiography case study methodology

The methods used to date in landscape language (ethnophysiography) case studies were discussed briefly in Chapter 2. An effective, integrated methodology is discussed in Turk, Mark, O'Meara and Stea (2012), a chapter in *The Oxford Handbook of Linguistic Fieldwork*, edited by Nicholas Thieberger, summarised in Table A8.1 in Appendix 8. Key sections of that text will be referred to in this section.

The development of the ethnophysiography research method between 2002 and 2012 was greatly aided by the interdisciplinary research experience of the principal participants, Mark, Turk and Stea. This has been added to by interactions with linguists from the Max Planck Institute for Psycholinguistics (MPI) Nijmegen, The Netherlands, led by linguist and cognitive scientist Stephen Levinson.

Linguist Carolyn O'Meara brought to the preparation of the Turk et al. (2012) methodology chapter her theoretic expertise and fieldwork experience, including with indigenous peoples. All of this collaboration facilitated integration of research methods from many disciplines to build an ethnophysiography case study methodology of complexity and practicality. Appendix 8 (Ethnophysiography Methodologies) includes a summary of the stages of this methodology in Table A8.1.   The research for this dissertation enabled the enhancement of this basic ethnophysiography case study methodology to incorporate phenomenology-based additions.

New methods and techniques for use in ethnophysiography fieldwork are occasionally being developed by researchers. For instance, during a recent ethnophysiography case study fieldtrip, run by David Mark and Niclas Burenhult, Navajo speakers were fitted with 'Action Cameras'

on their chests, that recorded video, audio, and GPS location. Pairs of participants went walking in their local area, without the researchers, talking to each other about the landscape, including use of generic landscape terms and placenames. Each session lasted 30 to 60 minutes. Recordings were transcribed for analysis. The data collection method was developed by linguist Burenhult, who has also used the method with Jahai speakers in Malaysia. He advises that these uses of the method can be considered as a pilot study, with the aim of developing a paradigm for capturing and documenting landscape-related distinctions in natural in-situ conversation between native speakers of the language being studied[42].

Development of data collection and analysis methods, and the training of researchers by other researchers in this field are continuing. Carolyn O'Meara (Universidad Nacional Autónoma de México) and Gary Holton (University of Hawaii at Manoa) conducted a workshop on methodology to use for landscape language case studies in June 2016[43]. This workshop aimed to introduce participants to techniques which can be used to document linguistic categorisation within the landscape domain. It reviewed the significance of the field and contributions from linguistics, geography, philosophy and anthropology. It also discussed published case studies and the application of data collection and analysis methods to community mapping projects, creation of place name inventories, and the development of teaching materials.

Ethics has always been a central concern within the research theories and practices of the ethnophysiography research collaborators. This is especially important in undertaking data collection with indigenous peoples, whose understanding of research may be limited or even non-existent. Thus the researchers have a strong responsibility to deal with participants in an ethical manner (Turk and Trees, 1998a; Turk and Mark, 2011). This aspect is built into the methodology, often involving oversight by academic institutions' ethics committees, and via collaboration with cultural organisations representing the interests of communities where research is undertaken. An example of an ethical consideration is that researchers must not only respect indigenous knowledges but also deliver practical benefits to communities.

The research approach was also driven by a culture of continuous individual, and team, reflection regarding the manner of research practice. This was allied with a strong desire to

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[42] Personal communications with David Mark and Niclas Burenhult in November, 2018.

[43] https://www.alaska.edu/colang2016/courses/workshop08/ [Accessed 19/6/16]

surface and investigate potential threats to validity of the methods of data collection and analysis. In the Turk et al (2012) chapter, the nature of the threats, and how to address them, was discussed for a large number of potential threats. These threats are summarised in Chapter 2 Section 2.5.3, together with approaches to reduce the impact of the threats. The threats are of two main types (as listed in Turk, et al, 2012): linguistic aspects of ethnophysiography (a to k); and threats arising from data collection and analysis techniques (1 to 9). For example: threat 'b' (in the first list) concerns "What is the (physical) extent of any particular landscape feature for which there is a term?"; threat '6' (in the second list) relates to the possibility that "a term may be correctly documented as referring to a particular type of landscape feature, but it may also mean other things as well". In general terms, threats will be reduced through: use of multiple methods ('triangulation') and iterative procedures; using a diverse range of collaborators; not 'leading the witness'; being open to alternative interpretations; and becoming as intimate as possible with lifestyle, culture and social structures of the language community.

These matters were the subject of many conversations between the collaborators, especially during the Yindjibarndi and Navajo ethnophysiography case studies, and during research meetings. Appropriate research methods for landscape language research in general, and ethnophysiography in particular, were the subject of discussion with researchers at MPI and the LACOLA team, once it was formed (Chapter 2). They were also a key topic of the week-long international workshop on Landscape in Language, attended by twenty-six participants, organized by Mark, Turk, Burenhult and Stea (in collaboration with the MPI researchers) in Arizona and New Mexico in the southwestern USA in October/November 2008. A book summarizing the proceedings has been published *Landscape in Language: Transdisciplinary Perspectives* (2011), edited by Mark, Turk, Burenhult and Stea. Hence, the development of this author's research approach in general, and the research methodology in particular, was a collaborative effort, with input by many researchers, as discussed in Chapter 2 and Appendices 1 to 3. However, the inclusion of phenomenological aspects in the PTM-ECS is the work of this author alone.

As this is not a PhD dissertation in linguistics, it does not include discussion of general linguistic methods used for data collection and analysis. In developing the PTM-ECS and the EDM, there is no intention to, in any way, downgrade the role of linguists in transdisciplinary landscape language case studies. Linguists will be as critical to the success of this research area as they have always been (Burenhult and Levinson, 2008; Mark, Turk, Burenhult and Stea,

(Eds.), 2011). The objective of this dissertation is to facilitate a more informed, insightful and reflective mode of collaboration between linguists and ethnophysiography researchers from other disciplines. As from the beginning of ethnophysiography research (Chapter 2), the methods developed here complement those used by linguists. This is well demonstrated by the Manyjilyjarra landscape language case study carried out by this author and linguist Hill (Chapter 8).

Thieberger (Ed.) (2012) includes chapters discussing linguistic fieldwork methods of particular relevance here. Meyerhoff, Adachi, Nanbakhsh and Strycharz (2012) discuss quantitative and qualitative sociolinguistic fieldwork methods, addressing topics such as: language and power structures, social processes related to switching between languages and dialects, and contexts of linguistic variability within communities. Doussett (2012) examines linguistic consequences regarding patterns of language use, resulting from social organisation and kinship relations. He uses examples from Australian indigenous languages from the Western Desert. Discussion of recording and analysis of toponyms is provided in Nash and Simpson (2012). They discuss the need for interdisciplinary fieldwork and note that toponomy has "systematic properties within a geographic area or speech community" (p. 393). Because there are several different ways that toponyms arise, care is needed in determining a valid explanation of their denotation and meaning [see also Section 7.2.2 below].

7.2.2 Investigating ethnoecology, ecolinguistics and toponyms

As discussed in Chapter 6, this dissertation has established an approach to landscape as place which entails the synergistic intertwining of the prevailing system of 'topographic environment' (terrain and ecosystem) with the socio-cultural characteristics of a group of people (including linguistic and spiritual aspects), to produce a particular TSCS-MOD. Such intertwining is never deterministic and always continuously emergent as elements of each contributing system change, sometimes gradually and occasionally dramatically, as a function of the interaction of internal and external influences and dwelling group responses. This entails aspects of social constructionism (Section 5.5 in Chapter 5).

Moves to better incorporate consideration of the influence of diverse relevant aspects of the topographic environment on landscape language have been made by researchers. As discussed in Chapter 2, this author and his collaborators participated in the publication in 2010 of *Landscape Ethnoecology, Concepts of Biotic Physical and Space*, edited by Johnson and Hunn.

Eleven chapters in this book discuss case studies of landscape language in a diverse range of countries, socio-cultural situations and topo-ecological systems. These investigations identified terms for landscape features and the system of toponyms in the relevant languages, and also investigated the impact on language formation of different types of environmental conditions, including arid deserts, forested mountainous areas and arctic regions. The focus was on interaction with landscape as 'taskscape' (Ingold, 1993), in the context of people's lifeworld, which facilitates their particular deconstruction of its topographic and ecological patterns into ontologies. The case study methods mentioned in chapters of this book are included in Table A8.2, Section Ex-ECO, rows a to f, in Appendix 8. They are useful in expanding the previous flexible ethnophysiography case study methodology so that there is more consideration of ethnoecology aspects of dwelling, including interpretation of the genesis and meanings of toponyms.

In their concluding chapter, 'Reflection', Johnson and Hunn (2010c) emphasise the importance of detailed studies of particular languages, and also note (p. 292):

> The landscape ethnoecology approach also allows us to query human/environment relations cross-culturally and illuminate the nature of human understanding of the natural world. It is important not to essentialize or blur local nuances in this effort, but neither should we simply rest with a collection of particulars. We need to look for similarities or 'universals' as part of understanding ourselves and the relationship of our species to its varied environments in general.

This accords with the approach adopted in this dissertation. Especially to development of the EDM, and the proposition that phenomenology can be an effective overarching transdisciplinary paradigm for ethnophysiography research.

Toponyms are an integral part of ethnophysiography research. Many parts of the landscape are referred to in a language by generic terms, and there are also many toponyms used for parts of landscape. Hence, the relationship between generic landscape terms and toponyms has been an important topic of discussion in ethnophysiography research, including optimisation of methodologies for data collection and analysis. Some methods for collection of toponyms are summarised in Appendix 8, Table A8.2, Section Ex-ECO, rows b to d.

In addition to the methods discussed in Appendix 8, there are other approaches used by linguists to study toponyms within their socio-cultural-spiritual context. David Nash, a well published Australian linguist, discusses relevant issues in his 2003 conference paper regarding authenticity of toponyms. The Abstract for Nash's (2003) paper includes: "Toponymy answers in part the conference question 'What lies behind the idea, common in indigenous communities, that a language may have an intrinsic link with a place, or a traditional way of life?' Every place name has a story behind it, of how it came to be" (n.p.). Use of the PTM-ECS will facilitate surfacing, understanding and explicating the meaning of toponyms. The theme of the 2003 conference that included Nash's paper, was *Maintaining the links: language, identity and the land*. This goes to the very heart of a phenomenological interpretation of place; that relationships and meanings associated with any particular place come from an intertwining of the nature of the topography and the culture and spirituality of the people who dwell there (Chapter 6).

Joshua Nash (2015; 2018) discusses more directly the relationship between placenames and ecolinguistics, referencing the Mark et al. (2011) book on landscape language research. He notes the value of adopting an 'ecologically embedded language' approach and carrying out field research with speakers when they are engaged in every-day tasks, on-country (including, if permissible, cultural and spiritual protocols); "Ecolinguistics provides a basis upon which the analysis of this cross-disciplinary mix of linguistic and environmental relationships can be undertaken. An ecolinguistic analysis provides a philosophical and conceptual framework for what I believe can result in a more accurate and detailed description of toponyms in their historical and ecological contexts" (Nash, 2015, p. 70). The PTM-ECS can be considered as incorporating activities which implement an ecolinguistic approach.

Nash's approach reinforces the need to incorporate a socio-cultural-spiritual analysis of toponyms in ethnophysiography case studies. An interdisciplinary (or potentially transdisciplinary) approach to toponym research is also supported by Capre, Ganga, Filzmoser and Vacca (2016), who utilise scientific knowledge on soil resources to aid in understanding of toponyms, through an 'integrated ethnopedological approach'. They note: "Local knowledge refers to the understandings, skills, and philosophies developed by societies with long histories of interaction with their environment. Place names (toponyms) can be considered an important mirror of the local knowledge and perceptions about the surrounding living space" (p. 89). For a case study in the Gulf of Oristano region (central-western Sardinia), they used an

'ethnopedological' approach to study the meaning and distribution of toponyms, including reference to 'pedonyms' (toponyms connected to soil resources).   Hence, it is important to investigate all aspects of topography, environment and socio-cultural-spiritual factors within an integrated approach to investigation of toponyms. Methods for toponym collection and analysis discussed in Nash (2015; 2018) and Capre et al. (2010) are included in Appendix 8, Table A8.2, Section Ex-ECO, rows g and h.

7.3 Proposed New Methodology for Ethnophysiography Case Studies

7.3.1 Introduction to section

Potential use of phenomenological methods

A key objective of this PhD investigation and dissertation is the development of enhanced ethnophysiography methods, supporting the EDM, to more effectively address social, cultural, spiritual and ethical aspects of lifeworlds, especially regarding indigenous peoples. There is a long history of discussion concerning the application of phenomenological approaches in the investigation of social and cultural phenomena. For instance, Ryle (1971) describes the methods of phenomenology: "It is its boast that it does not make and does not presuppose 'logical constructions' or 'theories' or 'systems'. 'Phenomenology makes no hypotheses'. It does not move by making deductions from axioms or inductions from observed or recorded facts" (p. 210).   He goes on to suggest that its method involves 'exemplary intuition', via inspection of individual examples.

It is difficult, perhaps impossible, to accomplish such intuition outside of the context of one's own time, environment, culture and experiences of various types of topographic environment. Ryle (1971) goes on to note: "The dangers lie in the undue extension of this method; if, for instance, our interpreter has, without realising it, a theory of knowledge, or a metaphysical system, he may easily come to interpolate into the interpretations that he gives something that could never have been intuited in the exemplary instance he is examining [...] Or else, under the same influence, he may omit to notice an integral element in that Essence" (p. 210). The significance of this warning is borne out by the incidences of Eurocentrism evident in traditional phenomenology, and perhaps still posing a threat to validity of this method [see Chapters 4, 5, 6 and 8]. Hence, a purely intuitive approach, independent of ethnographic observations, is unlikely to yield truly universal essences of landscape, and, hence, is probably not useful for comparative ethnophysiography research.

Ryle provides a further caution regarding potential sources of invalidity or unreliability of phenomenological conclusions, which need to be addressed within a sound methodology [see also Section 2.5.3]. This relates to the establishment of the meanings of acts and our relationships with things in our environment. He notes: "But while it is a dangerous metaphor to speak of acts having 'meanings' or of things as being the 'meaning of acts', it is a fatal error to speak of a thing known as the correlate of a knowing-act as if that implied that we could get to the heart of the thing by analysing our experience of knowing it […] And this leads to dangerous results in the practice of the phenomenological methods" (p. 212). This is very important advice in the context of landscape language studies, especially those concerning indigenous languages with few speakers, who now have a different lifeworld from the traditional mode of living when the language was formed. This limiting condition is unfortunately often the case for the surviving Australian Aboriginal languages, very greatly reduced from the probable 250 languages (and many more dialects) used at colonisation, 230 years ago[44].

If a phenomenological approach is used to establish meanings of landscape language terms, it is important to be conscious of its limitations and sceptical of initial results. The validity of findings largely depends on the range of relevant activities and meaning possibilities investigated, the number and range of participants involved and the techniques of data gathering and analysis. This is why an extensive investigation of the nature of place is carried out in Chapters 5 and 6, so that detailed summary phenomenographic tables of potential aspects of place (for investigation) can be prepared (see Section 7.5). This is part of the method of operationalisation of the over-arching, transdisciplinary, phenomenological approach adopted in this dissertation.

In addition, it is critical that the most comprehensive and thorough set of techniques be used to obtain information from case study participants, who represent a wide range of speakers of a language. For instance, an elderly Aboriginal woman may provide evidence of the meaning of a swampy area of topography in terms of the traditional foods which were previously gathered there, whereas a young man may discuss it as a dangerous place to drive a car. As discussed in

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[44] See https://aiatsis.gov.au/explore/articles/indigenous-australian-languages [accessed 9th February, 2018]

Chapters 4, 5 and 6, developments in phenomenological methods since the publication partly address some of the issues raised by Ryle (1971).

Phenomenology and science can be productively combined

The often cited desire, by Husserl and others, to separate phenomenology from scientific practices, especially psychology, has been progressively challenged by McGuirk (2009) and others, as discussed in Section 4.2.6). The need for an increasingly robust methodological relationship between phenomenology and social sciences is explained by Julio Bermudez (2014, p. 51): "This dialogue is necessary because it is increasingly difficult, if not impossible (theoretically and practically), to advance insights, observations, or allegations without offering empirical evidence." This is because science (rather than philosophy) is often seen by society as an important determinate of appropriate approaches to environmental and social issues: "Instead of resisting, a more productive path would be to think of science as another perspective, language, and method that can be used when considering phenomenological questions, insights, and recommendations". He argues that the previously predominating view that phenomenology is anti-science has never been true, since Husserl himself suggested that the fundamental nature of lived experience needs to be considered. This requires contemplation, but also: "the direct, unbiased observation of first-person experience of reality and consciousness" (p. 51). This may well require divergence from, or revised application of, Husserl's method of 'reduction' and/or use of relevant scientific methods and techniques in a phenomenological manner.

Bermudez (2014, p. 52) notes that phenomenologist Maurice Merleau-Ponty criticized traditional science (in his 1962 *Phenomenology of Perception*) "by arguing that human cognition is unavoidably embodied and therefore neither purely intellectual and detached nor merely physiological and reactive". However, rather than this meaning that science should be ignored, it opened up new reams of exploration: "a disciplined, skilful coupling of phenomenology and the natural sciences" (p. 52). Such an approach was further advanced by the work of Hans-Georg Gadamer: "Turning Husserl's 'reduction' on its head, Gadamer argued that it is the prejudices we bring to any particular situation that make interpretation at all possible, hence the fundamental flaw and naiveté of ordinary science when it demands or expects 'objectivity'" (Bermudez, 2014, p. 52). This aligns with the approach to the collection and analysis of ethnophysiography data advocated in this dissertation, as the basis of the PTM-ECS.

Perhaps optimistically, Bermudez (2014, p. 52) suggests that phenomenologists are essentially 'pragmatic':

> They truly want to deal with the experience of the world as lived and to understand human being-in-the-world. They are not keen on generating far-fetched philosophical models or adopting radical ideological positions. Given this no-non-sense attitude, phenomenologists are ready to accept experience-based knowledge and utilize it for advancing lived reality either actively (e.g., via the design of the built environment) or receptively (e.g., via human interaction with that built environment).

Although such an approach has not always been evident in the past, it is essential to a transdisciplinary application of phenomenology to areas of research such as ethnophysiography. As discussed in Chapter 1, this joint approach can also potentially aid phenomenology. This is in line with Bermudez's contention (p. 53) that "to use scientific method to test phenomenological claims also parallels efforts in 'experimental philosophy' ('X-Phi'), an innovative reflective practice working to examine empirically philosophical topics that have resisted scrutiny via more conventional analytical reasoning (Knobe and Nichols, 2008)". He concludes by stating (p. 53/54) that: "Forcing a choice between phenomenology and science or the subordination of one to the other are false options. A more comprehensive approach requires a respectful, judicious, and mutually beneficial dialogue between phenomenology and science." This aligns with the objective of this research project.

This topic is also discussed in Turk (2018), the review by this author of Seamon's (2018) book *Life Takes Place*. Seamon seems opposed to combining phenomenology and social sciences. The review summarises his arguments and includes the responses of this author, in support of integrated methodologies and also raises other issues, as discussed in Section 7.4.3. A summary of key methodological aspects is provided in Appendix 8, Table A8.2, Section EX-SM, rows a to g. See also the discussion of social constructionism (which Seamon opposes) in Chapter 5, Section 5.5.

Van Manen (1990; 1997; 2007; 2014; 2017a;b) is an important contributor to discussion on phenomenological approaches to investigation of everyday lifeworlds, including advocating a wide range of methods. For instance, he states: "Phenomenology is a project of sober reflection on the lived experience of human existence – sober, in the sense that reflecting on

experience must be thoughtful, and as much as possible, free from theoretical, prejudicial and suppositional intoxications. But, phenomenology is also a project that is driven by fascination: being swept up in a spell of wonder, a fascination with meaning" (2007, p. 11). As discussed in Chapter 3, Section 3.2.2, Van Manen (1990) cites Dilthey (1976) regarding the role of affect, values, feelings and emotions relevant to thoughts, actions and purposes. Such considerations have led to the adoption of different methods and techniques for phenomenologically-based research.

Affect, emotion and phenomenology

One aspect of phenomenology relating to landscape that requires a synergistic combination of case study methods is 'affect', as discussed in Chapters 5 and 6. The case study approach needs to incorporate methods and techniques that assist in understanding affective aspects of relationships with landscape. Bryan Bannon (2014a, p. 33) notes the centrality of nature within phenomenological inquiry and the need to investigate "both our personal and collective connection to and affection for the world in which we live". He suggests that traditional phenomenological methods of inquiry have been criticized as being too anthropocentric and prone to "a persistent, unacknowledged subjectivism". Thus we need to adopt research methods that more effectively capture and analyse data relating to all types of interactions with the environment. Bannon emphasises the need to better incorporate the views of 'New Phenomenologists', such as Foucault and Deleuze [see also Bannon 2014b].

The collection of chapters edited by Dahlstrom, Elpidorou and Hopp (2016) discusses connections between philosophy of mind and phenomenology and how such understanding can be advanced by empirical studies, such as landscape language case studies. In their introduction, the editors suggest that studies of mental activities can be enhanced through a constructive dialogue between different approaches; phenomenological, analytical, and empirical (scientific) methods (p. 2/3). The edited collection contains fifteen essays, including one by Moran (2016), which discusses the term 'lived body' in the context of intercorporeality and intersubjectivity, and the body as a phenomenological 'theme'. Moran emphasises the critical role that the body plays in a phenomenological approach to investigation of all consciousness, within and between individuals. This edited collection is broadly supportive of the integrated methods approach pursued in this dissertation.

Place is foundational to phenomenology

In Chapters 4, 5 and 6, Malpas' work on phenomenology of place was reviewed. He believes that Heidegger's notion of 'topology' is essential to understanding of place, and that the nature of place is foundational to phenomenology.

Abraham Olivier (2017) also discusses the central role of place in phenomenology and proposes a 'exterophenomenological' approach which emphasises the role of place as a 'grounding structure' for experience. This approach has the potential to operate as a methodology and a hermeneutic 'key' (p. 10). Phenomenology "holds that experience essentially has an intentionality structure in that it is always directed to or about the meaning of an extramental, publicly accessible reality" (p. 11). He emphasises the importance of the particular lifeworld and socio/cultural structure for the individual or group, as part of the contingency that determines their relationships with place. Citing Smith (2013, p. 3) he notes that people's phenomenological experiences are of various types, including "sensation, perception, thought, memory, imagination, emotion, desire, […] volition, […] bodily awareness, embodied action, and social activity, including linguistic activity" (p. 11). This involves 'representation', which in phenomenology, is interpreted with emphasis on the 're-'. 'Objects' are considered in terms of "what they mean to us, and what impressions, beliefs, perspectives, images, ideas, thoughts, or uses we shall have of them" (p. 11). This includes landscape features, as expressed in landscape language.

An 'exterophenomenological' approach places particular emphasis on the way experience is shaped by the person's lifeworld, with place as, not just the site of experience, but also the "hermeneutical key' to understanding its meaning" (Olivier, 2017, p. 12). Place provides "a network of things with equipmental meanings" (Heidegger, 1962) offering us personal possibilities of meaning and action, either as an individual or together with others (Olivier, 2017, p. 13)[45]. Within this 'field' of experience (Merleau-Ponty, 1945/2013), place operates as a "contextual web of meanings" (Olivier, 2017, p. 14). Landscape is part of intersubjective relations, such as Heideggerian 'care' (*Sorge*). Olivier (2017) adopts a wider view of 'care', which he terms 'struggle', to cover the range of social and cultural conditions applying to a group of people in a particular time and place.

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[45] See also Harman, G. (2002) *Tool-Being: Heidegger and the Metaphysics of Objects*. Chicago: Carus.

A comprehensive case study methodology facilitates a local approach to hermeneutics, which can be used synergistically with global (universal) principles. Utilising this "place-bound particularity of experience" (Olivier, 2017, p. 19) is what Olivier is terming an 'exterophenomenological' method. This matches the approach to Heideggerian topology proposed in this dissertation, for example with respect to *Jukurrpa* for Yarnangu peoples (Chapters 6 and 8).

Seamon (2018) notes (p. 19) the interdisciplinary nature of place research, citing Janz (2005b, p. 89), who states: "the world cannot be understood in solely causal terms". Janz provides five reasons for adopting a complex, holistic and richly cultural approach to place research:

1. It can accommodate occurrence of resistance and opposition in investigations of place, since effective approaches "can resist cynical, relativist, post-structuralist thinking and counter […] modernist accounts of the world" (Seamon, 2018, pp. 19/20).

2. It can break down distinctions between anthropological research from an 'emic' (insider's view) compared with 'etic' research from a predetermined outsider observer's point of view.

3. It can include ways to discuss both specific case study data and general (conceptual principles) views of place, so that theories can "grow from the ground up" (Janz, 2005b, p. 93).

4. It can incorporate aspects of affect, spirituality and imagination associated with place.

5. It challenges constraints within disciplines and invites innovative modes of disciplinary awareness and interdisciplinary research.

Janz's requirements for effective place research support the adoption of phenomenological and hermeneutic approaches. This concentrates on the experience of place, and "does not tend either toward idealizing place or materializing it" (Janz, 2005b, p. 90). The PTM-ECS seeks to facilitate investigations, which address these objectives.

Application of phenomenology and geography to landscape language studies

The chapters so far in this dissertation have demonstrated the potential application of phenomenology to landscape language research. The relationships between social and cultural geography, hermeneutics and phenomenology were discussed in Chapter 6. Key aspects of this methodological advice is summarised in Table A8.2, Section Ex-CG, rows a to d, in Appendix

8. An example set of rows from that section of Table A8.2 (Appendix 8) are shown in Table 7.1.

Table 7.1: Example set of rows from section Section Ex-CG of Table A8.2 (Appendix 8)

Extra Method	Activity reference	Description of activities for each step in additional method	Literature reference(s)
Ex-CG		**Methods recommended by cultural geography authors.**	
	Ex-CG-a	Pay attention to 'minute particulars' via fine-tooth-comb searches of information about people's life-world.	Merriman, Revill, Cresswell, Lorimer, Matless, Rose & Wylie (2008)

Computational Spatial Analysis

Interpretation of language is an important aspect of a phenomenological approach to landscape language studies. There has been a continuing development of relevant computational techniques since the 1980s. Such approaches need to be considered to understand what role they can potentially play in transdisciplinary landscape language research.

Purves and Derungs (2015) provide a review of techniques to extract specific information about places from spatial databases, using approaches from human geography and geographic information science. They note: "our approaches focus on the naming of places and their material or perceivable properties, and there is still much work to do to properly represent place, and particularly sense of place" (p. 74). Digital spatial data analysis has many other uses, including in map generalisation. For example, see Mackaness, Burghardt, Duchene and Richardson (2017) and Stanislawski, Buttenfield, Bereuter, Savino and Brewer (2014). Such an interdisciplinary approach to analysis of spatial data is also discussed by Derungs (2014), Wartmann, Egorova, Derungs, Mark and Purves (2015), Allen, Hervey, Lafia, Phillips, Vahedi and Kuhn (2016), Lafia, Jablonski, Kuhn, Cooley and Medrano (2016), Wartmann, Acheson and Purves (2018) and many other publications.

Wartmann and Purves (2018a) discuss automated processes of text interpretation to obtain more detailed information about abstract cultural aspects of landscape. They highlight the relative concentration in ecosystem studies on tangible services: "Intangible cultural ecosystem services, such as sense of place, are often neglected, but in the context of highly populated, increasingly urbanized countries, maintenance of cultural ecosystem services is an important

policy objective" (p. 169). They used interviews to elicit perceived landscape associations across five principal landscape types in Switzerland. This project demonstrates the potential for using such computational approaches more widely in landscape language research. However, it also indicates its limitations, supporting a multi-method 'triangulation' approach to landscape language, which synergistically combines qualitative and quantitative methods. [see also Wartmann and Purves, 2018b].

Wartmann, Mackaness, Bauer, Bolliger and Kienast (2019) provide a more general investigation of ways to integrate quantitative and qualitative methods of analysis of landscape characteristics. They recognise "that landscapes need to be studied both in terms of their physical and ecological elements as well as how people living in or visiting landscapes perceive and interact with them" (p. 209). Their case study seeks to implement techniques to study such intangible landscape characteristics as 'tranquillity'. They note: "Although tranquillity is something that is individually perceived, many would agree that some landscape characteristics are more likely to instil tranquillity" (p. 220). The researchers investigated new methods for tranquillity studies, such as analysing tranquillity assessments of geotagged social media photographs. They also investigated more physical landscape characteristics, such as 'wilderness', more tractable to quantitative analysis techniques. Such research can involve contributions by participants, but usually only at the data collection and analysis phase, rather than in design of research process and products.

Since the 1990s digital mapping and GIS researchers and practitioners have used methods involving high levels of involvement of participants drawn from target communities. There is not space in this dissertation to review methodologies relating to participatory mapping (PM) and Participatory Geographical Information Systems (PGIS) approaches (Álvarez Larrain and McCall, 2018). However, such methods need to be considered if ethnophysiography projects are linked to development of 'culturally appropriate' GIS.

As discussed in Chapter 2, Section 2.1, Ingrama, Anonby, Taylor and Murasugi. (2019) report on a project using a cybercartographic approach to mapping Kanyen'kéha (Mohawk) ethnophysiographical knowledge. Mackenzie, Kirk, Claramunt and Reitsma1 (2019) discuss use of a new approach to the representation of the sort of fuzzy, spatio-temporal knowledge, which is found in traditional knowledge systems, including material from traditional narratives. They produced a model connecting the various types of data: "The core of this approach is the

motif. This is a repeating pattern of spatial and temporal context around a given action or state, as temporal reckoning is often multi-cyclic and contextual" (p. 1). This enabled them to produce a 'folk thesaurus', based on traditional indigenous ontologies, to be used in GIS development. A similar project, incorporating Hñahñu (Otomi, Mexico) ecological knowledge, about farming in particular landscapes, in a GIS, is reported by Villalobos, Trejo, García and McCall (2019).

Wartmann and Purves (2017) describe a technique of developing maps from participatory sketch mapping, conveying local geographical categories, via 'fuzzy' digital techniques. This approach facilitates local participative planning and decision-making within a particular cultural and linguistic setting. They discuss a case study carried out with the Takana indigenous people in the Bolivian Amazon, which involved in-depth ethnographic fieldwork, including sketch mapping by 29 local participants. This resulted in identification of "74 different feature types, while we elicited 156 landscape categories used in language, of which only 23 overlapped with feature types" (p. 1). This enabled representation of culturally important categories within the digital decision support system, facilitation more effective natural resource management.

The results of this type of research have other potential information and communications technology (ICT) applications for culturally and linguistically diverse (CALD) communities. For instance, Ogie, Rho, Clarke and Moore (2018) discuss how information technology can be used to adapt disaster risk communication to account for cultural and linguistic differences between community members. The computational spatial analysis methods discussed in this section will be further explored in later research (Chapter 9).

An interdisciplinary place-based holistic approach also applies to digital analysis of toponyms (Villette and Purves, 2019). Analysis of indigenous cultural structures can also facilitate design of non-place-based digital products, such as language learning aids (Taylor, Wujal Wujal Aboriginal Shire Council, Soro, Roe and Brereton, 2019).

7.3.2 Essences, universals and traditional phenomenological methods

There is extensive discussion concerning Husserl's *epoché*, phenomenological reduction, essences and universals in Chapter 4, Section 4.2, which indicates that, at least initially, the

relevant Husserlian methods should not be an explicit stage in the new methodology for ethnophysiography case studies.

As discussed in Chapters 8 and 9, it may be possible to use ethnophysiography in a search for phenomenological essences in landscape, however, the discussion in this dissertation indicates that this will need to be at higher levels of abstraction than, for instance, attempting to find a universal definition of 'hill'. It is more likely to be possible, for instance, in terms of sources of potable (drinkable) water or parts of landscape that involve walking up or down a slope, as against flat areas.

It is noted that this decision seems to be against the advice of van Manen (2014; 2017a; b), who asserts that, a key element of phenomenological study is the search for essences. However, although van Manen's advice may (or may not) apply to disciplinary, or even interdisciplinary investigations, it does not necessarily apply to the use of phenomenology as an over-arching transdisciplinary paradigm. Chamberlain (1974, p. 126), cited in Patricia Sanders (1982, p. 353) suggests that: "There is no orthodox procedure which can be held up as the authoritative phenomenological method". As discussed in Chapter 4, van Manen (2017a) cautions against using hermeneutic phenomenological methodologies that are too rigid. Hence, flexibility is important, with methods matched to the particular research question.

The search for an Aristotelean version of essences (as part of universalism), as promoted by Husserl in his early writing, does not seem easily appropriate for landscape. For instance, *marnda* (*Yindjibarndi*) and *puli* (*Manyjilyjarra*) are examples of conceptualisations of mountains, hills, boulders, pebbles (and even coins and leg-irons in the case of *marnda*) as having an essential unity, since the one term is used for each of these objects. That this occurs in both languages, geographically separated by other languages, seems significant. If the common meaning in these examples is, for instance, about 'hardness', notions of Husserlian essences may not be as straightforward for landscape entities as could be expected from European language examples. Perhaps the linking concept, at least in some uses, may be more in line with the Heideggerian notion of 'instrumentality', or Gibson's 'affordances', in that the conceptualisation of parts of landscape may be in terms of how they contribute to physical, utilitarian, social, cultural, spiritual or ethical aspects of a person's and/or community's lifeworld.

Husserl's own recognition of this problem, is discussed in Chapter 4. Hence, it does not seem appropriate, at least initially, for a phenomenological approach to ethnophysiography to incorporate van Manen's (2017a; b) approach to reduction and epoché. An alternative view, based on Husserl's later writings, offered by Zahavi (2019a; b), supports a more effective way to marry phenomenology with social sciences. Zahavi (2019a) supports a philosophical approach to phenomenology, rather than a superficial use of the term. This seems to agree with van Manen's insistence on use of reduction and epoché, which is disputed by Smith (2018) in his defence of Interpretative Phenomenological Analysis (IPA). Zahavi (2019a), while also criticising Smith, disagrees with van Manen, insisting that phenomenology must be more than detailed descriptions of lived experiences. It needs to involve comparative analysis, so as to explore relationships between: perceptual intentionality and scientific rationality; subjectivity and objectivity; empathy and 'inferential mindreading'; and the individual and community. Most of these are key concerns in this dissertation, which develops a detailed approach to collection and comparison of ethnophysiography case study data. Van Manen (2019) responds to Zahavi (2019a) criticisms, suggesting (p.1) that the view of phenomenology presented by Zahavi "is too limited and one sided". There is not space here to summarise all aspects of their claims and counterclaims.

Zahavi (2019a) insists that a phenomenological approach to investigation of lived experiences involves the researchers reviewing their own presuppositions and conditions of possibility to permit critical elucidation of real-world phenomena. Their analysis should be devoid of dogmatic adherence to past theory and involve consideration of their particular perspective of interpretation of qualitative data. He emphasises that Husserl believed that the reduction and epoché are for the purpose of trying to understand how people interact with the world and that language is an important aspect. However, it is not necessary that all phenomenology-linked research use the reduction and epoché. Zahavi (2019b) asserts that "while the epoché and the reduction are crucial for transcendental phenomenology, it is much more questionable whether they are also relevant for a non-philosophical application of phenomenology" (p. 1). He notes that phenomenology need not be only used in philosophy; "For more than a century, phenomenology has provided crucial inputs to a variety of disciplines in the social sciences and the humanities, including psychology, sociology, and anthropology" (p. 1).

Zahavi (2019b, p. 3) suggests that the "kind of phenomenological reduction that should be utilized by psychologists (for instance) is what Giorgi calls the *psychological*

phenomenological reduction (Giorgi 2012, p. 5), and not the *transcendental phenomenological reduction*, which focuses on consciousness as such rather than on human consciousness". He proceeds to explain these terms and why non-philosophical phenomenological investigations should challenge existing models and background assumptions, but need not explicitly use the reduction and epoché.

Talebian and Uraz (2018) also address this issue. They provide support for many of the points raised in the dissertation regarding the practical application of phenomenology within interdisciplinary projects and recommends use of an extended version of Post-phenomenology. On the issue of universals and the reduction and epoché they contend:

> Reduction, as a symbol of Husserl's idealistic method for 'returning to things, themselves' has been criticized by Merleau-Ponty, who doubted if one can completely bracket off his pre-knowledge of the object in order to capture the essences (Simpson, 2009) […] Post-phenomenological theorists have completely rejected 'reduction' as a method, and in return have replaced it by 'variation' and 'multi-stability' (Ihde, 2009) (p. 16).

Thus traditional phenomenological methods seeking 'essences' seem inappropriate for landscape features, and, hence, are not incorporated in the draft PTM-ECS or EDM. However, this position should be reviewed in the context of further ethnophysiography case studies, utilising the EDM developed in this dissertation. Extra methodological approaches relevant to this section are summarised in the Table A8.2, Section Ex-EU, rows a to d, in Appendix 8. Additional relevant references are included in Table A7.9 in Appendix 7.
This issue is also considered in Section 9.2.9 in Chapter 9.

7.4 Some Other Phenomenology-Based Methods Discussed in Previous Chapters
7.4.1 Ethnomethodology

The objective of this section is to establish how a form of ethnomethodology might be able to contribute to a new multi-faceted, contingent methodology for ethnophysiography case studies. Ethnomethodology (EM) was introduced in Chapter 4, Sections 4.3.3 and 4.3.4. This included mention of its development by Alfred Schutz, Harold Garfinkel, Aaron Cicourel and others (Heritage, 2013) to provide a marriage of sociology and phenomenology. The forms of synthesis can vary to suit the domain of any specific investigation (Eberle, 2012). For instance, Harvey Sacks used this approach for detailed studies of the way people use language in

everyday life. This involved conversation analysis (CA), an approach to the study of social interaction, embracing both verbal and non-verbal communication in the context of regular tasks and social processes (Heritage and Clayman, 2010).

Heritage (2013) investigated differences between ordinary conversational interaction and work-based institutional talk, as influenced by the forms of social exchange involved in each. This can involve phenomenological analysis of 'talk-in-interaction' data, collected by a researcher immersing him or herself in the daily lives and routines of those being studied (Wilson, 2012). Such techniques can potentially be applied to analysis of use of landscape terms in social interactions in utilitarian, social, cultural or spiritual contexts. For instance, for Manyjilyjarra speakers (Chapter 8), a permanent source of water (*yinta*) contains a spirit (*jila*), hence, in a spiritual conversational context, the landscape feature is sometimes called a *jila*.

Heap (1991) suggests that EM can be used to study culture.   Alec McHoul and Mark Rapley (2005) also advocate the use of EM to study culture, mobilising ideas from Husserl and Heidegger within the ethnomethodological theory of Sacks and Garfinkel.   McHoul (2008) discusses conversation analysis (CA), including the possibility of inclusion in the analysis of "such matters as the broad social, cultural and political milieux in which everyday interactions happen to happen" (p. 823). This aligns with use of the relevant TSCS-MOD to aid design of data gathering and analysis techniques.

Eberle (2012) charts the emergence of EM and CA as a means of developing a phenomenological approach to social sciences. This includes discussion of accounts of the commonalities and differences between Schutz's lifeworld analysis and Garfinkel's ethnomethodology. Some of the key elements identified by Eberle (2012, p. 146) are as follows:

1. EM investigates every-day activities, as part of an organised set of community accomplishments, via observation, recording of conversations and analysis of such 'social fact' data to discover how members themselves construct, produce, and interpret their actual ongoing activities.
2. EM interprets social interactions between community members in the context of their social and cultural milieu, including communicative acts and their intended purposes.

3. EM investigations are based on empirical case studies, however, a search for universal phenomenologically informed sociological or linguistic theories could also be an overarching objective.

There are a large number of publications covering the topics of EM and CA, explaining the various approaches used [46]. The general features of EM are implemented in a diversity of ways (Maynard and Clayman, 1991). Melvin Pollner (1991) emphasises the need to retain, within EM, a focus on 'radical reflexivity'. Pollner explains that this involves the recursive and comprehensive understanding of "the 'accomplished' character of *all* social activity", with the analyst putting aside their own concepts, so as to identify and explore those developed and employed by the community under study (p. 370). This requires an active 'unsettling' of basic assumptions about ontologies of things, activities and processes, something already identified as crucial for effective ethnophysiography case studies (Chapter 2).

Anita Williams (2017) discusses EM as a qualitative method employing specific formalisms to suit the topic under investigation. She cautions that EM can fail to provide the benefits of a phenomenological approach if formalisms are too rigidly adhered to. Thus an integrated-methods methodology should be contingent and flexible to meet the demands of the context of use.

Other techniques used in ethnomethodology discussed by Wilson (2012) include collection of artefacts and texts used by the community to regulate or explain their common protocols, such as written descriptions of common practices, commentaries, educational handouts, etc. It can also be productive to undertake small experiments designed to reveal participants' taken-for-granted assumptions regarding social life. Such methods, and other approaches to EM can potentially extend key aspects of ethnophysiography data collection activities. Applicable methods are summarised in Table A8.2, Section Ex-EM, rows a to n, in Appendix 8.

7.4.2 Ihde's postphenomenology

The theory of postphenomenology, developed by Ihde, was discussed in Chapter 4, Section 4.3.6. His *multistability* approach was reviewed in the context of landscape terms, such as the

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[46] E.g.: *Bibliography of Ethnomethodology and Conversation Analysis*, Compiled by Matthew R. Treadwell (University of Sheffield): www3.nccu.edu.tw/~95254005/bibliography.doc [accessed 12 February, 2020]

Yindjibarndy word *marnda*; providing a new method of understanding what might conceptually link each usage of the term, from mountain to pebble, coin and leg iron.   This subsection explores further the potential for using Ihde's methods within the PTM-ECS, especially in the context of communalised intentionality aspects of dwelling.

Ihde (2002) adapted the embodiment theories of Maurice Merleau-Ponty to posit the existence of two interacting types of body; a 'lived body' and a 'socialized body' (involving 'cultural significations'). He also emphasised the role that technology in social and cultural aspects of dwelling, including its ability to 'mediate consciousness' (Ihde, 2009). However, according to Ash and Simpson (2014, p. 492), geographers have adopted aspects of post-phenomenology beyond the ideas from Ihde, especially concerning intentionality (Moran, 2000a). Ash and Simpson (2014) note: "While Ihde (2007) maintains a faith in the intentional correlate of experience, albeit re-conceptualized in terms of being inter-relational (something shared with work in geography on practice), this is not necessarily maintained within the version of post-phenomenology developing in geography" (p. 492).   Hence, it is possibly best to use an appropriate version of postphenomenology, which is well integrated with other socio-technical approaches.

Phenomenology explores the connections between embodiment and communication, both verbal and non-verbal, that facilitate social interaction for the full range of lifeworld tasks. Butchart (2019) emphasises that such communication is continual and plays a primary role in the constitution of reality. However, communication is not deterministic, nor just a manual process of transmission, but suffused with the complex fabric of selfhood and community. A person shapes language use, and is shaped by it, as part of their language community. Landscape language grounds the individual and community in their topographic environment.

The geography approach also involves an interpretation of Merleau-Ponty's focus on the body being integrated in the world (Gutting, 2001). Ash and Simpson (2014, p. 495) cite Simonsen (2013, p. 22) as suggesting that 'flesh' is the site of an inter-world, intersubjective and intercorporeal, vibrant field of consensus and conflict. This approach also provides an opportunity for identifying 'agential capacities'. The intersubjective role of the human agent, embedded in societal structures and their physical environment, goes beyond Husserlian intentionality. In human geography there is also a recognition of the role of affect in responses to place (Seigworth and Gregg, 2010). Ash and Simpson (2014) suggest that the adoption of

this mode of post-phenomenology is centred on issues of 'alterity' [47] (Wylie, 2009). As discussed in Chapter 6, Section 6.4.2, Taussig (1993) links 'alterity' to the 'turn to affect' and 'mimesis', key topics in this dissertation. He notes the great range of mimetic processes that embed societal and cultural notions within the minds of a dwelling group, configuring their routine lifeworld practices, within their particular mode of dwelling in landscape as place. The PTM-ECS needs to incorporate methods and techniques for surfacing and analysing such 'scripts', 'refrains' (Bertelsen and Murphie, 2010) and 'protocols'.

Ash and Simpson (2014) advocate a broader approach to post-phenomenology in the context of human geography's relationship with phenomenology. They note that there has been renewed interest by geographers in phenomenology following the publication by Rose and Wylie (2006), which encouraged interest in 'post-phenomenology'. There is further discussion of this approach in Lea (2009), Pickles (1987), Patterson and Williams (2005) and Seamon and Gill (2016).

During landscape language case studies gendered aspects of interactions with landscape need to be investigated (Ihde, 2003, pp. 13-14), both in terms of utilitarian tasks and potentially social/cultural/spiritual roles and beliefs [see also Sections 9.5.4 and 9.8.1]. A brief summary of methods related to post phenomenology is included in Appendix 8, Table A8.2, Section Ex-PP, rows a to h.

7.4.3 David Seamon's Systems Theory Method

The method for place analysis discussed in Seamon (2018) is analysed in *Andrew Turk's review for Philosophical Reviews of David Seamon (2018) Life Takes Place: Phenomenology, Lifeworlds, and Place Making* (2018). This includes discussion of disagreements that this author has with several aspects of Seamon's method. However, Seamon's methodological approach has a lot of potential to contribute to the PTM-ECS, especially when modified in the manner suggested in Turk (2018) and below.

Principal disagreements with Seamon (2018)

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[47] 'Alterity' is a philosophical term meaning: otherness; the state of being other or different; an encounter with 'the other', which is seen as the same as oneself, another human in the world; this understanding is 'alterity'.

Seamon's method is based on Bennett's systems theory (e.g. 1993), although Seamon (2018) also claims that it can be independently justified directly from the phenomenology theory of researchers such as Edward Relph, Edward Casey and Jeff Malpas. This is not explicitly established in Seamon's publications and, if it was, the most desirable form of his methodology might be altered.

Seamon's method starts from the need to consider dwelling in place, as a 'monad'; a complex holistic system. His next step is to consider complementary or opposing pairs of aspects of place as 'dyads'. The five place dyads are: movement and rest; insideness and outsideness; the ordinary and extra-ordinary; the within and without; homeworld and alienworld.

In his desire to avoid being accused of 'social constructionism' (see Section 5.5 in Chapter 5), Seamon limits his set of dyads to exclude social, cultural, spiritual and ethical aspects of dwelling in place. The nature of the place investigation being undertaken should determine which type of dyads are most applicable. For instance, as shown in Appendix 8, Table A8.2, row Ex-SM-d, other potential binaries relating to aspects of dwelling in place include:

- historical (e.g. whether colonised people or not);
- utilitarian (e.g. predominating form of work: hunter/gatherer and agricultural vs manufacturing and utilities);
- social (e.g. dominant vs marginalised people);
- political (e.g. democratic vs totalitarian);
- cultural (e.g. indigenous vs multicultural customs and languages); or
- spiritual (e.g. sacred vs secular places).

The third step in Seamon's method starts with identification of three place impulses: 'people-in-place', 'environmental ensemble' and 'common presence'. These three impulses are similar to the way place is defined in this dissertation, however, the 'people-in-place' impulse does not act as comprehensively as the suggested socio-cultural framework. This means that the 'common presence' impulse in Seamon's formulation is also weaker than the equivalent notion in this dissertation.

Seamon's consideration of the three impulses leads him to develop different impulse combinations, producing six 'triads'. He provides detailed description and justification for

these, however, it is not clear that these are the best way to subdivide the conceptual domain they define. Some of the triads are in pairs and the justification for these is unclear. Also, the examples Seamon uses to explain the triads are predominately in urban settings, leaving in doubt their potential effectiveness for rural or wild places.

Utilisation of aspects of Seamon's (2018) methods
The disagreements with Seamon's (2018) method, discussed above, are reflected in the manner of incorporating particular aspects into the proposed contingent, multifaceted methodology to implement a phenomenologically-based transdisciplinary approach to ethnophysiography case studies. The steps that might be usefully adopted are briefly summarised in Appendix 8, Table A8.2, Section EX-SM, rows a to g.

7.4.4 Other potential approaches from phenomenology
Phenomenography
Phenomenography is a particular approach to phenomenology, or perhaps, in the opinion of some authors, an alternative set of methods. It was discussed briefly in Chapter 4, Section 4.3.5, noting that phenomenography is a philosophical method of using phenomenological principles to develop an understanding of the perspective of everyday activities in real world situations.   It is also utilised very significantly, as a general approach, within the methodology of this PhD investigation and dissertation, as a way of analysing texts and summarising key aspects for inclusion in the PTM-ECS and EDM.

Larsson and Holmström (2007) also compare phenomenograhy and phenomenology and ask whether it matters which approach is used. They compare analysis based on each approach of the same interview transcripts from a study on anaesthesiologists' understanding of objectives of their work activities. This demonstrated different levels of abstraction were involved. They note that the objective of phenomenographic studies involves identification, through analysis of participant's speech and actions, of their "conception or way of understanding, (which) differs from attitudes, values, thoughts and opinions" about the task they are undertaking (p. 59).

According to Ornek (2008), phenomenography "takes a non-dualistic ontological perspective; meaning that object and subject are not separate and independent of each other" (p. 2). As discussed in Chapters 4, 5 and 6, this applies to people's relationships with landscape. She notes that semi-structured individual interviews, is the preferred method: "Interviews focus on

the world of the interviewee and seek to reveal their beliefs, values, reality, feelings and experience of a phenomenon" (p. 6). The hermeneutic approach requires that the researcher maintain an open mind regarding interpretation of interview data. The researcher needs to integrate the etic and emic aspects to derive an authentic set of categories relevant to the investigation.

Khan (2014) reviews the role of phenomenograhy as an innovative qualitative research framework that is applicable for research in developing countries. He notes that this research "depicts how people understand, distinguish, recognize, imagine, conceive or experience different aspects (characteristics) of the world around them" (p. 34).

Reviews of articles by Cibangu and Hepworth (2016), Larsson and Holmström (2007) and Khan (2014) confirm the conclusion reached by consideration of the phenomenograhy methods described in Ornek (2008). The main tenets of phenomenograhy are similar to those of phenomenological and hermeneutic ethnography, already adopted for ethnophysiography case studies. However, it is useful to emphasise the key aspects; see Table A8.2, Section Ex-PG, rows a to c, in Appendix 8.

Hermeneutic Phenomenology

The topic of hermeneutic phenomenology was introduced in Chapter 4, Section 4.3.5. This sub-section discusses ways to use hermeneutic phenomenology in transdisciplinary ethnophysiography research methodologies. It can apply to descriptions of chosen activities carried out by members of a language community. These descriptions are produced, very deliberately, to include as little as possible (perhaps no) interpretation, just 'pure' observations. This allows for later interpretation of 'clean' data. In order to understand the role of a TSCS-MOD , this can include a hermeneutic approach to understanding links between culture and spirituality, especially for indigenous peoples. An example is the description of 'Martu at Yimiri' in Chapter 6 (Figure 6.2), and its subsequent interpretation as part of the Manyjilyjarra ethnophysiography case study (Chapter 8).

Laverty (2003) provides description of the ontological, epistemological, and methodological basis of 'hermeneutic phenomenology', as a particular version of phenomenology, and also compares it to ethnography and grounded theory. She tracks its history from Husserl through Heidegger and Gadamer, noting how versions of phenomenology are continually changing. She

notes the need for 'self-reflection' by researchers and quotes (p. 10) Polkinghorne (1983, p. 375) regarding Gadamer's view of the hermeneutic approach: "Understanding is always more than merely re-creating someone else's meaning. Questioning opens up possibilities of meaning, and thus what is meaningful passes into one's own thinking on the subject".

Friesen, Henriksson and Saevi (2012) and Saevi (2014), provide descriptions of the methods and practice of hermeneutic phenomenology, in the context of education research. Hermeneutic phenomenology is a combination of theory, reflection and practice that interweaves vivid descriptions of lived experience (phenomenology) together with reflective interpretations of their meanings (hermeneutics). In the "Introduction" to Friesen et al. (2012), Henriksson and Friesen note that hermeneutic phenomenology "rejects the claim of some phenomenological methods that ideal 'essences' of experience or consciousness can be isolated outside of the researcher's cultural and historical location. In its emphasis on the interpretation and reinterpretation of meaning, it rejects any 'transcendental' claim to meaning or any research conclusions that are fixed once and for all" (p. 1). This fits with the decision not to use a Husserlian essences and universals approach within the transdisciplinary method proposed within this dissertation.

Sloan and Bowe (2014) also discuss methodological aspects of hermeneutic phenomenology, in the context of education, as a key representative of so-called 'interpretive phenomenological methodologies'. They suggest that this includes skilful reading of texts, such as transcripts of personal experiences, and isolating their key 'themes'. They note that: "The themes can be viewed as written interpretations of lived experience. So, in the application of hermeneutic phenomenology, the requirement is to examine the text, to reflect on the content to discover something 'telling', something 'meaningful', something 'thematic' (van Manen, 1997). Having isolated phenomenal themes, one rewrites the theme while interpreting the meaning of the phenomenon or lived experience" (Sloan and Bowe, 2014, p. 1292). They also explain the difference between descriptive and hermeneutic data, with respect to its temporality and 'being-in-the-world'. Changes over time and history are key factors in interpretation of the lifeworld of people being observed and/or interviewed. This information can be encapsulated in short 'thematic statements', depicting key relevant aspect of every-day practices. Hermeneutic phenomenological descriptions can also be termed 'phenomenological vignettes'.

Sloan and Bowe (2014) note that recent methodological approaches by van Manen (Chapter 4) follow the 'hermeneutic circle' method of Gadamer. They also discuss Interpretative Phenomenological Analysis (IPA), which was briefly discussed in Chapter 4 of this dissertation. IPA has received support from Sloan and Bowe (and others, e.g. Clarke, 2010; Larkin and Thompson, 2012), however, it has also been criticised (e.g. Smith, 2011; Smith, Flowers and Larkin, 2009).

Dan Zahavi is well published on the topic of phenomenology (e.g. *The Oxford Handbook of the History of Phenomenology*, 2018 and *Phenomenology: The Basic Concepts* (2019)). In his 2019b article, he is critical of the way phenomenology is portrayed by Johathan Smith and Max van Manen. He agrees with van Manen that it is very important to prevent erosion of the reputation of phenomenology, while facilitating its use in various forms within a range of disciplines. However, he accuses van Manen and Smith of promoting confusion about the nature of phenomenology.

In particular, Zahavi (2019b) criticises Smith's IPA, which applies analysis techniques to interpret how particular individuals experience specific events and relationships, in opposition to the usual phenomenological approach of remaining merely descriptive. Zahavi rejects, what he says is, Smith's claim that "Interpretation is a basic structure of our intentional life and is consequently not only permissible, but unavoidable" (p. 902) and that "philosophy does not own phenomenology" (p. 903). In contradiction to Zahavi, this author tends to agree with Smith, while acknowledging that IPA has strengths and weakness so that its use in applicable in some circumstances but not others, as discussed above.

Zahavi (2019b) also criticises particular aspects of van Manen's use of phenomenology, including his insistence that research should concentrate on the primary works of foundational phenomenologists (Husserl, Heidegger, Merleau-Ponty, etc.), rather than using secondary sources. Zahavi accuses van Manen as not following his own advice, mis-using the term phenomenology, confusing it partly with psychological investigations. This author believe the traditional antagonistic distinction between phenomenology and psychology is dysfunctional and that there is considerable value in using secondary sources in interdisciplinary and transdisciplinary studies, as indicated in Chapter 1 of this dissertation. Zahavi also disagrees with van Manen's approach to the reduction and the *epoché*, which is discussed in Chapter 5 and Chapter 8, Section 8.6.3.3.

As discussed in Chapter 9, this author is developing a proposed new research program with Tone Saevi, combining his transdisciplinary landscape investigation approach with her hermeneutic phenomenology methods. It will concentrate on phenomenology of dwelling for island communities (Hay, 2003; 2006; 2013; Macfarlane, 2012; Robinson, 1986/2008). Fieldwork in Ireland and Norway planned for 2020 had to be abandoned due to the COVID-19 pandemic.

There is some potential for using hermeneutic phenomenology methods (perhaps including a form of IPA) within ethnophysiography case studies. This requires suitable texts to be produced in appropriate circumstances by willing participants, who sufficiently understand the purpose. Methods involved in various approaches to hermeneutic phenomenology are summarised in Table 8.2, Section Ex-HP, rows a to f, in Appendix 8. The potential for more effective use of hermeneutic phenomenology methods within landscape language studies is discussed in Chapter 9, Section 9.8.2.

7.5 Use of Phenomenographic Tables from Previous Chapters

7.5.1 Why phenomenographic tables are useful

In landscape language (ethnophysiography) research case studies, there is a tendency to be led initially by the form of the local landscape itself. The researchers seek out the different types of landscape features in the area (hills, gullies, etc.) and then ask informants for words in the local language for each feature type, and for assemblages. Often the researcher is motivated to follow linguistic leads, especially if there already exists a reasonably complete dictionary for the target language. The meanings of words for landscape are checked and elaborations sought from informants. Each of these techniques is valuable, and a necessary part of the project methodology, however, they may not surface language for all relevant aspects of place. It is therefore useful to consult a list (conceptual model) of potential aspects of place to discuss with informants. This applies especially for endangered indigenous languages, where current landscape-related practices (utilitarian, social, cultural and spiritual) may differ significantly from those traditionally undertaken in the period when the language was formulated.

The additional language details obtained via an exhaustive review of aspects of place can greatly assist the research in at least two ways: (1) acquiring extra details regarding explanation of the meaning(s) of landscape terms, and more comprehensive example sentences in the target

language, for use in the pictorial landscape language dictionary resulting from the project; and (2) obtaining a fuller understanding of the overarching socio-cultural framework, to facilitate a more effective phenomenological analysis of the case study data. In order to construct such lists of generic aspects of place, and aspects especially relevant to indigenous languages, a detailed review of relevant literature was undertaken in Chapters 5 and 6.

Various tables developed in those chapters via a phenomenographic analysis approach can be used as part of the new flexible methodology. Some tables can be used as checklists in project methodology and instrument design to facilitate addressing the maximum number of relevant issues. Others will be more useful to assist with data analysis. For most phenomenographic tables, additional details concerning any particular aspect can be obtained by accessing the cited reference(s) for each entry.

In all cases, the use of the phenomenographic tables assists in implementing a phenomenological perspective, as an over-aching transdisciplinary paradigm. The tables assist in deciding which aspects of the contingent methodology to utilise, in what manner, and in what order, perhaps iteratively. Aspects of contingency include: project duration; project funding; availability and skills of researchers; the nature of the language; the nature of the topography and ecosystem; language community lifestyle; community and participant access constraints; skills and likely cooperation level of participants; and various ethical issues.

7.5.2 Tables to use for designing data collection and analysis aspects of ethnophysiography case studies

This sub-section lists relevant tables, produced by phenomenographic analysis in previous chapters and appendices, to be incorporated into the new PTM-ECS. Each table will assist researchers to maximise the number of aspects of place that are addressed in a phenomenological and effective manner. This is part of the way that phenomenology is utilised as an over-arching paradigm in this transdisciplinary study.

When developing a transdisciplinary ethnophysiography case study plan, review of Seamon's (2014a, p. 8) questions can assist in ensuring the adopted methodology is as complete as

possible. Use of these questions can also assist in implementation of a phenomenological perspective, leading to more valid and comprehensive results. Relevant questions are discussed in Chapter 5, Section 5.2.1, and listed in Table A6.1 of Appendix 6.

A summary of key issues regarding phenomenology of place is discussed in Chapter 5, Sections 5.2 to 5.3.6 and provided in Table A6.2 of Appendix 6, in the manner described in Chapter 5, Section 5.5. This phenomenographic table includes physical, utilitarian, social, cultural, spiritual and ethical concerns.

A review of the nature of place from the perspective of various disciplines in Chapter 6, Sections 6.3 to 6.4 yields Table A7.1 in Appendix 7. This is an aggregation of Tables 6.1 to 6.18 in Chapter 6 (except for Tables 6.7 and 6.17, which concern specific topics used elsewhere). The topics summarised include theories and practical advice from philosophy, anthropology, ethnoecology, landscape architecture and planning, spatial/cultural theory and sense of place.

If an ethnophysiography case study is to be undertaken with an indigenous community, the phenomenographic tables listed below will also assist in ensuring that the maximum number of relevant aspects of place are addressed:

- Chapter 6, Section 6.8 – Table A7.4 in Appendix 7 – Aspects of place regarding SW USA indigenous peoples.
- Chapter 6, Section 6.8 – Table A.7.5 in Appendix 7 – Aspects of place for Australian indigenous peoples.
- Chapter 6, Section 6.8 – Table A7.6 in Appendix 7 – Concatenated table re place issues for indigenous peoples.

One or more of Tables A7.4, A7.5 or A7.6 may be useful, depending on the location and nature of the case study, to assist in identifying relevant aspects of place to be addressed. If the case study is with Australian indigenous people (Chapter 6, Section 6.8.4) Table A13.1 in Appendix 13 (Aspects of *Jukurrpa)* can be used to assist in developing an understanding of the relevant topo-socio-cultural framework [see also Figure 8.9 in Chapter 8]. Of course it is best to develop a specific understanding for any particular language group, being mindful of relevant ethical issues, including respect for secret/sacred knowledge and gender issues.

7.6 Role of Ethnophysiography Descriptive Model (EDM)

The EDM can be used to summarise the results of an ethnophysiography case study. This facilitates comparison of landscape terms and toponyms between languages and locations. The latest version of the EDM (v6) is discussed in Chapter 6, Section 6.9.2 and summarised in Tables A7.7 (independent factors) and A7.8 (dependant factors) in Appendix 7. The EDM will be revised again in Chapter 9, following the review in Chapter 8 regarding how well version 6 can summarise the results of the Manyjilyjarra landscape language case study.

7.7 Chapter Conclusions

This chapter has contributed to addressing the following Research Question:

Q7: Can traditional phenomenology methods (and/or phenomenography) be used effectively within this dissertation and/or to facilitate more comprehensive, contingent ethnophysiography case study methodologies?

A key consideration for this chapter on methodology is that phenomenology is proposed to be used as an over-arching paradigm for transdisciplinary ethnophysiography studies. Hence, the requirement is not so much to use specific methods from one or more versions of phenomenology, but rather to develop a methodology where the influence of phenomenology is felt across the whole investigation process, from identification of relevant issues, collection of sufficiently rich data, and analysis processes which reflect a phenomenological approach. The methodology constructed in this chapter has resulted from a review of a diverse range of phenomenology methods, both traditional and new. It has also utilised the phenomenographic summary tables developed through three literature review chapters (4, 5 and 6) investigating relevant aspects of phenomenology. It constitutes a comprehensive and well-referenced means of operationalising a wide range of phenomenological approaches so as to implement a phenomenological paradigm within transdisciplinary ethnophysiography case studies.

The difficulty of identifying essences and universals with respect to landscape language (rather than mere terrain geometry) is discussed in Section 7.3.2 and in earlier chapters. For instance, see discussion of the Yindjibarndi term *marnda* in Chapter 5, Section 5.4.2. Hence, for this initial development of the transdisciplinary methodology (based on phenomenology) it is preferable to use a 'hermeneutic', rather than a 'transcendental' approach to phenomenological analysis. However, as research on this topic develops it may be possible to extend the search for landscape essences by incorporating additional aspects into the methodology. This can be

facilitated through analysis of the TSCS-MOD for a range of language communities in a variety of types of topography, and use of the EDM to summarise and compare data sets from ethnophysiography studies.

It is not considered useful here to summarise the complete current draft of the new contingent PTM-ECS. This will be done in Chapter 9, following revision of the EDM, and some sections of the proposed methodology, based on consideration of the findings in Chapter 8.

Chapter 8 - Manyjilyjarra Landscape Language Case Study

8.1 Introduction to Chapter

This chapter reviews the Manyjilyjarra Landscape Language Case Study. Selected key findings from this case study make contributions towards answering the research questions addressed by this dissertation. It also provides a mechanism for review of the draft PTM-ECS, developed in Chapter 7, and the EDM v6, developed in Chapter 6.

As discussed in previous chapters, one of the key reasons for this case study being undertaken as part of this PhD research project is the nature of the Manyjilyjarra language and the way it is influenced by the local topographic environment and the characteristics of members of the language group, especially their holistic topo-socio-cultural-spiritual framework, termed *Jukurrpa*. Because 1964 was when some members of this language group had their first contact with anyone other than their immediate indigenous neighbours, they constitute a strong example of the sort of group that Edmund Husserl himself wished he could study (Chapter 4). The strong impact of *Jukurrpa* on their knowledge system and lifeworld, also means that this study is an excellent aid in understanding the role of topo-socio-cultural-spiritual frameworks in influencing the mode of dwelling in place and landscape language, for Manyjilyjarra speakers, and generally for speakers of all languages.

Key aspects of the *Final Report for the Martu Ngurra Wangka: Manyjilyjarra Landscape Language Case Study* (Hill and Turk, 2017) are provided in this chapter and Appendix 9. This project was carried out from September 2011 to February 2017 by this author and linguist Clair Hill. This was a collaborative project between the Language, Cognition and Landscape (LACOLA) research group[48] (Lund University, Sweden), the Ethnophysiography Research Group (Mark, Turk and Stea) (Chapter 2) and Kanyirninpa Jukurrpa (KJ), the Martu cultural and land management organisation[49].

Care is taken in this chapter to clearly identify contributions from linguist Hill and those from this author, including requesting her to review a draft of this chapter and subsequent adjustments made to address any issues she identified. This chapter includes discussion of papers prepared jointly or individually by the two researchers. Their contributions to the case

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[48] http://projekt.ht.lu.se/lacola/project-home/ [accessed 29 Nov. 2018]

[49] http://www.kj.org.au [accessed 1st Dec, 2018]

study were broadly equivalent and complementary, as is not unusual for this type of research project. In this chapter, joint and individual conclusions resulting from the data collected are identified. Conclusions regarding phenomenological and methodological aspects, in the context of the objectives of this dissertation, are those of this author alone and are not necessarily agreed to by Hill.

The final project report was prepared by both researchers; for KJ, LACOLA and the Ethnophysiography Research Group. Only the aspects most relevant to this chapter are discussed here. Any material that could be considered sensitive to KJ (e.g. the Research Agreement), or to Martu people (e.g. photographs of participants) has been removed from sections of the final report used in this dissertation.

Section 8.2 discusses the topographic environment of the traditional country of Manyjilyjarra people in the Western Desert area of Western Australia, their history and lifestyle. It also summarises their version of 'The Dreaming', called *Jukurrpa* (Chapter 6 and Appendix 13). Key aspects of Australian indigenous relationships with landscape are also summarised in Table A7.5 in Appendix 7.

Section 8.3 provides a summary of the key aspects of the Manyjilyjarra case study. Section 8.4 discusses key initial findings from this study, relevant to the objectives of this PhD project. This discussion is facilitated by inclusion of parts of the Manyjilyjarra Pictorial Landscape Dictionary (Hill and Turk, 2016) included in Appendix 9.

Section 8.5 reviews the methodology used in the case study. It examines application of phenomenology-based tables (see Chapter 6, Chapter 7 and Appendix 8, Tables A8.2 and A8.3) to the Manyjilyjarra study data to see whether this assists in the data analysis process.

Section 8.6 examines whether the explicit post-hoc application of additional phenomenology-based methods adds value to the Manyjilyjarra study, which was initially carried out using predominately the previous ethnophysiography case study methodology. In particular, this section will comment on the viability of implementing phenomenological paradigm-based methods, techniques and theories via the approach proposed in Chapter 7. Together with the investigation discussed in Section 8.5, the examination in Section 8.6 assists in revision of the proposed PTM-ECS (in Chapter 9) so that it provides an effective way to implement a

transdisciplinary approach to ethnophysiography case studies, using phenomenology as the overarching paradigm.

Section 8.7 involves completion of the independent and dependent sections of the EDM v7 with data for the Manyjilyjarra Landscape Language Case Study. Additional factors (to those in Version 6, from Chapter 6), inspired by the Manyjilyjarra investigation, are included in v7 of the EDM. This provides the basis for the review of the EDM to produce the final generic version for this dissertation, in Chapter 9.

Comments on the reviews undertaken in previous sections are included in Section 8.8, which provides chapter conclusions. The results of the investigations reported in this chapter will be combined with the findings from earlier chapters and discussed in the final dissertation review and conclusions, in Chapter 9.

8.2 Manyjilyjarra Peoples' Topographic Environment and Aspects of Their Lifeworld
This section very briefly discusses the topographic environment of the traditional country of Manyjilyjarra people, and their history and lifestyle. They are one of eleven language/dialect groups that together make up the Martu people. Martu country is in the East Pilbara region of Western Australia (Figure 8.1). This section also summarises their topo-socio-cultural-spiritual framework called *Jukurrpa* (Chapters 6 and 8 and Appendix 13).
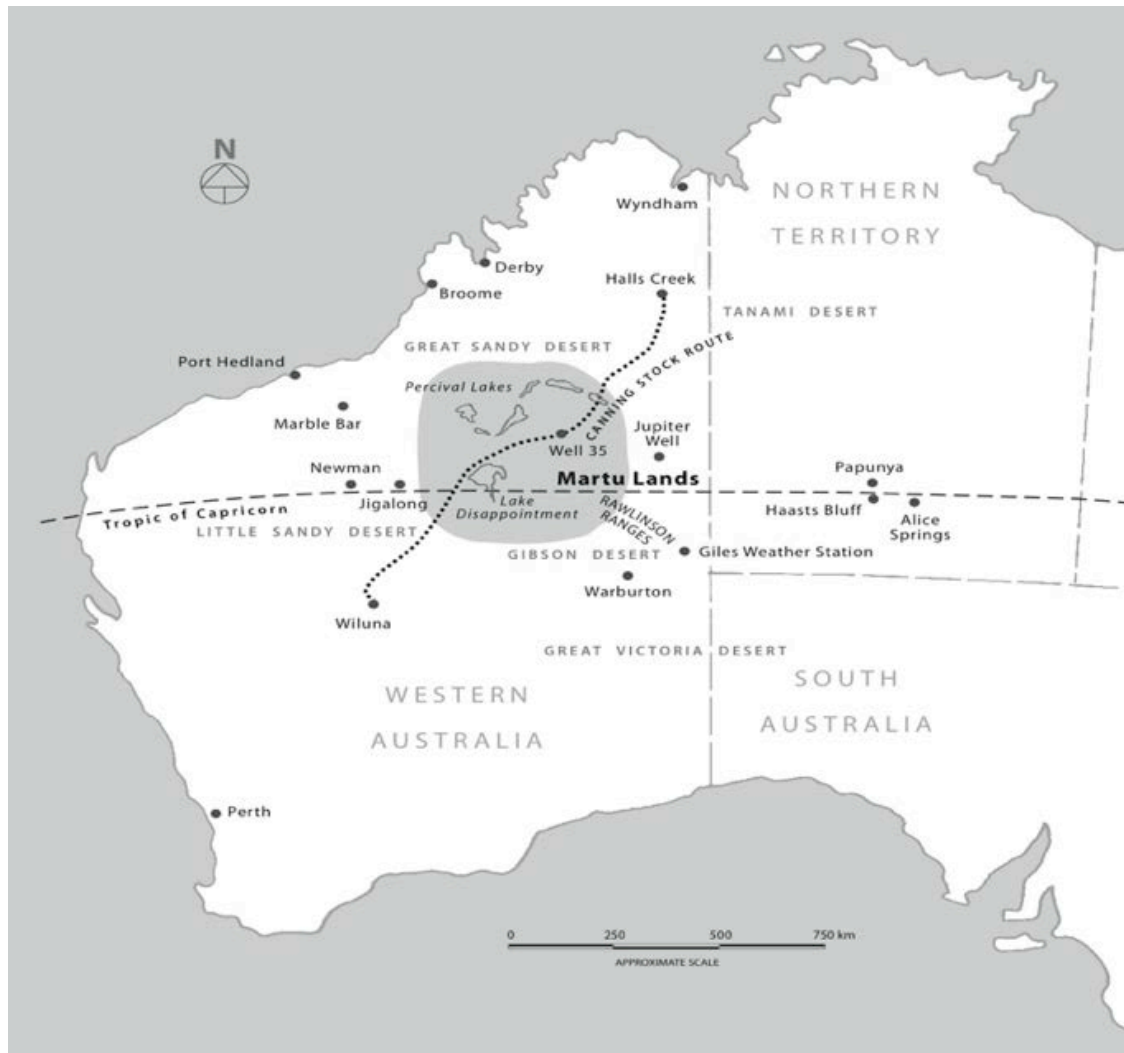
Figure 8.1: Martu country is in the East Pilbara region of Western Australia [from KJ Cultural Awareness Course materials].

The traditional desert country of the Manyjilyjarra people consists mostly of high, long, parallel, ridges of sand (sandridges or, in Manyjilyjarra: *tali, tuwa, or yintiri*) mostly running in a West to East direction (due to the predominating wind) (Figure 8.2). The sand plain inter-dune areas, often about one or two kilometres wide, are covered mostly with spinifex vegetation (Figure 8.3) [Figures 8.2 and 8.3 were used earlier as Figure 6.1]. There are also many large, medium sized and small saltlakes (Figure 8.4) and some areas of stony hills (Figures 8.5 and 8.6).

Figure 8.2: Long, parallel sandridges

Figure 8.3: Sandy plain between sandridges

Figure 8.4: Large saltlake with termite mounds in foreground
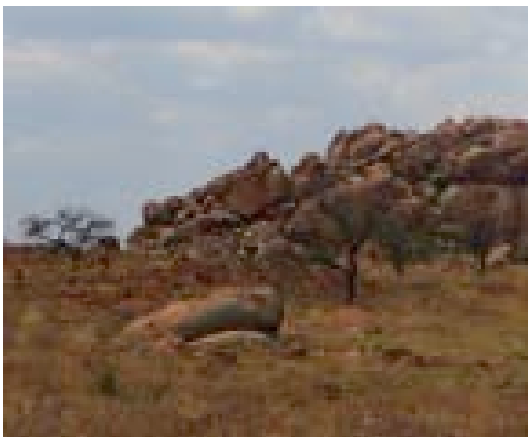
Figure 8.5: Rock outcrop

Figure 8.6: Stony hills

Rainfall in Manyjilyjarra country is very low and variable, however, in most years there are one or more cyclones (or resulting rain depressions) that travel across this area in summer, sometimes producing significant rainfall (Figure 8.7). There are no permanently running rivers or creeks.
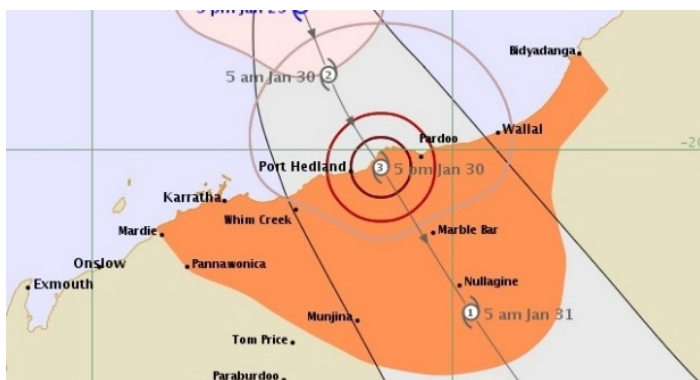
Figure 8.7: Track of a cyclone heading towards Martu country in summer.

Up until the mid-20th Century, Manyjilyjarra speakers led a traditional desert hunter-gatherer lifestyle, moving continuously between sources of water, in small, extended family, groups. From the 1950 some moved into newly established cattle stations at the edge of the desert, missions (e.g. Jigalong) or town camps. About 200 Manyjilyjarra speakers now live in the small remote Martu communities of Punmu, Kunawarritji and Parnngurr (Figure 8.8), which were established in the 1980s. Many Martu still engage in some hunting and gathering activities, although rifles have replaced spears and boomerangs. Fiona Walsh (2008) found in her PhD research: "that in 1990, hunting and gathering were major activities within the suite of land uses practiced by Martu. At least 40% of trips from the settlements were principally to hunt. More than 43 animal species and 37 plant food species were reported to be collected during the study; additionally, species were gathered for firewood, medicines and

timber artefacts. Customary harvesting persisted because of the need for sustenance, particularly when there were low store supplies, as well as other reasons" (p. v). Martu who live at communities or towns located outside of traditional Martu 'country' are much less involved in traditional lifeworld activities.

Some Martu living in the communities of Punmu, Kunawarritji, Parnngurr and Jigalong are involved in the government-funded Martu Ranger environmental management program, where elders pass on, to both young men and women, traditional knowledge of 'caring for country' (e.g. strategic burning of vegetation; e.g. Bird, Bliege Bird and Parker, 2005) and cultural and spiritual connections with landscape (e.g. stories and ceremonies relating to specific sacred sites). Manyjilyjarra speakers can often also communicate in one or more of the other Martu languages, and usually at least simplified English. As well as spoken words, Matu people use sign language, which involves movements of hands and also other body parts, including pointing with their lips and nose.

Figure 8.8 shows the area of the successful Martu Native Title claim, providing language community members with some officially recognised rights and responsibilities, including recognition of aspects of their traditional deep relationships with landscape. It also shows the locations of the Martu communities and the Karlimilly National Park, to the west of Manyjilyjarra country.
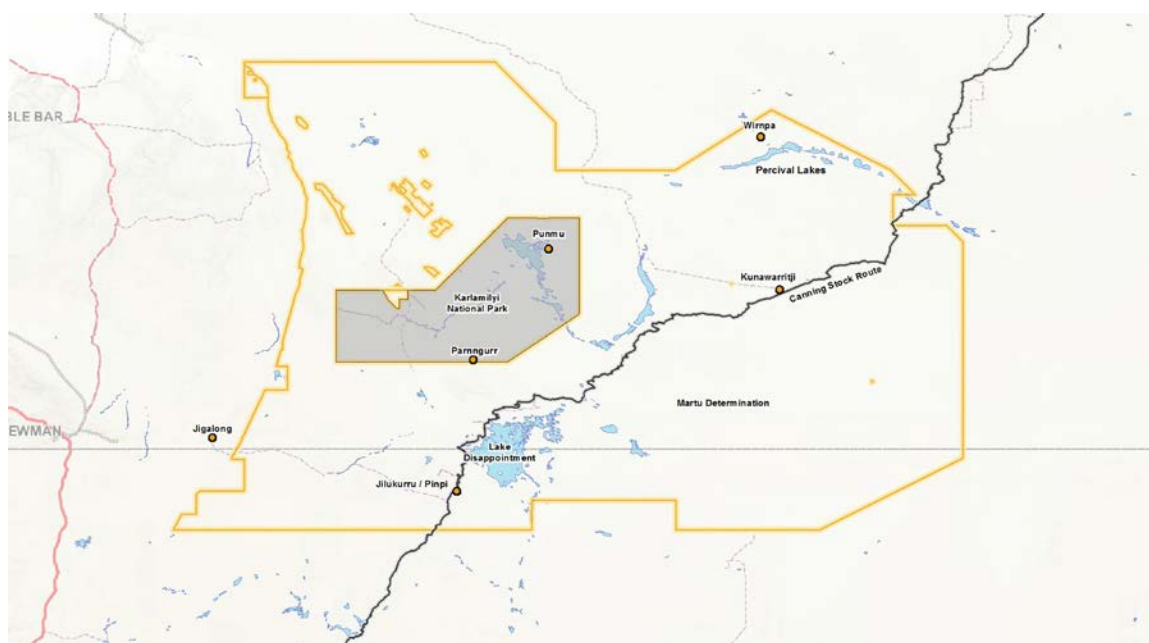
Figure 8.8: Martu Communities, Native Title Determination area (yellow line) and Karlimilly National Park (grey shaded area) [from KJ Cultural Awareness Course materials]

Jukurrpa

As with other Australian Aboriginal people, Manyjilyjarra speakers have a very strong connection to the land, involving physical, utilitarian, social, cultural, spiritual and ethical relationships with landscape (Chapter 6 and Appendix 13). The term (T)*Jukurrpa* is used to refer to the versions of 'The Dreaming' applicable to (Y)arnangu peoples of Australia's Central and Western Deserts, including Manyjilyjarra speakers.   Figure 8.9 is a graphical representation of the holistic nature of the influence of *Jukurrpa* on all aspects of Manyjilyjarra life and their 'country'. This includes language (*wangka*), community social structures (*walja*), landscape (*ngurra*) features, hunting (*yarrkalpa*), food (*mayi*), song and dance (*turlku* and *yaku*) and spiritual considerations.
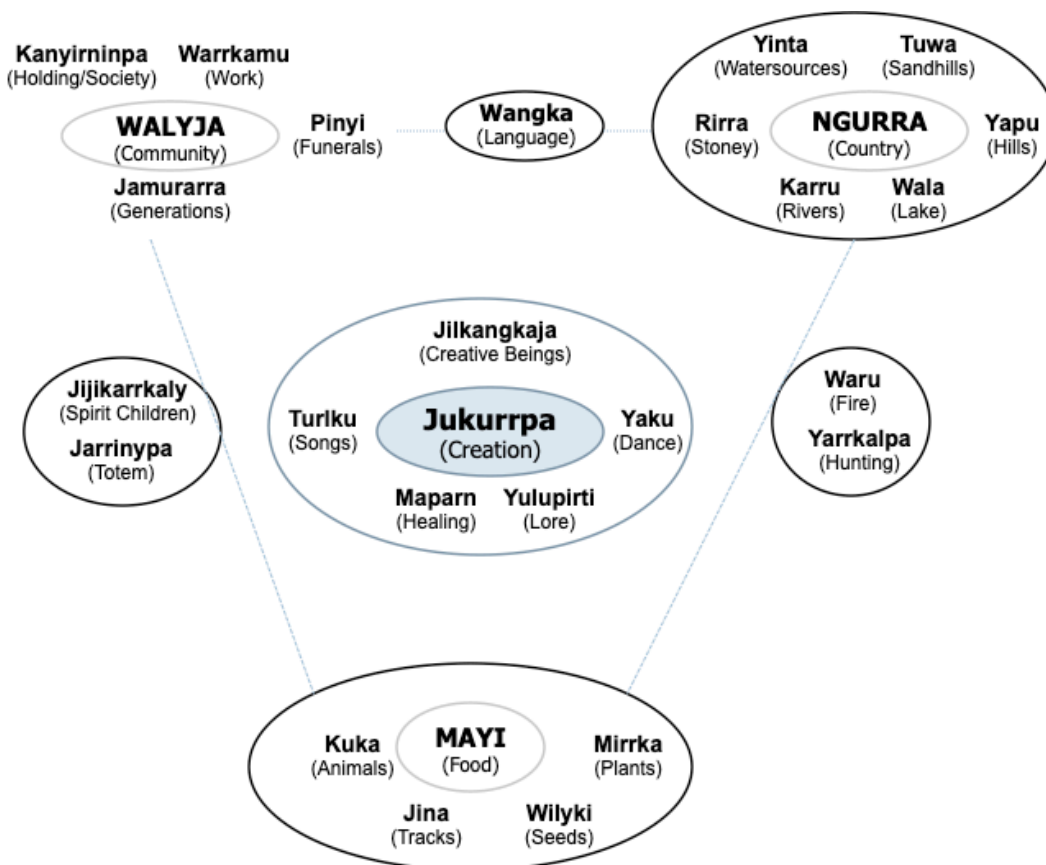
Figure 8.9: The Martu framework of *Jukurrpa* [from KJ Cultural Awareness Course materials]

This version of *Jukurrpa* can be compared with aspects of *(T)Jukurrpa* for other language groups, and general Australian indigenous landscape concepts, summarised in phenomenographic tables in Chapter 6, Appendix 7 (Table A7.5) and Appendix 13 (Tables A13.1 and A13.2). Each of these aspects in the two tables (A7.5 and A13.1) applies to the version of *Jukurrpa* for Manyjilyjarra people, although in some cases the table entry refers to

another Aboriginal Australian language group (e.g. Spinifex People; Cane, 2002). However, this author does not claim to understand many aspects of *Jukurrpa*, and has no right to do so. Martu elders have seen fit to share some information with him, and have encouraged him to inform other people about the depth and complexity of their topo-socio-cultural-spiritual framework.

The matters listed in these two tables (A7.5 and A13.1) were well understood by the two researchers prior to commencement of the Manyjilyjarra study and were considered in the context of the ethnophysiography methodology summarised in Table A8.1 in Appendix 8. Hence, ways to investigate lifeworld aspects were incorporated, as much as possible, in the overall study design, detailed data collection procedures and the data analysis processes, which produced the initial findings summarised in Section 8.4. However, renewed attention can be given to these matters in light of the extra phenomenology-based potential methods summarised in Table A8.2 in Appendix 8, as discussed below in Sections 8.5 and 8.6.

A key aspect of *Jukurrpa* for Manyjilyjarra people is the network of sacred sites across country, many of which are linked by 'dreaming tracks' / 'songlines'. Understandably, in such an extensive area of desert, many of these sacred sites are places where drinkable water (*pakurri)* can usually be found, or is even 'permanent', if not on the surface, then underground at a depth such that it can be reached via digging by hand. A strong example of a permanent source of water at surface level is the *yinta* called *Yimiri* (Figures 8.10 and 8.11), which has been mentioned in earlier chapters of this dissertation.

Figure 8.10: The *yinta* called *Yimiri*; a fresh water spring in a salt lake[50] [from KJ Cultural Awareness Course materials]

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[50] Note that most landscape images used in this chapter come from Hill and Turk (2016) and some other images are from KJ Cultural Awareness Course PowerPoints, used with permission.

Figure 8.11: Martu carrying out a ceremony at *Yimiri* [from KJ Cultural Awareness Course materials] Also used as Figures 4.1 and 6.2 in earlier chapters.

The photograph in Figure 8.11 was taken in the early 2000s, near the edge of a salt lake (part of *Percival Lakes*) in Northeastern Western Australia. The male and female Martu Aboriginal people in the photo are mostly from the Manyjilyjarra language group. It includes elders and younger people, each carrying a branch with green leaves, broken from a shrub or tree. They are looking towards an island of reeds in the salt lake, which is the sacred site *Yimiri*. Manyjilyjarra culture and spirituality specifies the proper way to approach such a sacred site, and the words and actions which constitute the ceremony to be performed. Such places are sacred because the ancestral spirit snake (*jila*), which created them, still dwells there.

Yintas are not always so visually prominent parts of the landscape as *Yimiri*. The site could be a rock waterhole (*wirrkuja*) like the one in Figure 8.12. It may even be such that, to those without local cultural knowledge, it is indistinguishable from adjacent areas of topography, like the soak (*jurnu*) in Figure 8.13. A soak, is where you can dig for water lying underground due to the nature of the ground material (usually sand) although, after rain, water may be temporarily visible on the surface. In some cases it can be a reliable (permanent) water source (*yinta*).

Figure 8.12: Rockhole

Figure 8.13: Soak

This author's understanding of Manyjilyjarra *Jukurrpa*, combined with his knowledge of key aspects of various versions of The Dreaming gained from working with Ngulama, Yindjibarndi and Banjima elders (Pilbara region of WA), Ngaanyatjarra elders (central eastern WA) and Menang and Wadjak Noongar elders (southwestern WA) informs his interpretation of landscape language. This was also assisted by his involvement in previous ethnophysiography case studies and interdisciplinary discussions on this topic (Chapter 2) together with his examination of a phenomenological approach in the initial part of his PhD project. His knowledge set was complemented by that of linguist Hill who had been involved in some of those interdisciplinary landscape language meetings. She has deep linguistic experience, especially from her fieldwork regarding others Australian languages.

The combination of these two sets of research expertise helped configure the data gathering and interpretation activities during the Manyjilyjarra landscape language case study. This is reflected in the definitions in the *Manyjilyjarra – English Pictorial Dictionary of Landscape*

Terms (Hill and Turk, 2016) and the papers prepared for international interdisciplinary meeting following the completion of the case study (Sections 8.3 and 8.4).

8.3 Key Aspects of the Manyjilyjarra Landscape Language Case Study

This project was undertaken before some of the investigations of phenomenology of place reported in this dissertation were completed. The timing of the study was partly dictated by availability of the collaborator linguist Hill, and funding through the LACOLA landscape language research group. Being able to undertake such a case study was especially useful for the PhD research as it provides a form of capstone study, to complement the earlier ethnophysiography case studies discussed in Chapter 2.

The interpretations of landscape in the Manyjilyjarra project was facilitated by this author having carried out cartographic surveying activities in this area in the early 1970s as part of the Australian government's 1:100,000 topographic series mapping program. He was also fortunate enough to be involved in community development projects and cultural awareness courses with Martu people in the four years preceding commencement of fieldwork on this landscape language project. This meant that he was well known by the project participants and staff and Martu elders working with KJ. Thus, he was able to lead the comprehensive and protracted negotiations (for 32 months from September 2011 to May 2014) with KJ and Manyjilyjarra elders necessary to establish an appropriate (12 page) research agreement for this project (not included in this dissertation because of confidentiality considerations).   The investment of effort in developing this agreement between KJ and the researchers (Clair Hill and Andrew Turk), and their respective organisations, paid important dividends. The KJ Board members and staff, indigenous and non-indigenous, provided invaluable practical support to the researchers in many different ways. More importantly, KJ facilitated the researchers to achieve their very strong desire to conduct this project at the highest possible ethical standards, in accordance with the project's ethics approval from Murdoch University. The collaboration with KJ was an excellent example of how research with indigenous peoples should be conducted, at least in the Australian context. A representative of KJ has reviewed this chapter to ensure that it complies with the research contract and has provided permission to use the images contained in this chapter that come from the KJ Cultural Awareness Course.

One of this author's activities with KJ, prior to the Manyjilyjarra landscape language project, was to assist Martu elders to present cultural awareness courses, on behalf of KJ, to mining company employees, police officers, school teachers and others. Thus, he was able to

develop a strong background knowledge about Martu history and their culture and spirituality (*Jukurrpa*), which was very valuable for the landscape language case study and preparation of this chapter. The personal relationships of trust developed during these activities were important, especially for the fieldwork aspects of the project. They assisted with addressing of potential ethical issues and threats to validity of data collected. By the same token, Hill's strong experience from studies of other Australian Aboriginal languages was invaluable during this project. In addition, the strong collaboration with international researchers, from diverse disciplines, involved in the LACOLA and Ethnophysiography research groups, provided important guidance and assistance with the Manyjilyjarra case study. A slightly edited version of the Executive Summary for the final report on the Manyjilyjarra Landscape Language Case Study is provided in Section A9.2 in Appendix 9.

8.4 Key Initial Findings from the Manyjilyjarra Landscape Language Case Study

This section discusses the meaning of some terms included in the Manyjilyjarra pictorial landscape dictionary (Appendix 9, Section A9.3) and also draws on various papers and presentations prepared by this author and Hill, separately or together (Hill, Turk and Ashmore 2016; Turk, 2016a; b; c).

The first and most important output from the project was the pictorial landscape dictionary (Hill and Turk, 2016). A large proportion of the data analysis process concerned the construction of this dictionary, especially the development of valid, detailed and inter-linked, explanations of the semantics of landscape terms. This is demonstrated by the definition/description of *warli* (gully) (Appendix 9, Section A9.3.5), including the relationship to the meanings of related terms. Development of the definitions for each of the 82 landscape terms resulted from a complex examination of all relevant data. Often this process involved lots of discussion between the researchers, and with Manyjilyjarra participants, and many iterative phases of data collection, as different ways to tease out the meanings and relationships between words were used. Preparation of the dictionary also included provision of example sentences using the terms and collecting representative photographs of the landscape features.

Appendix 9, Section A9.3 contains some selected sections of the dictionary, which illustrate aspects of this utilisation of research data. This includes part of the "Introduction" to the dictionary and the section discussing the structure of the dictionary. These two paragraphs discuss key aspects of how initial research findings were utilised in the dictionary.

In Appendix 9, Section A9.3.5, an example of the 4 illustrations of typical environments **on** pages 6 to 9 of the dictionary is provided ("1. Watercourse scene") (reproduced here as Figure 8.14)[51]. These illustrations show various landscape features in ways that they are spatially associated in frequently encountered scenes in Manyjilyjarra country. Particular landscape features can be physically associated, via their involvement in topological/environmental systems, such as water drainage. For instance, in this illustration, it shows how a *jurnu* (soak) and a *talypurr* (boggy place) can be located within a *karru* (water channel).
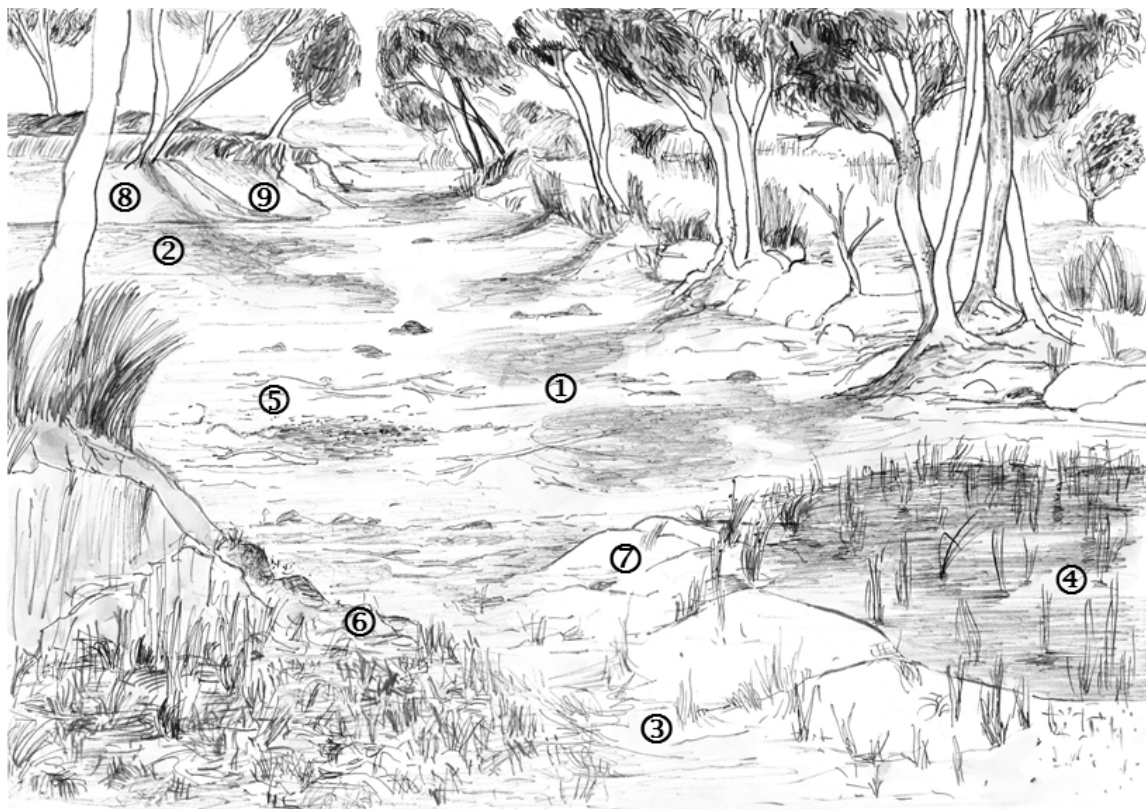
① karru	water channel	⑥ jijimarra	flood area
② karlkajarra	water channel junction	⑦ tumun	mound
③ warli	gully	⑧ larrku	slope
④ talypurr	boggy place	⑨ yirriti	side, edge
⑤ jurnu	soak		

Figure 8.14: Watercourse scene from *Manyjilyjarra – English Pictorial Dictionary of Landscape Terms* (Hill and Turk, 2017, p. 6).

Appendix 9 (Section A9.3.3) includes the dictionary entry for *yinta* (Hill and Turk, 2017, pp. 20-21), a permanent source of water. This is probably the most important landscape term for traditional Manyjilyjarra people, living in a harsh desert environment. It therefore has strong

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[51] The 4 illustrations of typical landscape scenes in the *Manyjilyjarra - English Pictorial Dictionary of Landscape Terms* (Hill and Turk, 2016) were created by Patrycia Buckland, for that publication.

cultural and spiritual associations, which play a role in its classification, together with physical and utilitarian considerations.

Appendix 9 (Section A9.3.3) provides a copy of the dictionary entries for *juurl* (Hill and Turk, 2017, p. 23) and *tumun* (p. 25), two terms that refer to similar landscape features. These two dictionary entries illustrate how distinctions between the meanings of related terms are expressed. Note that *juurl* is possibly a Warnman language term, with *tumun* being its Manyjilyjarra equivalent (or close approximation). This is an indication of how multiple terms for similar (or even the same) landscape feature can be in use, because traditionally people often spoke the languages of their close neighbours, as well as their own. Another example is terms for rocky hill etc., *purli* (dictionary p. 24) and *yapu* (dictionary p. 26). The pair of general terms *tumun* for a mound (convex feature) and *takurru* for a depression (concave feature) may be related to the fundamental physical embodiment (Ruthrof, 2000; Merleau-Ponty[52]) motions of going up and going down, critical considerations for traditional nomadic people who were almost always walking across country with parallel sandridges, and needing to conserve energy, by as much as possible 'walking the contour'.

In addition to the analysis of definitions for landscape terms for the dictionary, the researchers sought to explain patterns within the results and to compare these with other landscape language case studies and relevant theories. The initial results of these processes were presented by the two researchers at a meeting of the LACOLA research group in 2016 and at various other meetings and conferences in 2016 and 2017.

Hill and Turk attended the LACOLA research symposium, titled *Interdisciplinary approaches to landscape representation: bridging the gap*, in Amsterdam in February, 2016, to report on progress on the Manyjilyjarra project. The (unpublished) paper, presented by Hill was titled *The irrelevance of scale in landscape categorisation: Three Pama-Nyungan languages of Australia* (Hill, Turk and Ashmore, 2016). This drew partly on the Manyjilyjarra work but also substantially on work that Hill had undertaken on other languages with other collaborators. The other two languages were Middle Paman languages from Cape York Peninsula (the north-eastern-most portion of Queensland, in Australia), Umpila/Kuuku Ya'u on the east coast, and Wik Ngathan and associated varieties on the west coast. Louise Ashmore contributed Wik-Ngathan expertise to preparation of this talk.

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[52] Merleau-Ponty uses concepts like 'lived body' and 'lived space' in order to emphasise a first-person phenomenological perspective on dwelling (Moya, 2014).

In Hill's presentation (Hill, et al., 2016) it was noted that scale (size of landscape feature) often plays only a minor role in distinguishing landform terms, and motivating toponyms. The authors cited Levinson's (2008, pp. 260-261) discussion of scale and landform terms in Yeli-Dnye, an indigenous language from Rossel Island in Papua New Guinea. In this language the term *mbu* refers to a "canonical elevation of any size", with the shape of the feature being the principal determinate of its landscape language term. Hill et al. (2016) also noted similar claims in articles in the Burenhult (2008) *Language Sciences* special issue (see Chapter 2), by linguists studying other languages, regarding the size/shape issue: O'Connor and Kroefges (*Lowland Chontal*; p. 598); and O'meara and Bohnemeyer (*Seri;* pp. 224-225). They also cited Bromhead (2010, p. 72) regarding consideration of size and shape of landscape features in the Australian Central Desert language Pitjantjatjara/Yankunytjatjara.

In Hill et al. (2016) several examples of Manyjilyjarra landscape terms were presented, where one landscape term is used for (at least) pairs of features of the same general shape, but of different size: *warli* can be a large scale gully, or a place where water can trickle down a small mound of sand or earth; *takurru* is used for a large depression (e.g. dry lake) and small corrugations on a sandy track; *tumun* is used for a large earth mound and also for a tiny mound of sand constructed by an ant. The range of things referred to by the term *yapu* is more extensive, including mountain ranges, rocky hills, rock outcrops, pebbles and even coins. Hill et al. (2016) asked: does this variation imply a polysemous semantic condition? Or is it one general sense of rock material – a monosemous form?

Hill et al. (2016) also discusses the Manyjilyjarra system of terms for water features, where potential presence of water is a crucial classifying aspect of landscape feature terminology, as with Yindjibarndi (Chapter 2). When water is lying in a depression, different Manyjilyjarra terms are used depending on the material of the bottom of the basin; *linyji* for what in Australian English is called a claypan, and *warla* if the bottom is sandy. This is one example where the material of the landscape feature partially determines the term used. This also applies to hills: *yapu / purli* (rocks) and *yintiri* (sand). Hill et al. (2016) concluded that, in Manyjilyjarra, shape and material are key semantic conditioning factors and often collude; 'material' is a key conditioning semantic component in 11 landscape categories and 'shape' is for 10 terms, and they collude in 7 instances.

At the same LACOLA meeting, this author presented a paper concentrating on the aspects of the Manyjilyjarra case study most relevant to this dissertation, titled *A Phenomenological Approach to Transdisciplinary Landscape Language Research* (Turk, 2016a). A copy of his PowerPoint presentation was distributed to participants but not published.

The themes from Turk (2016a), a brief review of the Hill et al. (2016) presentation, and discussion of the proposed role of the EDM, were discussed in a presentation by this author to staff and students at Canberra University in March 2017. Another presentation was given in the same month at the AIATSIS National Indigenous Research Conference, in Canberra, which concentrated on the development of the *Manyjilyjarra – English Pictorial Dictionary of Landscape Terms*. (Hill and Turk, 2016) and initial project findings. This author published papers at two other interdisciplinary conferences, containing similar findings, concerning a phenomenological approach to landscape language case studies (Turk, 2016b; c), including the *Landscape Values: Place and Praxis Conference* (Galway, June/July 2016).

It is not uncommon for words in oral languages to have multiple meanings since it is not practical for them to use so many words, with fine distinctions of meaning, as in a written language such as English. Hearers disambiguate the meaning via context and comprehensive deixis (Ruthrof, 1993; 1997; 2000; 2015; forthcoming – see Chapter 5, Section 5.4). For instance, in the case of *marnda* (Yindjibarndi) or *yapu* (Manyjilyjarra), one does not 'walk up' a pebble or a coin. Also, speakers use adjectives (or their equivalent), such as the 'scale lexicon' in Manyjilyjarra identified by Hill, listed in Table A9.1 in Appendix 9, Section A9.3.3. The use of words specifying scale occurred during discussions with informants during development of the *Illustrated Dictionary of Yindjibarndi Landscape Terms* (Turk and Mark, 2008), when discussing *marnda* (the Yindjibarndi equivalent of *yapu*). For instance, Yindjibarndi elders referred to some *marnda* as *gubija* (small) and also routinely referred to other *marnda* as *waru* (black), indicating, not just their colour, but also that they were composed of boulders of a particular type of rock and, hence, were not located on the Yindjibarndi tableland but on the coastal plain, in Ngulama country. Such qualifying terms may have a significant role in both languages. This might also apply to the significant use of suffixes in both languages, to indicate different attributes of things or people.

An examination of the definition of *yinta* (Appendix 9, Section A9.3.3) indicates that it is composed of a comprehensive set of lifeworld factors. Water, absolutely necessary to sustain life for traditionally nomadic people, living in a desert, is reliably found in a *yinta* (utilitarian

factor). It may be visible on the surface of the ground or may be accessed via digging in the correct place (physical / affordance / memory). A *yinta* must include a *jila* (Dreaming 'snake') as part of its strong *Jukurrpa* associations (spirituality). A *yinta* must be located within the language group's 'country', as its permanence of water availability and exact location, need to be passed down through the generations via mimesis, including ceremonial protocols (Chapter 6, Section 6.4) (social / cultural). Rights and responsibilities associated with a *yinta* could not be asserted over a feature in the country of another language group (social / cultural / ethical factors). A *yinta* usually has a name (toponym) (social / cultural factors).

Although the shape of some landscape features seems to figure strongly in classification, this does not apply for *yinta*, as their shape can vary considerably, as indicated by Figures 8.10 and 8.12, and other photographs from the landscape dictionary, reproduced in Appendix 9. Thus, it can be asserted, at least for the distinction between a *yinta* and a no-permanent soak (*jurnu*), that, although size and shape do not seem to have a strong role in landscape feature classification, human affordance and special cultural constructs are definitely involved. This is because each *yinta* is an important particular *place* for Manyjilyjarra speakers.

8.5 Application of Extra Methodological Steps (Using Tables) to Manyjilyjarra Study Data

8.5.1 Introduction to section

This section provides a re-examination of the Manyjilyjarra landscape language case study data and initial findings in the light of the in-depth investigation of phenomenology of place provided in Chapters 4, 5, 6 and 7. It utilises phenomenographic tables developed in Chapters 5, 6 and 7 (and associated appendices), including those listing potential new methods for facilitating a phenomenological, transdisciplinary approach to ethnophysiography case studies (Section 8.6). This can be achieved in three aspects of a study: 1. Design and execution of the data collection processes to cover appropriate aspects of lifeworld, taskscape activities, and other relationships with landscape; 2. Enhancing the range and depth of data analysis procedures, to provide more effective findings for the study; and 3. Providing more effective ways of explaining case study findings. As discussed in previous chapters and earlier sections of this chapter, this includes enhanced consideration of the prevailing topo-socio-cultural-spiritual framework of the language community, which influences their mode of dwelling in their topographic environment.

Sub-section 8.5.2 considers potential application of the extra tables to the Manyjilyjarra case study data (Chapter 7 and Appendix 8, Table A8.2). It discusses which particular tables were chosen as the most appropriate to use to demonstrate this approach, as one part of a contingent, phenomenology-based, transdisciplinary approach to ethnophysiography case studies. The revised tables with comments about applicability to the Manyjilyjarra case study are provided in Appendix 11, Table A11.2. The tables used are listed in Tables 8.2 and A11.1.

Sub-section 8.5.3 discusses phenomenological examination of mode of dwelling in place for Manyjilyjarra people via use of a particular table (A11.2 based on A7.1) listing aspects of place. The key concepts of place relevant to landscape discussed by 28 authors were summarised in Tables 6.1 to 6.18. These tables were concatenated (except for Tables 6.7 and 6.17), reworded and reordered to group similar concepts, to produce the combined Table A7.1 in Appendix 7. Table A11.2 uses that table (without the author references) with a new right-hand column summarising applicability of each concept (row) to the Manyjilyjarra landscape language case study.

Sub-section 8.5.4 provides a phenomenological examination of changes to mode of dwelling (Table A11.3, based on Table 6.17, which lists 14 factors relevant to place attachment from Mihaylov and Perkins, 2014). Section 8.5.5 discusses conclusions regarding the different phenomenological approaches trialled in Section 8.5.

Most importantly, use of these phenomenographic tables raises landscape as place issues which might otherwise not occur to researchers undertaking a study of any particular language. The tables need to be continually refined and extended using the results of new case studies and/or landscape as place research, to ensure their maximum utility. Potential application of other phenomenology-based methods is discussed in Section 8.6.

8.5.2 Review of tables from Chapters 5 and 6

This section reviews phenomenographic tables from Chapters 5 and 6 to determine how a reduced set might be useful for case studies such as that with Manyjilyjarra people. Table A8.3 (in Appendix 8) provides a collective list of the tables to potentially use to assist in implementing a phenomenological approach to ethnophysiography case studies. These tables are listed (in a reduced format) in Table 8.1.

Table 8.1: Tables for potential review in Appendix 11 (based on Table A8.3)

Description of table.	Chapter reference
Table A6.1 in Appendix 6: Seamon (2014, p. 8) questions concerning place and phenomenology	Chapter 5, Section 5.2.1
Table A6.2 in Appendix 6: Summary of key issues regarding phenomenology of place.	Chapter 5, Sections 5.2 to 5.3.6 and 5.5
Table A7.1 in Appendix 7: Review the nature of place from the perspective of various disciplines (aggregation of tables 6.1 to 6.8 in Chapter 6)	Chapter 6, Section 6.3 and 6.4
Tables 6.9 to 6.18 –regarding philosophy of anthropology, ethnoecology, landscape architecture and planning, spatial/cultural theory and sense of place (Additional aspects of landscape to those concatenated in Table A7.1 in Appendix 7).	Chapter 6, Section 6.3.3 and Section 6.4
Table A7.4 in Appendix 7 – Aspects of place regarding SW USA indigenous peoples.	Chapter 6, Section 6.8
Table A7.5 in Appendix 7 – Aspects of place regarding Australian indigenous peoples.	Chapter 6, Section 6.8
Table A7.6 in Appendix 7 – Concatenated table re place issues for indigenous peoples.	Chapter 6, Section 6.8
Table A13.1 in Appendix 13: Key Aspects of *TJukurrpa* Identified in Cane (2002, pp. 81-85).	Chapter 6, Section 6.8.4

It is considered unnecessary and inappropriate to use all of the previous tables (from Chapters 5 and 6 and Appendices 6, 7 and 13) listed in Table 8.1 to review the potential for using tables as part of a new phenomenology-based methodology, in the context of the Manyjilyjarra case study. Hence, only the most appropriate ones are used in Appendix 11, as listed in Table 8.2.

The first table listed in Table 8.1 is Table A6.1, in Appendix 6, listing questions posed about phenomenology of place by Seamon (2014, p. 8). It has been decided to deal with this table separately in Chapter 9, because it is at a higher level of abstraction, better suited to the conclusions chapter.

Table A6.2 is considered less applicable than Table A7.1, which is used in Appendix 11 as Table A11.2.   Table 6.17 has been chosen for comparative review of the Yindjibarndi and Manyjilyjarra landscape language case studies (as Table A11.3, see subsection 8.5.4), using the Mihaylov and Perkins (2014) model of 14 factors. Tables A7.4 and A7.6 are not considered as suited to the Manyjilyjarra case study.

Table 8.2: Tables from Appendix 7 and Chapter 6 to be reviewed in Appendix 11 (Table A11.1)

Description of table.	Chapter reference	Table number in Appendix 11
Table A7.1 in Appendix 7 provides a review of the nature of place from the perspective of various disciplines (aggregation of tables in Chapter 6). This table includes the 9 aspects of a phenomenological approach to place from Seamon (2009; 2014) listed in Chapter 6, Table 6.12.	Chapter 6, Section 6.5	A11.2
Table 6.17 lists 14 factors relevant to place attachment from Mihaylov and Perkins (2014)	Chapter 6, Section 6.4.3	A11.3

In Appendix 11 each of the Tables A11.2 (see subsection 8.5.3) and A11.3 (see subsection 8.5.4) has been prepared in an amended form (from that used in Appendix 7 and Chapter 6), substituting a new right-hand most column, summarising potential applicability to investigations such as the Manyjilyjarra study, for the previous column listing references for the aspect discussed in each row. Each of the tables reviewed in Appendix 11 are relevant to revision of the EDM used to compare languages (see earlier chapters and Section 8.7).

8.5.3 Phenomenological examination of mode of dwelling in place

In Appendix 11, Table A11.2 (revised from Table A7.1 in Appendix 7) reviews the nature of place from the perspective of various disciplines. It includes the most significant aspects of place from 22 key publications. Virtually every aspect listed in this table applied significantly to the Manyjilyjarra landscape language case study, and to the lifeworld of Martu people in general. Some Manyjilyjarra terms are provided in the table to illustrate key aspects[53]. Example of rows from Table A11.2 (Appendix 11) are shown in Table 8.3.

Table 8.3: Example of rows in Table A11.2 (Appendix 11)

Code	Landscape Concept	Applicability
4.	Sense of Place and Place Attachment	
4.1	Landscape places range from the small, confined, nurturing and cosy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.	*Jukurrpa* is a strong example of a system, which enfolds people within a spatial range of places, which are linked by networks of meanings associated with pathways between significant places.

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[53] A full list of Manyjilyjarra landscape language terms is provided at the end of Appendix 9.

Because of their study of literature on this topic, and involvement in previous landscape language studies (including with indigenous Australian language groups), the researchers (Hill and Turk) were already familiar, prior to commencement of this case study, with many of the large number of aspects of place that are listed in this table. This is why so many of the issues were addressed in the Manyjilyjarra study.

Table A11.2 is demonstrated to be an effective way of summarising a host of aspects of place that need to be considered in all phases of a landscape language research project, especially one with indigenous people. This provides strong support for a phenomenological approach to landscape language data collection and analysis and its partial implementation via an examination of aspects of place listed in this table, via the PTM-ESC.

8.5.4 Changes in mode of dwelling in place

Table A11.3 (in Appendix 11) addresses the model of development and adaption of communal place attachment presented in Mihaylov and Perkins (2014). It involves a series of stages that are influenced by the 14 factors listed in the left-hand column of Table A11.3. Comments resulting from the Manyjilyjarra landscape language case study, with respect to each of the 14 factors, are in the right hand most column. Similar comments regarding the Yindjibarndi case study are in the centre column, as per Table 6.17 in Chapter 6. Unsurprisingly, there is strong correlation between the comments regarding the two languages from the centre of Western Australia. However, there are differences, since Manyjilyjarra country is considerably further from the coast and is desert, with lots of spinifex, sandridges and saltlakes, unsuitable for grazing cattle or sheep. For these reasons that area was colonised later and far less intensively. The responses to each of the 14 factors are relevant to place attachment for the Manyjilyjarra landscape language case study. These comments indicate that (post-colonisation) an even stronger adherence to traditional topo-socio-cultural-spiritual laws, values and practices was possible for this more isolated desert language group than for Yindjibarndi people occupying less harsh country, including much more permanent water, and considerably closer to the coast, meaning that they were very much more disrupted by colonial practices from the 1860s. [See Clark (2008), Ieramugadu Group Inc., 1995, Mark and Turk (2003), Mark, Turk and Stea (2007), McGaurr, Tranter and Lester (2016), Miller (2002), Rijavec, Harrison and Soloman, 1995). Trees and Turk (1998), Turk (2003) and Turk and Trees (1998a; b; c; 1999a; b; 2000)]. Example rows from Table A11.3 (Appendix 11) are shown in Table 8.4.

Table 8.4: Example of rows in Table A11.3 (Appendix 11)

Mihaylov and Perkins (2014) 14 factors relevant to place attachment	Example application of the 14 factors to Yindjibarndi people	Example application of the 14 factors to Manyjilyjarra people
1. 'environmental disruption' (any significant environmental change)	Suffering displacement from 1860s because of government land grants to colonisers for sheep and cattle stations, restricting access to country.	Their topo-socio-cultural framework (called Jukurrpa law/lore) was developed over probably at least 20,000 years of occupation of this (or similar) country, establishing a very coherent culture with exceptionally strong utilitarian, social, cultural, spiritual and ethical links to many specific sacred places and their landscape in general. They also have deep traditional. Environmental management knowledge. Some disruption of this system of dwelling due to colonisation, however, most Manyjilyjarra were still on country till the mid 20th century. Some had 'first-contact' with Europeans in 1964.

As discussed above, in Yindjibarndi *marnda* can mean mountain, hill, boulder, pebble, coin or leg irons, for restraining Aboriginal people before transferring then to prisons (including the one on Wadjemup (Rottnest Island), off Perth, in Whadjuk Noongar country, about 1,300 km from Yindjibarndi country). The last of these meanings indicates the severity of colonial rule for Yindjibarndi people. The equivalent word in Manyjilyjarra, *yapu*, has the same set of meanings, except for 'leg irons', because such practices had ceased before their country was colonised. However, despite these colonial disturbances, both groups have retained their traditional cultures and most of their social structures, although much more so for Manyjilyjarra people. Both language groups have received some official government recognition of their rights and responsibilities for country, via Native Title determinations. This demonstrates the importance, when collecting and interpreting landscape language data, of consideration of the history of the language group and the relevant topo-socio-cultural-spiritual framework (e.g. *Jukurrpa*) that influences the constantly changing 'mode of dwelling' of peoples. [See Andrews (2019), Behrendt (1998, p. 268), Peters-Little (2003), Rowland (2004, p. 2) and Turk and Hilliard (2012)].

8.5.5 Conclusion to section

This section investigated the use of sets of phenomenographic tables produced in earlier chapters through examination of publications by a range of authors concerning key aspects of a phenomenological approach to landscape as place. The discussion above in Sections 8.5.2 to 8.5.4 has demonstrated that the use of these table helps analysis of the linguistic data

collected in the Manyjilyjarra Landscape Language Case Study. This provides strong support for the use of these phenomenographic tables as part of future transdisciplinary investigations of landscape language, via use of the contingent PTM-ECS. The future use of these tables should be integrated with design, data collection, analysis and explanation phases of an investigation, alongside methods and techniques to implement particular theories and approaches by phenomenologists, as investigated in Chapters 4, 5, 6 and 7. The validation of this proposal via re-examination of Manyjilyjarra linguistic data is undertaken in Section 8.6.

It is recognised that selection and use of appropriate tables in adaption of the generic PTM-ECS for any particular landscape language (ethnophysiography) project will not be a simple task. However, the effort expended in case study methodology design will be hugely rewarded in term of the completeness, complexity and validity of the data collected, and ultimately the results of its analysis, and the presentation of the results of the case study. The process of constructing a particular version of the PTM-ECS for a specific study is described in Section A15.2 in Appendix 15. This includes a set of 8 steps to be followed to complete this methodology construction task (Sections A15.2.2 to A15.2.9).

8.6 Review of Other Potential Phenomenological Methods and Techniques
8.6.1 Introduction to section

This section provides specific examples of how use of potential extra phenomenological methods and techniques might lead to alternative explanations of the Manyjilyjarra case study data. This provides support for implementing a transdisciplinary ethnophysiography methodology with phenomenology as the over-arching paradigm.

One approach is using phenomenographic tables that summarise relevant aspects of theories of place from many researchers, to broaden the scope of inquiry, by adopting different discipline paradigms at the study design, data collection and data analysis phases. This has already been discussed in Section 8.5. The further approaches consist of augmenting the traditional landscape language (ethnophysiography) case study methodology in three ways:

a. By seeking ways to apply phenomenology to landscape language case study data in terms of the five principal aspects of phenomenology (Section 8.6.2).

b. Adopting and adapting methods and techniques from different types of phenomenology practice to augment traditional approaches to landscape language investigation (Section 8.6.3).

c. Applying specific relevant theories from phenomenological researchers, especially in the data analysis phase of landscape language case studies (Section 8.6.4).

As discussed in Chapter 4, the key phenomenological issues can be usefully arranged under a set of five headings: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and structural frameworks. These were used in Chapter 5 to order discussion of contributions from researchers into phenomenology of place. Hence, example results of phenomenological analysis of Manyjilyjarra (and Yindjibarndi study comparisons) already raised in Chapters 4, 5 and 6 (and some new examples) are discussed in Section 8.6.2, grouped under the five headings established in Chapter 4 and used in Chapter 5, as Subsections 8.6.2.1 to 8.6.2.5.

Sub-section 8.6.3 examines application to the Manyjilyjarra case study data of the proposed extra methodological steps based on particular approaches by phenomenologists, as discussed in Chapters 4 and 5 (see also Chapter 7 and Appendix 8). Table A10.1 in Appendix 10 reproduces an amended form of Table A8.2, substituting a new column, summarising potential applicability to investigations such as the Manyjilyjarra study, for methods listed in the previous column. The right-hand most column provides references for the aspect discussed in each row.

The details provided in Table A10.1 provide strong support for use of the extra methods and techniques based on phenomenological approaches to investigation of place. The adoption of such extra methods or techniques may lead to the collection of additional types of landscape language data, including that relating to utilitarian, social, cultural and spiritual 'taskscape' activities and protocols. These are discussed under the heading 'Phenomenological methods', in Sub-section 8.6.3. Subsections 8.6.3.1 to 8.6.3.8 relate to the sections of Table A.10.1 in Appendix 10.

The third way, discussed in this section, to implement a transdisciplinary approach based on phenomenology, is to use particular phenomenological theories to assist with data interpretation. This is undertaken with respect to the Manyjilyjarra case study data in Sub-section 8.6.4, Subsections 8.6.4.1 to 8.6.4.4, as discussed in the sections of Chapters 4, 5 and 6 indicated in each case.

Sub-section 8.6.5 provides conclusions regarding the findings generated by all of the previous sub-sections of Section 8.6. It is important to note that this is just the first trial of this approach, which is likely to be revised and improved via further research (Chapter 9).

8.6.2 Application of aspects of phenomenology

8.6.2.1 Physical aspects, embodiment and perception

In discussion of Ihde's multistabilities (within postphenomenology) in Section 4.3.6 of Chapter 4, it was noted that, in Manyjilyjarra there are generic terms for eminences (*tumun*) and depressions (*takurru*) (regardless of scale), which are directly related to bodily movement. They could be considered 'multistability' instances of a landscape essence of 'an area of sloping ground'; one referencing bodily movement 'up-slope' and the other 'down-slope'. These aspects are also discussed in Chapter 5, Section 5.3.2, in terms of the universality of the fundamental notion of upward and downward bodily movement and the need to preserve energy when living a nomadic lifestyle.

Manyjilyjarra has a word for a slippery place, *jiraly*, which can be used for a steep slope (*larrku*) with gravel on the surface, or for a wet claypan (*linyji*). The term *jiwalykarra* is used for a cliff, a place where one must be careful not to go too close to the edge (*mulya*) and risk falling. These words may relate to physically inconvenient or dangerous aspects of landscape (affordance) as much as, or rather than, just the physical appearance and material of the landscape features.

8.6.2.2 Utilitarian aspects, activities and technologies

In Chapter 4, Section 4.3.6, when discussing multistability (Ihde's Postphenomenology) it was noted that in Yindjibarndi (Chapter 2) and Manyjilyjarra (Chapter 8) different terms are applied to a pool of water, depending on whether the observer considers it temporary or permanent. Yu (2002) emphasises how 'living waters' (above and below the surface) are a critical consideration for desert peoples. Their knowledge of its location and degree of permanence constitutes a key aspect of their lifeworld. If water in the landscape is an 'essence', its different degrees of permanence could be a multistability, according to a postphenomenology reading.

Another aspect of postphenomenology discussed by Ihde (2009) is what could be termed 'interrelational ontology'. This is the building of an ontology of 'types' of things, in terms of Husserlian intentionality. This involves identification of the 'for the sake of which', relating

uses of taskscuage elements, through intentionality, to landscape language[54]. Ihde contends that the inclusion of technologies requires a different consideration of relationality. This can be considered in the context of the Yindjibarndi landscape language case study (Chapter 2). The meaning of the term *wanna* (middle distance) was explained by Yindjibarndi speakers as being, for instance, where one could clearly see a kangaroo on a nearby hillside, but it was too far away to kill it with a spear or boomerang; that is, with their particular traditional hunting technology. The spatial extent of *wanna* may now be extended because of the use of rifles to hunt kangaroo and other animals. This relates to embededness of technologies in both the physical/material (embodiment) and socio-cultural dimensions of lifeworld, and 'multistability'.

Manyjilyjarra has several words for water, with *kumpuwira* meaning water of all types. The term *pakurri* is used for water fit to drink (potable), *luka* designates dirty water, *lukarrini* is used if the water is muddy, which is not good to drink, *kalyjil* is salty water and *karawangaly* is water with algae in it, which is unsuitable to drink. Thus the utility of different sorts of water is designated, rather than just its appearance. The term *wuungku* is used for a windbreak that one may shelter behind and the terms *jarri*, *jurnti*, *pirnki*, *and pur*l are used for a rock shelter or cave; a place offering more protection from the elements.

Manyjilyjarra also has words for various 'activity places', such as *jarrpa* indicating a place for swimming. The term *warrarta* is used for an area of higher ground, from which one may see for a greater distance. The Manyjilyjarra landscape dictionary (Hill and Turk, 2016) discusses a suffix to designate places of different types: "-*kurru* is the place characteriser suffix used to indicate a place with a particular characteristic, such as *paru-kurru* for 'spinifex country', which is made from the term *paru* 'spinifex' being associated with the -*kurru* (place) suffix. *Kurru* is also able to be employed with animal words (e.g. *puupuka-kurru* 'frog country' and *minguwa-kurru* 'echidna country') and landscape feature terms (e.g. *yintiri-kurru* 'sandridge country', *wirrkuja-kurru* 'rockhole country', *yapu-kurru* 'rocky country')" (p. 39). The 'rockhole country' example relates to where one might find water in 'rocky country' after recent rain.

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[54] See discussion of 'for the sake of which' in Heidegger's *Being and Time* at http://faculty.georgetown.edu/blattnew/heid/terms.htm and intentionality, at https://plato.stanford.edu/entries/consciousness-intentionality/phenomenology-intentionalism.html [both accessed 16th February, 2016]

8.6.2.3 Social systems, culture, knowledge and language

As discussed in Chapters 5 and 6, the traditional Manyjilyjarra speakers' mode of dwelling involved social structures dictated by *Jukurrpa*, their worldview and philosophy. These days non-traditional Martu and non-indigenous people also have relationships with those places, indicating changing historical and cultural circumstances. Each dwelling group (Martu elders, Martu youth, miners, environmentalists, etc.) operates within a formal and/or informal topo-socio-cultural-spiritual framework, which may be 'integrated', involving aspects from more than one tradition. It may well operate mostly at an unconscious level. Many Manyjilyjarra speakers continue to adhere to most aspects of *Jukurrpa*, hence, lifeworld practices and relevant landscape language need to be analysed within the context of *Jukurrpa*. This framework is for all time, but is not unchanging. Thus a nuanced approach to understanding of landscape language is necessary, where local collaborators assist researchers to understand the current form of *Jukurrpa* principles. This hermeneutic process is facilitated by a phenomenological methodological approach. This can also be examined in terms of Arendt's (1978) multi-perspective approach, discussed in Section 8.6.4.1 below.

8.6.2.4 Spiritual and ethical aspects

The review of ethnophysiography case studies in Chapter 2, demonstrates that the ontology of landscape terms may differ considerably between languages. A landscape term may include non-physical semantic content, such as the Yindjibarndi term *yinda* (permanent pool), which includes the concept of a *warlu* ('Dreaming' spirit), see Figure A1.11 in Appendix 1. The equivalent term in Manyjilyjarra (Chapter 8) is the term *yinta* (the assigning of 't' or 'd' being due to slight differences in pronunciation and/or linguistic convention).

Spirituality, for Manyjilyjarra people living deep in the Western Desert, is perhaps most significantly linked to landscape features in the case of permanent sources of water (i.e. *yinta*). As discussed in Section 8.4 above, each *yinta* has an ancestral spirit, which created it, living permanently within it, requiring respectful practices, even when just approaching such a place. The ancestral spirit is called a *jila*, the same word as for snake, the utterance context disambiguating the meaning of the word. In usual speech the permanent source of water is referred to as a *yinta*, however, when cultural/spiritual matters are being discussed it is called a *jila*. This author (known to Martu as 'AT') observed this when a confidential map of all recorded *jila* in Martu country was being shown to him. This was enabled by the high level of trust of AT, developed during many years of respectful, helpful involvement with senior

elders and their colleagues and friends[55]. A phenomenological approach helps explain this linguistic data, acquired via a rich, reflective and ethical 'embedded' ethnographic approach to data collection.

The Manyjilyjarra terms for a sacred place (in general) is *japiya*, which could refer to just one landscape 'feature' or perhaps apply to a wide area, with more than one landscape feature. The term *ngurlu* is used for a place were some, or most, people cannot go. This is a 'taboo' place which people are afraid to enter.

Chapter 5, Section 5.2.2 discusses contributions by Elizabeth Ströker to understanding phenomenology of place. This is relevant to how Manyjilyjarra people consider that their 'country' will become 'sick' unless they routinely carry out ceremonies at sacred places. This links place to spirituality and ethics. Manyjilyjarra people have responsibilities as well as rights regarding their country; both of which cause anxiety, sadness, and ultimately severe grief, if Manyjilyjarra people are removed from their country or prevented from carrying out ceremonies or land management practices. This is demonstrated by the success of the Martu Ranger program, discussed earlier in this chapter, which involves young men and women and elders visiting sacred sites and carrying out environmental programs, including traditional use of frequent 'cool' small fires, to manage vegetation growth and prevent 'hot', large bushfires, to protect endangered fauna species. Martu people are very enthusiastic about being part of this successful program.

8.6.2.5 Structural frameworks

For Manyjilyjarra people the socio-cultural system of *Jukurrpa* is fundamental to all aspects of their life, including especially their relationship to landscape, and, hence, the semantics of landscape terms. This has been discussed in Chapter 6, Appendix 13 and in Section 8.2 above, where a diagram (Figure 8.9) helped explain the connection of *Jukurrpa* to all aspects of 'country'. Manyjilyjarra speakers traditionally dwelt in a particular bounded area of the Western Desert, with only ceremonial or infrequent contact with their immediate neighbours. These days non-traditional Martu and non-indigenous people also have relationships with those places, indicating changing historical and cultural circumstances. This affects the

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[55] Before the Manyjilyjarra landscape language case study fieldwork commenced AT had been working with the Martu cultural organization KJ and Martu elders (and/or WDLAC, their Native Title PBC) on various projects for four years, including presenting cultural awareness courses with elders. Some of these elders were also aware of the twenty year relationship that AT had with Ngulama, Yindjibarndi and Bangima elders, some their friends since childhood.

current nature of *Jukurrpa*, which is for all time, but is also capable of transformation, for example to accommodate the arrival in the desert of Europeans, and their strange, non-indigenous animals.

Aspects of linguistic structures are discussed in Chapter 5, Section 5.4. This includes consideration of how the meaning of data from ethnophysiography studies can be influenced by that feature's role in the overarching cultural system of meanings for that language group (e.g. *Jukurrpa* for Manyjilyjarra speakers). That section also discusses the similarity with concepts from Ruthrof (2000, p. 45), which are aligned with the 'as-structure of understanding' from Heidegger's (*Being and Time*, 1962, p. 189/190). A thing (e.g. a *yinta*) is described with respect to a holistic understanding of a 'totality of involvements' that it has in the group's lifeworld, from physical to spiritual aspects.

Ruthrof (2000, p. 46) notes that any language does not necessarily explicitly show such involvements, rather, they need to be discovered via analysis of language data as an epistemic totality, as an entire way of grasping the world. The Manyjilyjarra ethnophysiography case study demonstrates the way a part of landscape is interpreted in terms of its relationship to *Jukurrpa*, such as when a *yinta* is called a *jila*. Such findings justify use of a hermeneutic approach to interpretative reconstruction of the inter-subjective lifeworld of speakers, including consideration of non-verbal communication and ritual practices. Of course, it is very difficult to know what ways interactions between landscape and language, culture and spirituality have developed over tens of thousands of years.

The importance of imagination is emphasised by Casey (2000, p. 232), as mentioned in Chapter 5, Section 5.2.3. However, his interpretation may, in seeking to 'free' imagination from the shackles of the lifeworld, under-rate the process of mimesis (discussed in Chapter 6). Imagination and mimesis may be involved in Manyjilyjarra people's unconscious (intentional) interpretation of landscape in terms of *Jukurrpa*, as well as acts of spontaneity that Casey emphasises. This applies when a Manyjilyjarra person views a *yinta*, a reliable source of water, and hence a sacred site. A form of 'imagining' is involved, as well as interpretation of physical sense-data.

For Malpas (2006; 2012b) (following Heidegger), a topological understanding of landscape involves consideration of its role in the essential 'entanglement' of human beings; a relation of 'reciprocal dependence', as "two equal axes of a single unitary world" (p. 31). As

discussed in Chapter 6, we need to investigate landscape as taskscape (Ingold, 1993). Malpas (2006, pp. 86-87) explains Heidegger's view of the 'equipmentality' of the world, which configures such inter-subjective relationships and the language which enables such modes of dwelling. The structure and form of the landscape itself is involved in the way 'equipmentality' of place operates in a group's lifeworld.

The approach to topology adopted in this dissertation is discussed in Chapter 6, Section 6.2.2. It is influenced especially by findings from the Yindjibarndi and Manyjilyjarra landscape language case studies, including, for instance, the role of *Jukurrpa*. The particular physical aspects of topology of a place has a strong influence on embodiment and perception aspects of human activities, especially those associated with movement. For instance, the directionality of the long parallel sandridges in the Manyjilyjarra landscape strongly influences ways of travelling on foot or by vehicle. Vegetation type is also a factor, such as the rings of spiky spinifex, which must be navigated on the inter-sandridge plain. Thus, topographic environment and the socio-cultural framework, synergistically combined, leads to an emergent, situated, coherent TSCS-MOD.

8.6.3 Applicability of extra phenomenological methods and techniques
8.6.3.1 Methods from ethnoecology and ecologically-embedded linguistics

These methods were discussed in Chapter 7, Section 7.2.2 and Appendix 8, Table A8.2. As indicated in rows Ex-ECO- a to h of Table A10.1 (in Appendix 10), these methods and techniques, include 'free listing'. 'participatory mapping', 'elicitation of ecotope terms', 'elicitation of toponyms', 'experiential learning processes', 'targeted conversations', 'ecolinguistics' and an 'ethnopedological approach'. These were used, mostly in an implicit rather than an explicit manner, in the Manyjilyjarra case study. Others could be usefully applied in future landscape language case studies.

8.6.3.2 Methods recommended by human and cultural geographers

Various relevant methodological approaches suggested by human geographers and cultural geographers are discussed in Chapter 7, Sections 7.3.1 and 7.4.2 and Appendix 8. The applicability of these is reviewed in rows Ex-CG-a to d in Table A10.1. Seamon (2015) charts these developments since the 1970s, including discussion of his own contributions, and those of researchers such as Anne Buttimer, Nicholas Entrikin, David Ley, Doreen Massey, Robert Mugerauer, Edward Relph, Robert Sack, Marwyn Samuels and Yi-Fu Tuan. These are aligned with lifeworld phenomenology, mostly associated with the 'New

Phenomenologists' (Chapter 4), rather than with traditional phenomenological approaches. Thus they are already reflected to some extent in the methodologies for landscape language studies by this author and his collaborators, since the 1990s. The analysis in Table A10.1 (Appendix 10) indicates that key aspects of these methods and techniques were incorporated in the Manyjilyjarra study. However, considerably greater use is preferable.

Gender aspects of relationships with landscape, and hence language, is an important issue, requiring thorough investigation, provided that permission is given to explore these aspects. Such discussions are facilitated by having both male and female researchers available, to match the gender of interviewer and interviewee [see also Sections 3.4, 9.5.4 and 9.8.1].

8.6.3.3 Methods related to traditional phenomenological search for essences and universals

An essences and universals approach using reduction and bracketing (*epoché*) is traditionally regarded as an important part of phenomenology and related methods (e.g. Moran (2000a), cited in Chapter 4, and van Manen (2014; 2017a), cited in Chapter 7, Section 7.3.2). However, other authors suggest this method was de-emphasised, if not abandoned. These include Merleau-Ponty and many of the 'New Phenomenologists' (Smith (2005) (Chapters 4 and 5). Concentrating on the use of phenomenology in sociological investigations, Maura Dowling (2007) traces the different approaches to phenomenology from Husserl to van Manen, including "key issues of phenomenological reduction and bracketing […] as they play a pivotal role in the how phenomenological research studies are approached" (p. 131). In Chapter 1, Section 1.6.3, it was noted that the form of phenomenology that seems most suited to ethnophysiography is a phenomenology-of-the-lifeworld approach, following Schütz (1966; 1967; 1972). This reverses the Husserlian *epoché*, bracketing transcendental elements, thematising everyday experience in its specificity as well as in its general structures; for example, the 'natural attitude of daily life', the 'reciprocity of perspectives', 'typifications', and 'multiple realities'.

Citing Husserl (1970), Zahavi (2019b, p.6/7) suggests an effective approach to the reduction and the *epoché*:

> To perform the epoché is to effectuate a thematic re-orientation. It is not as if we cannot continue to observe, thematize and make judgments concerning the world, but we must do so in a reflective manner that considers the world as related to the perspective we bring to bear on it. By adopting the phenomenological attitude, we do not turn the gaze

inwards in order to examine the happenings in a private interior sphere. Rather, we look at how the world shows up for the subject. We pay attention to how and as what worldly objects are given to us. By doing so, by analysing how and as what any object presents itself to us, we also discover the intentional acts and experiential structures in relation to which any appearing object must necessarily be understood.

In Zahavi's (2019b, p. 6/7) interpretation of Husserl's *epoché* the individual's experience of their lifeworld is not dismissed. Rather it is considered just one understanding of reality, to be compared with other versions. This approach has more affinity with ethnophysiography, the EDM and the PTM-ECS, than other approaches to *epoché*. Hence, the later writings of Husserl, as interpreted by Zahavi, provide a better way to consider (in the context of landscape language studies) van Manen's insistence on using the reduction and the *epoché* in all phenomenological investigations.

As discussed in Chapter 2, early research in landscape language and ethnophysiography was partly focussed on universals, especially from a linguistic perspective, and some researchers still emphasise this approach. However, ethnophysiography research results since 2002 have supported the lesser applicability of universals to landscape language. Hence, current research is focused on understanding the particulars of a language and its speakers. Seeking universals is mostly a secondary step, including use of the EDM to compare languages (see earlier chapters and Section 8.7). This is similar to an ethnomethodology approach, discussed in Section 8.6.3.4.

Methods and techniques relating to this issue are briefly reviewed in Table A10.1, rows Ex-E&U-a to d, indicating that the Manyjilyjarra case study did address this issue, more implicitly, and at a higher level of abstraction, than the traditional phenomenological approach. As discussed in Chapter 9, this issue requires further investigation to establish how valid it is to use phenomenology as an overarching paradigm for transdisciplinary research in ethnophysiography without explicit use of the traditional phenomenological reduction and bracketing (*epoché*) method for establishing essences and universals.

8.6.3.4 Ethnomethodology, conversational analysis and thematic relevancy of landscape terms

Ethnomethodology (EM) methods are also discussed in Chapter 7, Section 7.4.1, including recommendations from Heritage (2013) and Eberle (2012) regarding this 'marriage of

sociology and phenomenology' (following Schütz, 1966; 1967; 1972).   However, specific techniques from ethnomethodology such as conversational analysis (CA) (Heritage and Clayman, 2010; Heritage, 2013) were not applied in any formal manner in the Manyjilyjarra case study.

Applicability of these methods is reviewed in rows Ex-EM-a to n in Table A10.1, indicating that many were implicitly utilised in the Manyjilyjarra study. This indicates that these approaches to text and interview data analysis could be more explicitly incorporated in future landscape language case studies, for example, to explore details of ritual behaviours at sacred places, provided that participants and ethics approvals permit such research practices. The phenomenological analysis technique of 'talk-in-interaction' data collection (Wilson, 2012) could involve the researchers immersing themselves more fully in the daily lives and routines of those being studied, provided that this level of intimacy is permitted under the research contract and ethics approvals.

As discussed in Chapter 4, Section 4.3.4, within an ethnomethodology approach, the significance of social nodes of knowledge is termed 'thematic relevancy' by Schütz (1966). This leads to identification of types of things "according to particular structures of relevance" (p. 266). As demonstrated in Chapter 2, for Yindjibarndi speakers of north-western Australia, the 'typification' may not always be as straight-forward as anticipated. For instance, as discussed above, there is a sacred place at Deep Reach Pool (*Nunganunna*) in Yindjibarndi country. An ordinary-looking nearby hole in the ground is (for Yindjibarndi) where the warlu spirit *Barrimindi* poked his head up, during his underground travel from the coast in search of two boys who had broken the Birdarra law, in the beginning time, when the world was still soft (Ieramugadu Group Inc., 1995).

Investigation of 'thematic relevancy' within the target language community lifeworld can assist in sorting out appropriate semantics of landscape terms. Ethnomethodology methods and techniques should be used more extensively and explicitly in future ethnophysiography case studies using the proposed PTM-ECS.

8.6.3.5 Methods from Ihde's postphenomenology in context of new phenomenology and human geography

Applicability of postphenomenology methods is reviewed in rows Ex-PP-a to h in Table A10.1. This demonstrates the utility of adopting aspects of this approach, including a 'critical

pluralist' approach in all case study phases and 'multistability' in interpretation of linguistic data. Examples are provided in previous sections of this chapter and below. In general, Ihde's postphenomenology approach is very useful for ethnophysiography case studies and future studies could make use of additional methods and techniques, such as documentation of 'action-routines' and maximisation of consideration of gender aspects of utilitarian, social, cultural and spiritual activities, and within the research process itself.

Polysemy is the term used in linguistics when several meanings (sememes[56]) apply for uses of a single word. As discussed in Chapter 2, ethnophysiography case studies have discovered multiple instances where a particular word is used for what normally would be considered distinctly different landscape features, as well as possibly for non-landscape objects. As discussed in Chapter 4, Section 4.3.6, regarding Ihde's postphenomenology, in Yindjibarndi (Chapter 2), *marnda* means mountains and hills of all sizes, stones, pebbles, coins, and metal leg-irons, and the same in Manyjilyjarra for *puli* (*yapu*), except for leg irons (presumably because Manyjilyjarra country was settled after the colonial period when leg-irons were used by police to restrain Aboriginal people). It could be suggested that, within their traditional lifeworld, the key essence driving 'multistability' that the language speakers are concentrating on is 'hardness', rather than landform size and/or shape. Thus *marnda* and *puli* (*yapu*) are nouns whose meaning covers a range of things not scooped-up together in this way, in most languages. Unless this is considered to constitute homonymy, it seems to indicate that the core meaning of the word may not fundamentally relate to landscape features; for instance, *marnda* and *puli* (*yapu*) might each mean 'something very hard'.

Alternatively, the explanation of different meanings for *marnda* and *puli* (*yapu*) could be interpreted as reference to the material substance (rock) of which they are constituted, although the inclusion of coins and leg irons argues against that. This substance/material approach (Hill et al., 2016) seems to apply with respect to hills in Manyjilyjarra, with distinctions between *puli/yapu* (stony) and *yintiri* (sandy). There are no sandridges in Yindjibarndi country so no equivalent term to *yintiri*. As discussed below, a more fundamental (phenomenological intentionality) difference between rocky and sandy hills may concern where to find water.

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[56] A sememe is a unit of transmitted or intended meaning.

Appendix 1, Section A1.5 discusses the term *burbaa*, another instance of a word with multiple meanings in Yindjibarndi (Chapter 2). This word seems to have a fundamental meaning of 'rounded shape' (as in a hill or a persons extended belly). This type of meaning has been found across many landscape language studies (Hill et al., 2016) so might not constitute a form of Ihde's multistability but some other more usual linguistic phenomenon of transfer between meaning domains.

Methods from Ihde's Postphenomenology, addresses the search for essences and universals in the context of 'New Phenomenology' and human geography, as discussed in Chapter 4 and in Section 8.6.3.3 above. Limitations of using an essences and universals approach in general, in the context of landscape language, are discussed in Chapter 7, Section 7.3.2. As discussed in other subsections, the most likely universal landscape aspects relevant to Manyjilyjarra speakers are water as a landscape feature, and up-ness and down-ness of slopes, in the context of walking through landscape.

8.6.3.6 David Seamon's Systems Theory Method

The methods suggested by Seamon in his (2018) book *Life Takes Place* were reviewed by this author (Turk, 2018). A summary of key methodological aspects is provided in Appendix 8, Table, A8.2, Section EX-SM, rows a to g, and re-presented in Appendix 10, Table A10.1, rows Ex-SM a to g. This includes examples based on the Manyjilyjarra case study for each step in Seamon's method, as adjusted to include an 'exterophenomenological' approach (Olivier, 2017, p. 10).

As discussed in Chapter 7, Section 7.4.3, Seamon is opposed to combining phenomenology and social sciences, putting him at odds with the approach adopted by this author. However, because of Seamon's extensive experience in this field, his method deserves more detailed discussion here than some other proposed phenomenological methods. In Table A10.1, key data from the Manyjilyjarra case study has been identified for each of the methodological steps proposed by Seamon (2018). *Jukurrpa* can provide the desired holistic structural overview; the 'grounding structure' in an exterophenomenological approach. Example Manyjilyjarra versions of Seamon's dyads, and additional more general socio-cultural dyads, are listed in Table A10.1, Row SM-d.

The third step in Seamon's (2018) method starts with identification of three place impulses: 'people-in-place', 'environmental ensemble' and 'common presence', which are fundamental

aspects of dwelling. These three place impulses generate six triads. As discussed in Chapter 7, Section 7.4.3, Seamon's 'people-in-place' and 'common presence' place impulses can be expanded to incorporate more social/cultural/spiritual aspects, to enlarge the scope of Seamon's six triads. Examples of how some of these can be applied to the Manyjilyjarra case study are included in Table A10.1 (Appendix 10), Row SM-e.

This demonstrates that, apart from sociological, cultural and spiritual aspects of the Manyjilyjarra lifeworld, Seamon's method (without additions) provides a useful basis for some key aspects of data analysis, but not others. The missing aspects can, in most part be added by extending and/or modifying Seamon's method. This provides at least partial evidence for the viability of Seamon's approach in non-urban environments, noting that almost all of his published examples are from urban areas. As discussed in Chapter 9, further work is required to more fully validate this approach.

8.6.3.7 Methods from phenomenography

Phenomenography is another potential research method from phenomenology, as discussed in Chapter 7, Section 7.4.4. According to Ornek (2008), phenomenography seeks to overcome the separation between researchers, their informants and the places and activities being investigated. As summarised in Table A10.1, rows Ex-PG-a to c, the methodology used in the Manyjilyjarra study incorporated key aspects of this perspective.

The researchers adopted a hermeneutic approach, maintaining an open mind regarding interpretation of interview data. Interview questions included an appropriate mix of pre-set (etic) questions targeted at specific aspects of landscape, and open questions to encourage the interviewee to expand on their experiences (emic responses). This allowed the researchers to identify and document an authentic set of landscape term categories. Thus the essential aspects of phenomenograhy, as described in Ornek (2008), were utilised in the Manyjilyjarra landscape language case study and should be included in future transdisciplinary investigations.

The use of summary tables (conceptual models) in this dissertation can be considered as a phemomenographic analysis of sets of past academic documents. Each entry in a table represents a dwelling in landscape theme, which could be included in questions to be asked of case study participants and/or in phenomenological writing.

8.6.3.8 Hermeneutic phenomenology descriptions

A hermeneutic phenomenological approach to understanding patterns of movement, affect, mimesis and language are discussed in Chapter 4, Sections 4.2.5 and 4.3.5 and in Chapter 7, Section 7.4.4. Rows Ex-HP-a to f in Table A10.1 summarise the applicability of hermeneutic phenomenology methods to the Manyjilyjarra case study.

It was noted in Chapter 4 that some of the latest developments regarding a phenomenological approach were brought together under the term 'life phenomenology' (Smith, Saevi, Lloyd and Churchill, 2017). This approach includes the development of rich, pure descriptions of key behaviours of people, without including any pre-judgements or theories of meaning (Henriksson and Friesen, 2012; Saevi, 2014; Van Manen, 1990; 2002a; b; 2007; 2014; 2016; 2017a). Such an approach could, for instance, be used to describe formal protocols carried out at sacred places. This was not done as part of the Manyjilyjarra landscape language case study as such rich first-person observations were not undertaken, being beyond the permissions provided. However, during earlier cultural awareness presentations with Martu elders, this author heard such accounts about visiting sacred permanent springs (*yinta*) and soaks (*jurnu*), which indicated that a hermeneutic phenomenological descriptive approach could be effective. This possibility, and the potential explicit use of the Interpretative Phenomenological Analysis (IPA) technique, will be explored further in later research, as discussed in Chapter 9.

8.6.4 Application of other particular phenomenological theories

8.6.4.1 Arendt's multi-perspective approach

As discussed in Chapter 5, Section 5.3.6, a different version or type of overarching TSCS-MOD may apply for each group residing in a complex, multicultural place. This applies to most peopled places in the world. Arendt's (1978) multi-perspective approach can be useful for such analysis of the landscape practices and language used by different dwelling groups (indigenous and non-indigenous).

Adopting Arendt's perspective on power imbalances, assists in understanding the point of view of different dwelling groups and the resulting landscape ontology and language. This is especially important when investigating the interface between groups. For instance, Manyjilyjarra elders and environmental scientists collaborate in the Martu Ranger programs to facilitate effective land management, including careful, productive use of fire. This requires shared understanding concerning ecotopes, such as those related to re-growth of

vegetation after fire, as discussed above. Any tendency for government scientists' etic categories to be automatically preferred over local emic ones needs to be resisted if traditional indigenous environmental knowledge is to be used effectively. This is facilitated by the exploration of relevant language terms, which was partially achieved in the Manyjilyjarra case study.

8.6.4.2 Thin and thick types of place

Chapter 5, Section 5.2.3 discusses the way Edward Casey (2001a) uses the term 'thick places' for those involved in rich interactions with people, compared to 'thin' (impoverished) ones. For instance, the above discussion of *yinta* and *jila* can be considered to relate to a 'thick' place, in terms of Casey's approach.

Different methods and techniques are likely to be required to achieve appropriate understandings for 'thick' compared with 'thin' places. Complexity of speaker relationships with particular types of places can be expected to be reflected in the semantics of relevant landscape terms. For instance, in the *Manyjilyjarra-English Pictorial Dictionary of Landscape Terms* (Hill and Turk, 2016), summation of the meaning of *warli* (gully), a relatively 'thin' place, required 192 words (Appendix 9, Section A9.3.5). This can be compared with 332 words for the summary of the meaning for *yinta* (permanent source of water), a 'thick' place, in the relevant section of the dictionary (Appendix 9, Section A9.3.3). However, what might appear to be a 'thin' place, for example, a hole in the ground, may actually be considered a 'thick' place, once its cultural and spiritual associations are understood (as discussed in Sub-section 8.6.3.4).

8.6.4.3 Phenomenology of surprise and indigenous philosophies

Dastur's (2000) notion of 'phenomenology of surprise' is discussed in Chapter 5, Section 5.2.5. This relates to indigenous concepts of spiritual places, created by surprising events involving ancestral beings, as Yindjibarndi people say, 'when the world was soft' (Chapter 2 and Appendix 1). These extraordinary mythological events, which produced strings of sacred places connected by 'songlines', are still influencing interactions with landscape by Manyjilyjarra people, through *Jukurrpa*. As discussed in Chapters 4, 5 and 6, this role for foundational myths and traditional narratives, within indigenous lore, is present in many contemporary indigenous societies, including those in Africa (Janz, 1997; 2015, 2016) (Chapter 9). It can be appropriate for aspects of such indigenous knowledge systems to be referred to as philosophies, if philosophies are considered as 'placed' rather than necessarily

universal. Deleuze and Guattari's (1994) notions of deterritorialisation and reterritorialisation can be applied to philosophy itself and its potential commensurability with 'placed philosophy'. This interacts with the issue of identifying essences and universals discussed above in Section 8.6.3.3, in terms of the role of universals in philosophy. These matters are discussed further in Chapter 9.

8.6.4.4 Reference in deixis and mimesis

In linguistic anthropology, deixis is a subtype of indexicality, or the more general property of context dependence of human action, referring primarily to context dependence of meaning for certain types of words in utterances in the meaning of certain referring expressions, such as here, and now, usually termed 'deictics' and 'indexicals' (Williams, forthcoming). However, a broader approach includes the "role of nonverbal resources (pointing, eye-gaze) in interpreting deictic reference" (p. 1), which can be crucial in establishing inter-subjective joint action. This requires study in particular languages from both linguistic and anthropological perspectives.

Ruthrof (2000) discusses the role of deixis and 'reference'; what feature or aspect of the world a communication act seeks to describe or discuss. He cites (p. 55) Fauconnier's (1997, p. 68f) description of how ambiguities regarding the speakers 'target' ('intended reference') are handled in natural speech, suggesting that what counts "is the social consensus on objects and properties". A language group comes to an implicit agreement about the (possibly partially inexact or non-consistent) meaning(s) of its words, such as *marnda* in Yindjibarndi, or *puli* in Manyjilyjarra (as discussed above). Context of use usually permits disambiguation by the listener in any particular utterance situation. This matter needs to be considered when analysing ethnophysiography case study data.

As discussed in Chapter 5 (Section 5.4) and Chapter 6, people's relationships with places, especially workplaces and sacred sites, may well involve rituals of different types, handed-on from person to person, generation to generation, by processes involving, for instance, mimesis. These ritual practices, whether utilitarian or sacred, usually involve complex bodily movements. During such protocols, and perhaps at other times, this involves what Ruthrof (2000, p. 3) terms "quasi-perceptual fantasy acts", which are directly related to some mental acts described as 'imaginative' by Casey (2000). Such inter-subjectivity can involve complex forms of communication, both oral and physical.

Chapter 6, Section 6.8.3 discusses the linkages between landscape, affect, mimesis, refrain and *Jukurrpa*. Gibbs (2010) explains how affect operates across time, linking past, present and future experiences. Refrains are affects 'cycled back' (Bertelsen and Murphie, 2010). Mimesis can occur as a refrain ('mental script' or mantra). It can be related to the appropriate *Jukurrpa* rituals for a particular sacred place; an 'existential territory' (Guattari, 1995a). Massumi (2003) uses the terms 'capacity' to explain the envelope of possibilities of feelings and responses to being in a sacred place. As explained in Chapter 6, Section 6.4.3, such affects are part of the 'sense of place', or 'place attachment', that people feel (e.g. Mihaylov and Perkins, 2014).

Citing Condon (1984), Gibbs (2010, p. 187) suggests that mimetic communication provides the basis for sharing a mode of being, "connected to other rhythmic processes in the natural world" (Chapter 6, Section 6.4.2). This involves a form of 'contagion', readily observable in the ceremonies and cultural practices of indigenous peoples. This is an important aspect of understanding relationships with landscape, and hence landscape language. As young Yindjibarndi or Martu grow into adulthood, they learn via instruction and modelling by elders, the significance of sacred places and the 'script' associated with approaching these sites for each language group. The semantics of language terms for parts or aspects of landscape play an important role in representation of relevant constructs. Hence, methodologies for eliciting landscape language meanings should address such potential processes.

Ruthrof (2000, p. 11) quotes Merleau-Ponty (1962) regarding complexities of deducing the contextual meaning of oral and physical communications. This supports the notion that it is impossible to fully understand the meaning of the Manyjilyjarra word *yinta*, without undertaking a hermeneutic phenomenological analysis (or something similar) of ritual performances at such a sacred site.

Massumi (2002) provides discussion of relationships between movement, affect and sensation. When discussing belonging and the logic of relationships to place, he notes that: "The individual is defined by its 'positioning' within the intersubjective frame [this is] topographical, the lay of the social land" (pp. 68/69). Such social positioning, in the case of Manyjilyjarra speakers, is with respect to the social structures specified by *Jukurrpa*. This affects the ways that individuals interact with landscape, and hence the way they use oral and physical aspects of language. *Jukurrpa*-based social groupings ('skin' sections) relate to parts

of landscape in complex ways, differently for each language group and area of 'country'. There are also significant aspects of relationships with particular places relating to gender. Investigation of this topic was beyond the scope of the Manyjilyjarra case study research agreement [see also Sections 3.4, 9.5.4 and 9.8.1].

8.6.5 Conclusion to section

The methodology for the Manyjilyjarra landscape language case study built on the previous ethnophysiography methodology, described in Appendix 8 and Chapter 7. Under the influence of this author, it incorporated some aspects of a phenomenological approach. This provided a partial test of some relevant methods and the potential use of others. The PhD investigation and preparation of this dissertation were well advanced by early 2017. Hence, the specific contributions from this author to the initial findings of the Manyjilyjarra landscape language project were already strongly influenced by his transdisciplinary, phenomenological approach (e.g. see Turk, 2016a; b, c).

Discussion of this capstone case study within this chapter has been used to test the possibility of more explicit inclusion in ethnophysiography case studies of phenomenological approaches (see Appendix 10). This can be implemented by augmenting the traditional landscape language (ethnophysiography) case study methodology (Appendix 8) in the various ways discussed in this section.

Section 8.6.2 successfully demonstrated the use of five key aspects of phenomenology to structure an additional step in the analysis phase of a landscape language case study. All of the five key aspects were demonstrated to be relevant to the Manyjilyjarra study, broadening the scope of analysis of linguistic data.

Section 8.6.3 examined an initial approach to adopting and adapting methods and techniques from different types of phenomenology practice to augment traditional approaches to landscape language investigation. All but one of the methods proved directly applicable.

Section 8.6.4 discussed application of some specific relevant theories from phenomenological researchers, that were in addition to those applied explicitly or implicitly in the tables discussed in Section 8.5 and in the analysis provided in Sections 8.6.2 and 8.6.3. These additional theories were identified in Chapters 4, 5 and 6. Each provided valuable insights.

It is important to emphasise that it is not claimed that all, or any, of the above phenomenology-based explanations regarding Manyjilyjarra landscape language data are necessarily correct. To be in a position to do so would require a considerable amount of collection and analysis of specific additional information from good speakers of the language. Rather, their significance here is to demonstrate that a transdisciplinary phenomenological approach to landscape language case studies can facilitate surfacing of alternative explanations, differing from those which might arise from traditional methods of data collection and analysis from the perspective of a particular discipline (linguistics, geography, ecology, geology, sociology, etc.).

A phenomenological approach should adopt an unprejudiced view of the phenomena represented in the raw data. Sometimes an alternative explanation can end up being less superficial, revealing links to fundamentals of the speaker's traditional lifeworld. For instance, in the case of 'where to find water' perhaps being the explanation for Manyjilyjarra having different words for hills, distinguishing between those that are stony (*purli / yapu*) and sandy (*yintiri*). This is because water runs off rocky areas into gullies and waterholes, whereas rain falling on sandy hills goes into the sand, to be potentially accessed by digging.

This is just the first trial of this phenomenological approach to landscape language case studies and it is likely to be revised and improved via further research. The investigation reported in this section strongly supports revision of the PTM-ECS developed in Chapter 7. A revised methodology, including changes resulting from re-evaluation of the Manyjilyjarra Landscape Language Case Study data, is discussed in Chapter 9 and presented in Appendix 15.

8.7 EDM for the Manyjilyjarra Landscape Language Case Study

As discussed in Chapter 2, the primary role of the EDM is to provide a specific structured way to report key results of an ethnophysiography case study. This facilitates comparisons between case study results for different languages, usually in different types of topographic environment. This section discusses the completed EDM for the Manyjilyjarra case study, populated with details relevant to that case study, carried out with linguist Hill (Hill and Turk, 2017).

This version 7 of the EDM in modified from v6 by inclusion (in *italics*) of new factors in each section, based on landscape concepts identified earlier in this chapter. This was achieved by

adding, deleting, rewording and rearranging factors (see below). This new v 7 of the EDM, with detailed entries for the Manyjilyjarra case study, is provided in Appendix 12, Tables A12.1 to A12.4. Further detailed information regarding some EDM factors can be found in Appendix 9.

EDM v7 includes seven additional factors inspired by the Manyjilyjarra investigation and analysis of literature in this chapter, shown in *italics*, (i.e. Independent Factors: *C* and *E* and Dependent Factors: *1; 2, 6, 7* and *9*). Independent factors A and M of v6 have been integrated into other factors, and factors O and Q transferred to be dependent factors. The order, and hence the identification letter or number for factors, has thus been revised, so as to accommodate the change to factors and some re-ordering of factors (table rows) to group similar factors more effectively. In addition, the description of some factors listed in the previous version of the EDM have been revised to provide greater clarity and, in some cases, brevity.

The new factors in v7 (additional to v6) are as follows:

Independent Factors:

    C *Classification of topographic terrain – as per Palmer, Pascoe and Hoffmann (2018) [Section A12.3, Table A12.3, in Appendix 12].*

    E *Number, size and location of communities within case study area.*

Dependent Factors:

    1 *Description of the language.*

    2 *Previous dictionaries, word lists etc. that were used in the landscape language case study.*

    6 *Terms for 'ecotopes' designating a 'kind of place' related to flora and fauna.*

    7 *Directional terms and 'absolute' spatial frames of reference (AFOR) – as per Hoffmann (2015; 2016), Palmer (2015) and Palmer et al. (2018) [See discussion in Appendix 12, Section A12.4].*

    9 *The role of landscape terms in narratives and description of every-day interactions, including 'taskscape' activities and protocols.*

Dorothea Hoffmann (2015) investigates ways to describe relationships with places, Frames of Reference (FoR), for two indigenous Australian languages, and one creole, language of traditionally highly settled, non-nomadic hunter-gatherer communities (*MalakMalak, Jaminjung, and Kriol*). She notes: "All three employ landmark-based 'un-fixed' absolute

terms based on river- flow or prevailing winds restricted to orientation settings and those where the speaker is also the deictic centre (ground) from which angles are projected. If a language also utilizes cardinal directions based on the direction of the rising and setting sun, no such restrictions are observed" (p.1).

Section A12.3 of Appendix 12 provides the *(Draft) Classification of Australian Topography*, based on a table in Palmer, Pascoe and Hoffmann (2018). This classification system needs to be trialled and revised. Its use, in the context of the EDM, is in terms of the following two protocols (detailed in Appendix 12):

A. Approach to classification of topography for language area.
B. Steps for classification of topography for a language area.

Section A12.4 of Appendix 12 provides draft classification options for 'absolute' spatial frames of reference in Australian indigenous languages**.** It is based on personal communications with Bill Palmer during 2018 and Palmer et al. (2018), following Hoffmann (2016) and Palmer (2015).

The material presented in Appendix 12 represents an effective process of finalising the development of the EDM. It also provides a good example of its use for the Manyjilyjarra case study. The final generic version 7 of the EDM, resulting from the capstone case study, is presented in Appendix 15, as discussed in Chapter 9.

8.8 Chapter Conclusions
This chapter addresses the following Research Question:

Q6: Can a capstone landscape language (ethnophysiography) case study demonstrate how aspects of transdisciplinary research methods may be aided through the use of a form (or forms) of phenomenology?

The chapter, and its associated Appendices 9 to 12, has provided a partial evaluation of the approach to landscape language investigations (ethnophysiography) developed in earlier chapters of this dissertation. It includes a description of the Manyjilyjarra Landscape Language case study (carried out in collaboration with linguist Hill), and its principal products (Appendix 9). The collaboration with Kanyirninpa Jukurrpa (KJ) was described. The researchers greatly appreciated the many types of practical assistance provided by this

organisation, including facilitation of the researchers' aim to conduct the research in an ethical manner.

The chapter examined the nature of the Manyjilyjarra language and the way it is influenced by the local topographic environment and the characteristics of members of the language group, especially their holistic topo-socio-cultural-spiritual framework, termed *Jukurrpa*. The history of the people is also very important.

Chapter 8 also provides a review of the draft PTM-ECS, developed in Chapter 7. It examined application of potential phenomenology-based tables (see Chapter 7 and Appendix 8, Tables A8.2 and A8.3) to the Manyjilyjarra study data to determine whether use of these tables can help provide a phenomenological approach to the linguistic data analysis process. Similarly, the chapter investigated whether the explicit post-hoc application of additional phenomenology-based methods, techniques and theories adds value to the Manyjilyjarra study. This includes use of the five key aspects of phenomenology (identified in Chapter 4) to structure an additional step in the analysis phase of a landscape language case study. These post-hoc evaluations of the Manyjilyjarra case study data assist in revision of the proposed PTM-ECS (in Chapter 9) so that it can provided an effective way to implement a transdisciplinary approach, with phenomenology as the over-arching paradigm.

Chapter 8 also revised the EDM Version 6, developed in Chapter 6, to produce EDM version 7 (Appendix 12). It included completion of the independent and dependent sections of the new version of the EDM with information from the Manyjilyjarra Landscape Language Case Study. Seven additional independent and dependent factors, inspired by the Manyjilyjarra investigation, are included in v7 of the EDM.

Review of the Manyjilyjarra capstone case study has proven effective in addressing the objectives of this chapter and its role in the dissertation. The information generated in this chapter will contribute to the discussion in Chapter 9 of the results and limitations of this PhD investigation.

Chapter 9: Conclusions

9.1 Introduction to Chapter

This dissertation has examined the potential for some form(s) of phenomenology (Chapters 4 and 5) to provide an overarching paradigm for transdisciplinary (Chapter 3) landscape language (ethnophysiography) case studies (Chapter 2), via a new PTM-ECS (Chapters 7 and 8). This is achieved via a revised concept of topology (mode of dwelling) (Heidegger, 1944/1990; 1962/2007;1990; 1995; Maplas, 2006; 2007), which is the expression of particular topo-socio-cultural-spiritual relationships with landscape. This version of the concept of dwelling provides both a framework, and a mode of investigation; ways of integrating the complex, abstract concept within the mundane, everydayness of 'lifeworld' (Husserl) and 'taskscape' (Ingold).

As established in Chapter 1, this investigation, and dissertation, commenced with the following four principal objectives:

1) To investigate the potential for some version(s) of phenomenology to provide an effective over-arching paradigm for transdisciplinary research in ethnophysiography (including the study of landscape language), involving consideration of the physical, utilitarian, social, cultural, spiritual and ethical aspects of the lifeworld of speakers of studied languages.

2) To provide examples of the potential for results from ethnophysiography case studies to help explain aspects of phenomenology, and to assist in making phenomenology more tractable for use in non-philosophical research.

3) To explicate, to the extent that is practical and ethical, the aspects of worldviews and knowledges relevant to landscape of Australian Aboriginal peoples, utilising the Yarnangu (Central and Western Desert) peoples as the prime example, and to investigate the commensurability of their worldview (*Jukurrpa*; The Dreaming) with phenomenology, so as to explore whether using phenomenology as a transdisciplinary paradigm for ethnophysiography research will do justice to indigenous worldviews and knowledges.

4) To explore how a transdisciplinary approach can be applied to complex research domains, such as that investigated in this dissertation, how this is enabled by choice of an appropriate over-arching paradigm, and how the suitability of a chosen paradigm might be evaluated (at least partially).

The results of investigation of these topics (in terms of the research questions discussed in Section 9.4) constitutes the contribution to knowledge of this dissertation, commensurate with the necessary limitations of a PhD project (Section 9.5). This chapter reviews the outcomes of the research against these research objectives and questions. It establishes that all of the research questions were addressed and all of the objectives were substantially achieved.

This chapter commences with a summary of the main contributions to knowledge provided by the dissertation (Section 9.2). Subsection 9.2.1 provides an introduction to the section, including discussion of Appendix 14, which provides an overview of how well the investigation addresses 37 key questions about a phenomenological approach to place, posed by Seamon (2014a). This is followed by a series of subsections, which step through the key contributions from Chapters 2 to 8, emphasising the stages in the research methodology and listing the key findings from the investigation.

Section 9.3 discusses the commensurability between phenomenology and *Jukurrpa*. It includes explanation of commensurability (subsection 9.3.1), phenomenology as a placed philosophy (9.3.2), *Jukurrpa* as an example of The Dreaming (9.3.3) and conclusions regarding commensurability and legitimacy (9.3.4).

Responses to the research questions posed in Chapter 1 are reviewed in Section 9.4. This includes the introduction to the section (subsection 9.4.1) and responses to each research question and conclusions regarding research questions (9.4.2).

Section 9.5 discusses the limitations of the research. It includes subsections providing: introduction to section (9.5.1); transdisciplinary research (9.5.2); limitations and validity of discussing The Dreaming (9.5.3); other methodological limitations (9.5.4); and conclusions regarding limitations (9.5.5).

Section 9.6 and Appendix 15 present the final version of the EDM (for this dissertation). Section 9.7 and Appendix 15 detail the final version (for this dissertation) of the PTM-ECS. Appendix 16 provides a review of the extent that this dissertation followed a transdisciplinary approach. Section 9.8 suggests potential options for follow-up research and Section 9.9 provides conclusions for this chapter, completing the dissertation.

This dissertation commenced with the decision to adopt a research approach consistent with a particular Aboriginal research paradigm advocated by Black (2011) in *The land is the source of the law: A dialogic encounter with Indigenous jurisprudence*. Black utilises two words from the *Yugumbeh* language of South-East Queensland, that together describe the process of developing knowledge, *talngai* and *gawarima*. Their meanings can be applied in this research context as looking for ideas in many disciplines, shining light on them (explication), then discussing their relationships to each other in the context of the research objectives (taking them around the camp).

The investigation and dissertation has sought to identify, discuss and, where possible, incorporate ideas from many sources, including literatures from multiple disciplines, and notions or concepts from academics and others, both indigenous and non-indigenous. These concepts have been grounded and illustrated (illuminated) via a series of landscape language (ethnophysiography) case studies. Taking the key concepts 'around the camps' and constructing the dissertation chapters has been a long and complex process. At times the dialogue at a particular conceptual location (camp) has been so involved as to justify its explication and discussion in an appendix, linked to one or more chapters.

9.2 Main Findings of Research
9.2.1 Introduction to section

This section provides a summary of the key steps and findings of the research. It provides a 'map' of the mostly planned, and partly emergent, path travelled during the investigation.

This research project should be considered in the context of landscape language (ethnophysiography) research in general, as discussed in Chapters 2 and 8. The utility of the project also relates to developments in the theory, methods and influence of phenomenology. Seamon is an important researcher in the field of phenomenology of place, as discussed in Chapters 4, 5, 6, 7 and 8. Seamon (2014a) raised 37 questions relevant to the ways that phenomenology has developed and its usefulness, in the context of investigations of place. The questions that are relevant to this dissertation (in 4 topic groups) are addressed in Appendix 14. Responses are provided in terms of the investigations undertaken in this dissertation, including the Manyjilyjarra landscape language capstone case study discussed in Chapter 8. Taken as a whole, this set of detailed responses to the 37 questions indicates that this dissertation has been targeted at what Seamon considers the most important topics for phenomenology of place. The responses also highlight suggested ways forward for such

investigations and mention specific aspects of different parts of this dissertation, relevant to each question. This provides at least partial validation of the design and execution of this PhD research project.

The most fundamental level of collaboration during this investigation was with the wider academic community, through time and space. This was especially important for this PhD project because of its transdisciplinary nature, requiring literature reviews of five fields of research, rather than the usual one or two. As a way of dealing with the volume of text developed via this thorough and comprehensive methodology, the dissertation contains many appendices, which readers may, or may not, want to read in detail. The appendices provide the full spectrum of details underpinning the validity for the statements in the chapters. Chapters and appendices include phenomenographic tables summarising the key concepts identified from reviewed literature.

It is important to recognise the contributions of direct collaborators to the successful completion of this author's general research agenda over the past thirty years, and for this transdisciplinary dissertation in particular. Although some single discipline PhD projects may be completed by an individual, merely with input from appropriate literature and assistance from their supervisors, this is impossible for complex interdisciplinary, let alone transdisciplinary, investigations, where collaborative research is necessary. This is especially critical as regards sharing of research agendas and projects, and organisation of research meetings, conferences and publications, as demonstrated in Chapter 2. Collaboration with researchers from other disciplines is also critical in undertaking interdisciplinary case studies in an effective manner. In this dissertation, this was demonstrated in particular by the contributions of geographer Mark (Yindjibarndi and Navajo case studies) and linguist Hill (Manyjilyjarra case study). In order to carry out practical social science research in an effective manner the assistance of local participants is essential, together with the guidance and supervision of any appropriate cultural organisation overseeing their interests. Again this was vital to the completion of the case studies with Yindjibarndi and Navajo peoples (Chapter 2) and Manyjilyjarra people (Chapter 8). This author has clearly identified in the dissertation each of these collaborations and gratefully acknowledges the important contributions from all these collaborators.

9.2.2 Dissertation introduction and review of landscape language (ethnophysiography) research

Chapter 1 set out the objectives of the project and the methodology. This foundation chapter provides a *prima facie* justification for using phenomenology as an over-arching transdisciplinary paradigm for ethnophysiography case studies and lists the key research questions for the dissertation.

Chapter 2 provides a detailed 'insider' review of the development of landscape language (ethnophysiography) research over at a thirty year period, clarifying its main objectives, identifying the key issues and describing the main research methods and contributions. This involves discussion of most of the relevant research literature during this period, including the contributions from: Mark (1993); Mark and Turk (2003a; b); Burenhult (2008); Mark, Turk, Burenhult and Stea (2011); Mark and Turk (2016); Turk and Stea (2014); and Turk et al. (2012). This review concentrated on the interdisciplinary collaboration, especially between linguists from the Max Planck Institute for Psycholinguistics (MPI) in Nijmegen, and geographers from the Ethnophysiography Research Group. This close collaboration facilitated advances in the theory and practice of this field of research.

The game-changing ethnophysiography case study of Yindjibarndi language, which involved this author as a lead researcher, is discussed in Chapter 2. This provides some understanding of the methods used, the type of results, the challenges and the significant findings. In addition, the chapter discusses the Navajo landscape language case study, which involved this author as a collaborator, and many other relevant studies by linguists. Chapter 2 also discussed key threats to the validity of landscape language case study results, and ways to address these issues.

The objectives, development and structure of the EDM is explained, and Version 4 is presented. The process of developing increasingly effective and comprehensive versions of the EDM is foreshadowed. This ultimately resulted in v7 being presented in Section 9.6 and Appendix 15.

9.2.3 Requirement for transdisciplinary research and how to implement this approach

The requirement for transdisciplinary ethnophysiography research is established in Chapters 2 and 3. Chapter 3 also discusses ways that transdisciplinarity might be applied to this research topic. To facilitate this, key concepts of transdisciplinarity were reviewed. This resulted in a

list of 69 aspects/dimensions/factors of transdisciplinary research (derived from review of 24 publications). These are integrated to become the Concatenated Conceptual Model for Transdisciplinarity, in Table A4.6 (Appendix 4), including 28 key attributes of transdisciplinarity and 11 methodological considerations. This integrated model is utilised in Section 9.5.2 (and Appendix 16, Table A16.1) to provide a positive evaluation of how well this dissertation applies fundamental aspects of transdisciplinarity. A key consideration is the choice or an appropriate over-arching paradigm. As discussed in Chapters 1, 2 and 3, this dissertation discusses the potential role of a form of phenomenology, as the appropriate paradigm, for transdisciplinary landscape language (ethnophysiography) investigations.

9.2.4 Different approaches to phenomenology and methods used

The philosophical approach termed phenomenology is described in Chapter 4, together with a brief history of its development. This involves an extensive review of literature. Key topics includes: being and lifeworld; communalised intentionality; essences, meanings and universals; embodiment and affordance; and affect and mimesis. This detailed review supports the proposition that phenomenology can provide the over-arching paradigm for transdisciplinary ethnophysiography research.

The investigation of phenomenology reveals the different perspectives and approaches from which to select appropriate theories, methods and techniques to potentially apply to ethnophysiography investigations. This fed into the development of the PTM-ECS in Chapter 7, which is reviewed in Chapter 8 (see Section 9.7 below and Appendix 15).

9.2.5 Investigation of phenomenology of place

Chapter 5 investigates the rapidly expanding literature regarding a phenomenological approach to place. This detailed review strongly supports the role of language in dwelling in place and the use of phenomenology to explore landscape language. It demonstrates that the objectives and approach adopted in this dissertation align well with current research topics and methods. Key relevant aspects are summarised in phenomenographic tables so that they could be incorporated in a contingent, transdisciplinary methodology for landscape language (ethnophysiography) case studies (Section 9.7).

9.2.6 Relationships with landscape

This section of the dissertation included further literature reviews and the development of phenomenographic tables listing key contributions from the research. Chapter 6 discusses

relationships with place, from the perspective of various disciplines. This includes sense of place and place attachment, and analysis of indigenous relationships with landscape as place. Key relevant aspects are summarised in phenomenographic tables, including in appendices.

A major contribution of this dissertation is an interpretation of the phenomenological view of mode of dwelling, as topology. It suggests that the creation of landscape, as place, commences with integration of the physical attributes of an area of topographic environment (terrain and ecosystem) with the socio-cultural characteristics of a group of people (including linguistic and spiritual aspects), to produce a particular TSCS-MOD. This synergistic merging responds to the particular potentialities, affordances and constraints for dwelling in that topography. In a non-deterministic and emergent manner, it enables development of lifeworld tasks, procedures, protocols, rituals, attitudes, affects and emotions. Landscape language provides the necessary communication that enables the complex relationships involved in communal dwelling in landscape.

As discussed in Chapters 6, 8 and 9, the Australian Central and Western Deserts' *Yarnangu* Aboriginal law/lore system *Jukurrpa* is an extremely long-standing, example of formalisation of a specific TSCS-MOD. It is thus useful as a strong example to explain this topological concept, while remembering that this approach applies to all modes of dwelling in place, by peoples of all cultures, in every type of topographic environment. It is difficult to untangle and explain each particular mode of dwelling in a complex multicultural community, however, this formulation makes this possible, rather than always concatenating all aspects of dwelling into a holistic merged place, or worse still, adopting universal generalisations of dwelling. Investigation of landscape language facilitates such examination, especially in non-urban contexts, provided that physical, utilitarian, social, cultural, spiritual and ethical considerations are all addressed.

The difficulty of identifying essences and universals with respect to landscape language, rather than mere terrain geometry, is discussed in Chapters 5 and 7 and Section 9.2.9. Hence, for this initial development of the transdisciplinary methodology, based on phenomenology, it is preferable to use a 'hermeneutic', rather than a 'transcendental' approach to phenomenological analysis. However, as research on this topic develops it may be possible to extend the search for landscape essences by incorporating additional aspects into the methodology, via a more abstract approach to landscape universals (Chapter 7 and 8). This can be facilitated through analysis of the particular TSCS-MOD adopted by a range of

language communities, in a variety of types of topography, and use of the EDM to summarise and compare data sets from these ethnophysiography case studies.

9.2.7 Understanding dwelling in place

Malpas (2006; 2007), interpreting Martin Heidegger, contends that 'being' begins with 'place'. This seems 'a given' since, for any individual, being born and being in place, occur simultaneously. However, the inference is sometimes made that, in a generic sense, place exists prior to being. This is true in the practical sense that other people (including the person's mother) have been in that place prior to the birth. However, conceptually, it can be contended that a generic place cannot exist before being. This dissertation argues that the concept of landscape as place requires the involvement of people (i.e. beings), as place is more than mere terrain/topography and ecology/environment.

From a human-centred perspective, people and places cannot be separated. Hence, a conceptual definition of the essence of place must include the relationships that individuals and groups have with areas of terrain. Although this approach may be termed 'social constructionism' disdainfully by some phenomenologists, this author considers it fundamental to an operational definition of dwelling in place (see Section 5.5 in Chapter 5).

Janz (2004, p. 14/15) asserts that to untangle the various complex meanings of place requires input from many disciplines, and asking questions such as: "How can philosophy take itself seriously as an emplaced discipline? Does the discourse of place across the disciplines shape our understanding of place and our approach to it? What are places like at the edge of 'placelessness? How can places be both one and not one at the same time? That is, how is it possible that places can have unity and a contradiction of meaning at the same time?" (p. 14/15). This author cannot pretend to provide adequate answers to these philosophical questions. However, the transdisciplinary approach to dwelling proposed and explained in this dissertation, including extensive case study examples, should assist in addressing Janz's important questions.

9.2.8 Ethnophysiography case study methodology incorporating phenomenological methods

An important aspect of the approach taken in this dissertation is the desire to not just treat phenomenology as a vague notion, 'colouring' the transdisciplinary investigation of landscape language. Rather, the objective, from the beginning, was to find mechanisms to embed phenomenology in a practical methodology which operationalises its role as an over-arching

transdisciplinary paradigm. This needs to integrate philosophical, geographic, sociological and cultural studies theories and methods, requiring an innovative approach, utilising phenomenology beyond the discipline of philosophy, especially in collaboration with social sciences.

Chapter 7 reviewed the past ethnophysiography case study methodology developed by this author and his collaborators (Turk et al., 2012; Appendix 8). It also integrated the literature reviews in the preceding five chapters and developed from them a new PTM-ECS. It offers a contingent approach, with details provided for the various methods that can be utilised. A key consideration for this chapter on methodology is that phenomenology is proposed to be used as an over-arching paradigm for transdisciplinary ethnophysiography studies. Hence, the requirement is not so much to use specific methods from one or more versions of phenomenology, but rather to develop a methodology where the influence of phenomenology is felt across the whole investigation process, from identification of relevant issues, collection of sufficiently rich data, hermeneutic analysis processes and explication of project findings. This is accomplished by the flexible use of a set of tables which summarise key aspects of dwelling in place, identified by the detailed literature reviews in Chapters 2 to 6 (and their appendices). This constitutes a phenomenographic analysis approach, distilling key concepts from past sets of documents (conference presentations, articles, book chapters, books, etc.). This aspect of the PhD study methodology is part of the way that phenomenology is utilised as an over-arching paradigm in this transdisciplinary study.

9.2.9 Essences and universals

The topic of classical Husserlian essences and universals is discussed in Sections 7.3.2, concluding that, the search for essences as part of universalism does not seem appropriate for landscape terms. Terms from Yindjibarndi and Manyjilyjarra landscape language case studies are used to illustrate the problems.

An alternative view, based on Husserl's later writings, offered by Zahavi (2019b) (Chapter 8, Section 8.6.3.3), supports a more effective way to marry phenomenology with social sciences. This is the conclusion that flows from this detailed, case-based investigation and it is supported by the approaches of many other researchers (including respected

phenomenologists) discussed in this dissertation; notably Alfred Schutz, from the 1930s[57]. This dissertation has built a detailed and comprehensive argument in support of this approach, including the role of the EDM, supported by the new PTM-ECS methodology.

9.2.10 Using other methods from phenomenology

A detailed analysis of many different theories, methods and techniques from various strands of phenomenology is provided in Chapters 4, 5, 6 and 7. The key potential phenomenological approaches which could be part of a phenomenology-based, contingent, integrated, transdisciplinary methodology were further examined in the context of the Manyjilyjarra landscape language case study in Chapter 8.   Section 8.5 and Appendix 10 review the methodology used in this case study and examine application of potential phenomenology-based tables to the Manyjilyjarra study data to see whether that assists in the hermeneutic analysis processes.

This assisted in revision of the proposed PTM-ECS so that it provides an effective way to implement a transdisciplinary approach, using phenomenology as the overarching paradigm. The methodology needs to be contingent since each project potentially requires a different combination of theories, methods and techniques, depending on the language circumstance, the project objectives and, hence, the disciplines involved. This potential role is summarised in Sections 9.2.6 and 9.7 below, and the final (for this dissertation) version of the transdisciplinary methodology is detailed in Appendix 15.

As discussed in Chapters 4 to 8, it seems natural to adopt a phenomenological paradigm when seriously investigating a complex socio-cultural situation. Unfortunately, Edmund Husserl and Martin Heidegger are usually portrayed as developing phenomenology in opposition to sciences such as psychology and sociology, although this is not necessarily the case [see Chapter 4, Sections 4.1.2, 4.1.3, 4.2.2 and 4.2.6]. Schultz from the 1930s sought to use a phenomenological approach to sociology, to build bridges between different ways to study everyday activities of ordinary (and extraordinary) peoples (Kurrild-Klitgaard, 2003).

Merleau-Ponty also made significant developments in the ways that phenomenological ideas can be applied. Thousands of researchers and teachers have continued this struggle since

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[57] Schutz was involved with the innovative and influential interdisciplinary Mises Circle. See https://plato.stanford.edu/entries/schutz/ and https://mises.org/library/viennese-connection-alfred-schutz-and-austrian-school-0 [both accessed 19th August, 2018]

those times, however, surprisingly, some of those old battle lines remain, as evidenced by Seamon (2018) (Turk, 2018).   Based on detailed analysis of relevant literatures, and the needs of ethnophysiography research, this dissertation adopts an approach that integrates phenomenology with social science research methods. To address these objectives, this dissertation has developed (in Chapter 7) a contingent PTM-ECS, which interfaces with the EDM. The relationship of the approach adopted in this dissertation to social constructionism is discussed in Chapter 5, Section 5.5.

9.2.11 Capstone Manyjilyjarra landscape language case study

Chapter 8 discusses the ethnophysiography case study with Manyjilyjarra Aboriginal people in Australia's Western Desert (carried out by this author with linguist Hill). It demonstrates how the adopted approach facilitates understanding of traditional forms of dwelling and how this relates to *Jukurrpa*, the law, lore and social structure of their society.

That methodology is reviewed in Subsection 9.2.6 and Section 9.7, especially regarding the way that contingency is implemented so as to select the most useful set of methods, techniques and theories for any particular case study. Specific phenomenographic tables from previous chapters have been assembled in Appendix 15 to provide the final versions of the EDM and PTM-ECS for this dissertation.

9.2.12 Key contributions: TSCS-MOD, EDM, PTM-ECS and operationalisation of transdisciplinarity

As discussed in Section 9.2.6, a major contribution of this dissertation is an interpretation of the phenomenological rendering of topology, as mode of dwelling. This involves the development of the concept of TSCS-MOD, which facilitates investigation of specific circumstances of dwelling.   In Chapters 6 and 8, *Jukurrpa* was used as a strong example of this approach.

The EDM was initially developed during research that preceded this PhD project and during the early phases of the project. This resulted in EDM version 4, which was presented in Chapter 2. During the dissertation the EDM has been further developed, using the results of literature reviews and case studies, to make it more effective and comprehensive. This resulted in the final version (v7), presented in Appendix 15 and discussed in Section 9.6 below.

As discussed in the introduction to Appendix 15, the first purpose of the EDM is to assist researchers to understand which factors (of various types) may be relevant for investigation of landscape language and its context, via case studies. It is, in a sense, contingent, in that not all factors may be explicitly relevant to the study of any particular language or community, in the prevailing topographic, ecological, social and cultural contexts.

A key second objective of the EDM is to provide a structure for the comparison of results from case studies of different languages. This is still a work in progress. It is not claimed that the EDM is fully developed. It can continue to be improved, especially via input from other researchers stimulated by the publication of this dissertation. In addition, it is recognised that there are a host of other ways, formal and informal, to compare the results of landscape language case studies, available from relevant disciplines. Such comparisons between languages may facilitate identification of landscape 'universals', although the investigation reported in this dissertation cautions against attempting this in superficial ways. This EDM is offered here as just one way to advance investigation of these interesting and important aspects of language that facilitate dwelling in landscape, as place.

Development in Chapter 7 of the PTM-ECS is discussed in subsections 9.2.8 and 9.2.10. The methodology is detailed in Appendix 15. This methodology incorporates an innovative approach to operationalization of the over-arching transdisciplinary paradigm (phenomenology). This is achieved via contingent use of a set of phenomenographic tables summarising key aspects of theories and research findings from a wide range of relevant disciplines, gleaned from review of many publications.

9.3 Commensurability Between Phenomenology and *Jukurrpa*
9.3.1 Definition of commensurability

Commensurability and incommensurability can be defined as follows:

> Commensurability is a concept in the philosophy of science whereby scientific theories are commensurable if scientists can discuss them using a shared nomenclature that allows direct comparison of theories to determine which theory is more valid or useful.[58]

> In the philosophy of science, two theories are said to be incommensurable if there is no common theoretical language that can be used to compare them. If two scientific

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[58] https://en.wikipedia.org/wiki/Commensurability_(philosophy_of_science) [accessed 13th February, 2019]

theories are incommensurable, there is no way in which one can compare them to each other in order to determine which is better. In ethics, two values (or norms, reasons, or goods) are incommensurable when they do not share a common standard of measurement.[59]

For this dissertation, an objective is to establish a limited form of commensurability between phenomenology and versions of the Australian Aboriginal concept of 'The Dreaming / Dreamtime' (Chapters 6 and 8 and Appendix 13). Although this task does not exactly fit the definition above, commensurability need only be sufficient to reasonably indicate that there is validity in applying a phenomenological approach to Aboriginal worldviews [see also Lipton, 1995].

The objective is not to seek to establish deep commensurability between phenomenology and *Jukurrpa*. This would be doomed to failure because of fundamental differences in objectives and approach. Rather, the purpose is to establish if there is sufficient commensurability for phenomenology to be an appropriate transdisciplinary paradigm for ethnophysiography case studies with indigenous Australian languages. For convenience, this goal could be termed 'transdisciplinary commensurability'. Does phenomenology help explain the way understanding of landscape features is 'constituted' in Yarnangu languages?

For this dissertation, it is suggested that 'Transdisciplinary commensurability' can be assessed by seeing whether the methods of phenomenology are effective in investigating key aspects of the Yarnangu worldview, including:
1. Embodied relationships with place.
2. Affordance of landscape features.
3. Communalised Intentionality with respect to landscape features (taskscape).
4. Affect (spirituality / feelings).

This seems a more effective approach, since review of each of these aspects demonstrates 'transdisciplinary commensurability' between phenomenology and *Jukurrpa* (Chapters 5, 6 and 8). This finding is supported by further discussion of commensurability in Section 9.3.3.

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[59] http://www.newworldencyclopedia.org/entry/Commensurability_(philosophy) [accessed 13th February, 2019]

9.3.2 Ethnophilosophy as 'placed' philosophy

Following on from the discussion of commensurability between *Jukurrpa* and phenomenology in the previous section, it is useful to position this discussion within the broader questions, raised in earlier chapters, concerning universalism and the possible Eurocentrism of traditional philosophy, including phenomenology. These questions are central to evaluating the utility and ethics of applying philosophical principles in analysis of ethnophysiography case studies for non-European languages. Proposals for ethnophilosophy, as 'placed' philosophy, are contentious.

Janz believes that philosophy, like everything else is placed: "Nothing is from nowhere" (2014, p. 21). Different places can have alternative versions of philosophy, not constructed in the same way, but still legitimate. Of particular interest for this dissertation is his discussion of a key consequence of the relative place-less-ness of classical philosophy: "We know a lot about the philosophy of place but little about the place of philosophy or, rather, the places of philosophy. We tend to think that philosophy has no place, that the development of its concepts is an historical accident, which is not, of course, susceptible to logical analysis and therefore of little philosophical interest" (p. 21). Janz notes that the traditional view that there is only universal philosophy is at odds with the phenomenological position that knowledge is associated with place and that the nature of place influences the form of knowledge appropriate to that place. Thus, it is a mistake to claim that there is only one true philosophy, that based on Greek traditions. He asserts that: "Philosophy must be in place and be able to credibly conduct its activity knowing full well that it is in place, and yet not have the self-reflection on its own platiality change its activity into something else. The platiality of philosophy cannot turn it into literature, or politics, or sociology" (Janz, 2014 p. 21). Casey's support for using both pre-modern and post-modern approaches (2002, p. xv/xvi) should also be noted in this context.

Ethnophilosophy and 'placed philosophy' are discussed in Chapter 5, Section 5.2.5, regarding. Additional references regarding key related topics are provided in Table A7.9, in Appendix 7.

The path forward for the topic of placed philosophies seems to involve more effective dialogue, carried out in a spirit of mutual 'care', seeking a more flexible, legitimate, post-colonial version of philosophy. Tabensky (2017) asserts that philosophers have an ethical and moral responsibility to deal with this matter seriously and reflectively.

9.3.3 The Dreaming and commensurability with phenomenology

This subsection extends the discussion of *Jukurrpa* as an example of The Dreaming (Chapters 1, 2, 6 and 8 and Appendix 13) in the context of potential Australian Aboriginal philosophies. It also relates to whether this dissertation deals appropriately with Indigenous Traditional Knowledge (ITK).

Andrews (2019) provides a detailed description of Aboriginal Dreamtime/Dreaming and its commensurability with Western scientific approaches to philosophy, culture and spirituality. This recent publication, and its enthusiastic endorsement by other high profile indigenous and non-indigenous academics and practitioners[60], supports the approach adopted in this dissertation. That is, to provide a clear and comprehensive explanation of general aspects of the Dreamtime/Dreaming, while avoiding inclusion of any secret/sacred details. Thus it is reasonable to contend that this approach has not appropriated, inappropriately used or misrepresented indigenous knowledge. Rather, the objective has been to demonstrate the richness and sophistication of these ideas, especially in the context of phenomenology, whose early practitioners often followed the 19th and early 20th Century Eurocentric practice of denigrating indigenous worldviews and knowledge (Chapter 6).

It is clear from what non-indigenous, non-initiated people are permitted to know about the Dreamtime/Dreaming that it is a complex, comprehensive, sophisticated worldview. Although it could perhaps be termed a 'philosophy', it is different to phenomenology. However, the material presented in this section, and earlier in this dissertation, indicates that the Dreamtime/Dreaming is sufficiently commensurate with key aspects of phenomenology to enable versions of this Western philosophy to be used within a transdisciplinary investigation to help understand indigenous Australian modes of dwelling in landscape, without doing a significant injustice to their culture, spirituality and ethics. This fulfils Objective C, one of the four principal objectives of this dissertation (Chapter 1, Section 1.2 and Section 9.1 of this chapter).

Phenomenology and the Dreaming/Dreamtime are concerned with many of the same aspects of being. It is possible to discuss their comparison carefully and comprehensively, if not completely, in common language, despite the need for translation of indigenous concepts, and

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[60] Professor Judy Atkinson (indigenous author and academic researcher); John Ley (actor); Dr. Cindy Solonec (indigenous lawyer and Indigenous Peoples' Rights Manager at Amnesty International); and Dr. Rosina McAlpine (author and parenting and early-learning expert).

the ethical and practical constraint that some indigenous knowledge is, and ought to be, secret/sacred and unknowable by non-indigenous, non-initiated persons. Such comparison is greatly aided in this dissertation by the landscape language case studies utilised. The key aspects of phenomenology identified in Chapter 4, Section 4.2.1, apply to the Dreamtime/Dreaming (D/D) concepts in many ways, including the following:

a. Being and dwelling: Like phenomenology, the D/D is fundamentally concerned with authentic and ethical being in landscape as place. Dwelling for indigenous Australians is in the context of the topo-socio-cultural-spiritual-ethical framework of D/D.

b. Intentionality: D/D incorporates complex intentional relationships with all animate and inanimate things encountered in their taskscape within physical, social, cultural, spiritual and ethical aspects of their everyday lifeworld activities.

c. Lifeworlds, intersubjectivity and communalised intentionality: D/D is all about the lifeworld of indigenous Australians, considered in a holistic, emplaced manner. As Husserl contended, all subjectivity is inter-subjectivity and D/D lays out a complex set of ways for communalised intentionality to operate for indigenous Australians, including social, cultural and ethical principles and rules.

d. Embodiment, movement and affordance: D/D concerns people's movement through country and embodied aspects of everyday tasks and ceremonies, often involving routines and ritualised sets of movements, such as protocols at sacred sites.

e. Essences, meanings, frameworks and universals: D/D concerns the meanings of all things in the language group's 'country', animate and inanimate. It provides a fundamental, holistic framework for living. It involves communication about essential aspects of social structures, culture, spirituality and ethics across language groups (via explicit and implicit ontologies), however, this does not strictly amount to universalism as advocated by some forms of phenomenology.

This indicates that there is commensurability between phenomenology and Australian indigenous Dreamtime/Dreaming (e.g. *Jukurrpa*), at least to the extent required to validly use phenomenology as an over-arching paradigm for trans-disciplinary investigation of Aboriginal landscape language. Provided this is done carefully and respectfully, it does not do injustice to Australian indigenous concepts. Although not investigated in depth within this dissertation, the discussion in Chapters 6 and 8 about indigenous peoples' relationships with landscape as place indicates that this situation is likely to apply for the lifeworlds and knowledge systems of other indigenous peoples. Hence the answer is yes to the dissertation Research Question 5*: Can phenomenology as an over-arching paradigm be legitimately and*

successfully applied to Indigenous worldviews and knowledges? The multi-method, contingent methodology and the EDM developed in this dissertation spell out the way such transdisciplinary investigations can be successfully carried out.

As well as discussing The Dreaming, this dissertation has reviewed literature relating to the possibility of Australian Aboriginal philosophies. It is important to note that this author is not making a claim for the legitimacy of any form of Australian indigenous philosophy, as examination of that question is beyond the scope of this dissertation. Rather, the claim is that there is sufficient commensurability between phenomenology and The Dreaming (e.g. *Jukurrpa*) to render valid the approach taken in this dissertation. Further, it is contended that this commensurability indicates the legitimacy of using phenomenology in the context of indigenous Australian worldviews. These conclusions relate only to issues relevant to landscape language and not necessarily to other aspects of possible Australian indigenous philosophies.

Section 9.3.2 discussed 'placed philosophies' or 'ethnophilosophy'. It is considered inappropriate, within this dissertation to examine the case for an Australian Aboriginal philosophy or set of philosophies. That task is left for later research by this author, or preferably by other researchers, with capabilities more adequate to the task. Thus, the question of the way that an Aboriginal philosophy might have its own methodology, able to assess the world in its own terms, is considered beyond the scope of this dissertation, as it would require a different type of investigation.

9.4 Responses to Research Questions
9.4.1 Introduction to section

This section reviews responses to the research questions posed in Chapter 1. They configured the structure of the dissertation and the methodology used for the PhD investigation. Although, as is usual, new ideas and minor changes of focus occurred during the research, the research questions remain valid at the conclusion of the process. Subsection 9.4.2 provides responses to each research question, via Table 9.1. Subsection 9.4.3 discusses conclusions regarding the set of research questions.

9.4.2 Response to each research question

The overall research question for this investigation is: *Can some form of phenomenology provide an effective over-arching paradigm for transdisciplinary research in*

ethnophysiography? This was broken down into eleven key components (more specific questions) that guided the step by step accumulation of evidence through the dissertation. Each of these is listed in Table 9.1, together with the response (conclusion) reached concerning that specific question.

Table 9.1: Responses to Research Questions

No.	Question	Response
Q1	*What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be involved in the Ethnophysiography Descriptive Model (EDM) and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?*	The need for an enhanced ethnophysiography methodology, supporting the EDM, was introduced in Chapter 1, explained in Chapter 2 and reinforced and detailed in Chapters 5 to 8. Question 1 was initially answered in Chapter 2 via the detailed review of landscape language research over about thirty years. This included the independent and dependent factors listed in v4 of the EDM. The number of relevant aspects was expanded via review of phenomenology of place literature in Chapter 5. This was added to via review of relationships with place in Chapter 6 with key additional factors added to v5 of the EDM. In addition, Chapter 6 examined the relationships which indigenous peoples have with landscape as place, yielding revisions to the set of factors in v6. Version 7 was produced following further review of relevant aspects of ethnophysiography research via the Manyjilyjarra landscape language case study in Chapter 8. Key aspects from literature reviews were also listed in summaries in the form of tables in appendices. These contributed to the development of the PTM-ECS in Chapter 7. Thus the dissertation, via an explicit detailed and structured process, assembled an extensive set of aspects of ethnophysiography, which need to be investigated via case studies, and also more general research, to address key aspects of landscape as place, including social, cultural, spiritual and ethical considerations. Of course subsequent research may uncover other aspects or issues requiring investigation.
Q2	*Is it possible to build a conceptual model, that integrates definitions and methodological considerations concerning transdisciplinarity from multiple publications, across various disciplines, which can act as an effective guide to the research investigation, and as a mechanism to evaluate the level of transdisciplinarity achieved by the research processes and the dissertation?*	Chapter 3 addresses this research question in considerable detail, via review of literature concerning transdisciplinarity: history; definitions; approaches and methods and how to apply these to landscape studies with indigenous peoples. It also builds Conceptual Models A to E, in Tables A4.1 to A4.5 (Appendix 4), produced from analysis of key literature. These concepts, including a total of 69 aspects/dimensions/factors of transdisciplinary research (derived from review of 24 publications), have been integrated into the Concatenated Conceptual Model for Transdisciplinarity, in Table A4.6 (Appendix 4). This includes 28 key attributes of transdisciplinarity and 11 methodological considerations. This integrated model is utilised in developing the approach to transdisciplinarity applied in this dissertation. It is also used to evaluate the level of transdisciplinarity achieved in this dissertation (Chapter 9 and Appendix 16).

Q3	*What are the key aspects of phenomenology which need to be commensurate with (or adapted to) ethnophysiography research if phenomenology is to be used as an over-arching transdisciplinary research paradigm, to facilitate enhanced future ethnophysiography research methods, supporting the EDM, to address more effectively social, cultural, spiritual and ethical aspects of dwelling?*	The key aspects of phenomenology identified in Chapter 4 are: being and dwelling; intentionality; lifeworld, intersubjectivity and communalised intentionality; embodiment, movement and affordance; and essences, ontology and universals. The aspects most critical to this investigation (utilised in Chapter 5) are: physical aspects, embodiment and perception; utilitarian aspects and actions; social systems, culture, knowledge and language; spiritual and ethical aspects; and structural systems. Discussion in the dissertation chapters indicated that all aspects of ethnophysiography research are appropriate for a phenomenological approach; including physical, utilitarian, social, cultural, spiritual and ethical aspects of lifeworlds and taskscape. Questions were raised about a suitable approach to identification of landscape universals.
Q4	*Which form(s) of phenomenology is/are most appropriate to use as an over-arching paradigm for transdisciplinary ethnophysiography research?*	Various forms of phenomenology has been shown, through Chapter 4, and especially Chapters 5 and 6, to be commensurate with investigation of landscape as place, including the way landscape language facilitates relationships with place in terms of actions, tasks, procedures and rituals. This was significantly advanced via review of phenomenology of place research in Chapters 5 and 6, with key aspects summarised in phenomenographic tables. Those tables and the key identified theories, methods and techniques were then used in Chapters 7 and 8 to demonstrate how a contingent, phenomenology-based, integrated, transdisciplinary methodology could operationalise use of those aspects of phenomenology in ethnophysiography investigations. Aspects chosen for use in the new transdisciplinary methodology are discussed in chapters 7, 8 and 9 and Appendix 15. The methodology supports the EDM.
Q5	*Can phenomenology, as an over-arching transdisciplinary paradigm be legitimately and successfully applied to indigenous worldviews and knowledges, in the context of relationships with landscape?*	This question was partially addressed in Chapters 2, 6, 7 and 8 and resolved in the affirmative in Sections 9.3.3 and 9.5.3. However, it is important to note that in any case study with indigenous people it is critical to conduct thorough discussions with potential collaborators (participants or informants) prior to commencement of fieldwork to ensure that their truly informed and free consent is obtained. This may involve cultural organisations (NGOs) representing the language group and/or government agencies. This is part of the ethical responsibilities involved in such research, as discussed in Chapters 2, 7 and 8. This constraint also involves the form of indigenous knowledge incorporated in the investigation and the way it is treated within the methodology. It also relates to any social, cultural, spiritual or ethical details revealed in publications resulting from the project. This topic is also linked to the question of indigenous philosophies.
Q6	*Can a capstone landscape language (ethnophysiography) case study demonstrate how aspects of*	This question is answered in the affirmative via the successful Manyjilyjarra landscape language case study discussed in Chapter 8. Because of timing of financial constraints and availability of the collaborator, this case study needed to be completed part-way through the PhD investigation. However,

	transdisciplinary research methods may be aided through the use of a form (or forms) of phenomenology?	as demonstrated in Chapter 8, this case study was still effective in trialling and reviewing key aspects of the phenomenological approach advocated in the dissertation. It also provided excellent information concerning general research questions and facilitated revision of both the EDM and PTM-ECS. This success was in great part due to the collaborative efforts of linguist Hill and our overseas research collaborators.
Q7	*Can traditional phenomenology methods (and/or phenomenography) be used effectively within this dissertation and/or to facilitate more comprehensive, contingent ethnophysiography case study methodologies?*	The relative virtues and applicability of a wide range of phenomenological theories, methods and techniques (including phenomenography) were reviewed in some detail in Chapters 4, 5, 7 and 8. This resulted in very detailed recommendations about how to implement these approaches as part of the PTM-ECS. A key aspect of this is contingency; being able to select aspects of the methodology to use in any particular case study. This is carried out with the assistances of the EDM and detailed phenomenographic tables regarding aspects of place and relationships with landscape, as discussed in Chapters 7 and 8 and in Sections 9.6 and 9.7. A step-by-step procedure and relevant tables are presented in Section A15.2 in Appendix 15.
Q8	*Does this dissertation demonstrate how the effectiveness of use of a chosen paradigm (within a transdisciplinary approach) can be evaluated?*	The effectiveness of the phenomenological paradigm within the proposed transdisciplinary methodology was reviewed in Chapter 8 and again in Sections 9.5.2, 9.5.4, 9.6 and 9.7. This included the limitations of this research investigation regarding the ability to predict outcomes of this sort of evaluation. As discussed in Section 9.7, the effectiveness of any case study should be evaluated as part of the methodology. The set of factors for review of use of transdisciplinarity in general, particularly methodological considerations, are discussed in Chapter 3 and in Section 9.5.2. See also Appendix 16.
Q9	*Does this research project demonstrate that a transdisciplinary approach can be effectively applied to complex research domains, such as that investigated in this dissertation?*	The answer to this question is related to Question 8, hence, the response provided above for that question also applies to Question 9. The complexity of this research domain has been demonstrated throughout the dissertation, especially Chapters 7 and 8 that have demonstrated explicit, detailed and practical ways of handling this complexity via the EDM and the PTM-ECS. There is perhaps some possibility that the general approach taken in this dissertation may be useful in other similarly complex domains, especially where they involve social, cultural, spiritual and ethical considerations. As discussed in Chapter 3, a formal review of transdisciplinary aspects of the project was carried out (Appendix 16).
Q10	*Can integration of models of landscape concepts, progressively developed in dissertation chapters, ultimately produce an effective Ethnophysiography Descriptive Model (EDM), and what role can it play in landscape language research, including interacting with a revised,*	This question is answered in great detail throughout the dissertation, especially in Chapters 2, 5, 6, 7 and 8 where the objectives of the EDM and its careful improvement in effectiveness and comprehensiveness are detailed. Section 9.6 and 9.7 demonstrates how the EDM and the PTM-ECS interface and the very productive role that they can play in ethnophysiography research, including social, cultural, spiritual and ethical aspects of lifeworlds. This development of landscape language models has been greatly enhanced by detailed discussion of phenomenology of place in Chapters 4, 5, 6 and 8, so that the overall ethnophysiography research project has been significantly advanced by this dissertation. Appendix 15, Section A15.1 provides the final version (for this dissertation) of the EDM.

	contingent case study methodology?	
Q11	*Can an enhanced, contingent, phenomenology-based, transdisciplinary methodology for conducting ethnophysiography case studies be developed, supporting the EDM, to more adequately address social, cultural, spiritual and ethical aspects of dwelling, and can it be (at least partially) tested?*	The detailed development of the new methodology (Chapters 2 to 7), and its trialling in Chapter 8, demonstrates a positive answer to this question. This has been the culmination of thirty years of research by this author in continuous and detailed collaboration with many other researchers, together with the understandings flowing from review of literature from many hundreds of researchers from several disciplines, as detailed in all chapters of the dissertation. The new PTM-ECS methodology is detailed in Appendix 15, together with a step-by-step guide (including relevant phenomenographic tables) to producing an appropriate methodology for any particular landscape language case study. The additional research activities proposed in Chapter 9, Section 9.8 will review key aspects of this PhD investigation, including the EDM and the PTM-ECS. This requires further collaboration with researchers from various disciplines, which will be facilitated by publication of this dissertation. The EDM and the PTM-ECS are major contributions to ethnophysiography provided by this PhD investigation.

Table 9.1 details the way that the dissertation deals with each of the eleven specific research questions. Taken together, the positive outcomes for the ten specific questions contribute to answering the overall research question. This question has been firmly answered in the affirmative. This is supported by the conclusions about the detailed research questions and the descriptions of the research provided in Sections 9.2 to 9.7. The key to implementing the suggested improved approach is the PTM-ECS developed during this investigation and dissertation, including the contingency approach (Appendix 15), and the EDM (Appendix 15) that facilitates comparison of results from different landscape language (ethnophysiography) case studies. This addresses the principal objective of the investigation and dissertation, to facilitate a more effective approach to investigation of social, cultural, spiritual and ethical aspects of dwelling in landscape.

9.5 Limitations of Research

9.5.1 Introduction to section

All research has limitations and it is important to specify, at the end of the process, what specific limitations there were that constrained the effectiveness of the research methodology. This leads to the need to clarify what limitations there are in the accuracy or completeness of the results and their generalizability to contexts other than those prevailing in the research undertaken.

Subsection 9.5.2 deals with the specific limitations and threats to validity necessarily associated with any transdisciplinary research project. It uses the set of criteria established via literature review in Chapter 3 to provide an evaluation of the extent to which this project was truly transdisciplinary, via Table A16.1 in Appendix 16.

Explication of *Jukurrpa*, as a prime example of The Dreaming for Australian Aboriginal peoples, plays an important role in this dissertation. It provides a strong case for clarifying the notion of a topo-socio-cultural-spiritual framework, which is a principal contribution arising from this research project. The limitations associated with this author's application of at least some key aspects of *Jukurrpa* have been discussed at some length in previous chapters and are summarised in Subsection 9.5.3.

Subsection 9.5.4 discusses other methodological limitations that apply to this dissertation. Subsection 9.5.5 provides general conclusions regarding limitations and generalizability of the research project.

9.5.2 Transdisciplinarity of research

The investigation reported in Chapter 3 has enabled this project to be conducted in a transdisciplinary manner, by establishing an appropriate methodological structure. This involved detailed literature reviews for five key aspects of the overall research, including transdisciplinarity itself. Transdisciplinary methodologies are still evolving and their nature needs to differ depending on the research question under investigation, the particular disciplines involved (and their number) and the resources, especially relevant expertise, available to the research collaborators. It is important that the group of researchers all believe in this form of collaborative research and are prepared to share ideas and resources in a spirit of co-operation towards achieving effective research results. This author has seen many projects begin with high expectations, only to fail to produce convincing and comprehensive results because of failures of collaboration. That this project was able to be carried through to successful completion, is thus in good measure due to the enthusiastic and effective contributions from the research collaborators, especially Mark, Hill, MPI researchers, the staff at Kanyirninpa Jukurrpa and the many participants in landscape language case studies.

A key consideration regarding transdisciplinarity for this research project was to develop a practical way of operationalizing the approach. The use of the over-arching paradigm needed to be efficient and effective. The approach adopted is discussed in Chapters 7 and 8. This

involved the innovative use of phenomenographic tables listing key research results from literature reviews, applied through the PTM-ECS, in association with the EDM (Appendix 15).

The review of literature concerning transdisciplinarity in Chapter 3 resulted in identification of a total of 69 aspects/dimensions/factors of transdisciplinary research (derived from review of 24 publications). These were integrated into the Concatenated Conceptual Model for Transdisciplinarity, in Table 3.6, including 28 key attributes of transdisciplinarity and 11 methodological considerations. That table from Chapter 3 has been used as the basis for Table A16.1 in Appendix 16, which includes responses to each of the 39 key attributes and methodological considerations regarding how effectively this investigation and dissertation implemented fundamental aspects of transdisciplinarity. The detailed comments in each row of this table indicate the successes of this investigation, with no significant limitations identified in the nature of its transdisciplinarity. However, this should be no cause for complacency. A transdisciplinary approach to research is relatively new in its application and difficult to achieve, demanding a continuously reflective approach, which is always open to responding to new challenges and opportunities.

This transdisciplinary project had to overcome the challenges discussed in Chapter 3, Section 3.4. The aspects listed in Table A4.4 (in Appendix 4) demonstrate why such Mode 2 transdisciplinary research (Scholz and Steiner, 2015) is hard to carry out within the traditional academic structures, especially at universities. The specific matters raised in these two articles are addressed in row CCMT-2.1 in Table A16.1 in Appendix 16.

As discussed in Chapter 3, Section 3.2.2, Max-Neef (2005) suggests that transdisciplinary approaches can be classified as 'weak' (a practical, simplified approach) or 'strong' (investigations of 'deeper realms of reality'). It is reasonable to suggest that the form of transdisciplinarity involved in this PhD investigation and dissertation could be considered as 'strong'. It addresses each of Nicolescu's '10 Realities' (and four meta-aspects), which are listed in Transdisciplinary Conceptual Model C, in Appendix 4, Table A4.3. This is detailed in rows CCMT-1.21 to 1.23 in Table A16.1 in Appendix 16.

9.5.3 Limitations and validity of discussing The Dreaming

Different aspects of The Dreaming for Australian Aboriginal nations have been discussed in most chapters of this dissertation, especially Chapters 2, 6 and 8, as well as this final chapter

and in Appendix 13. Two inter-acting questions arise: a. whether it is legitimate for this author to discuss such social, cultural, spiritual and ethical matters; and b. whether the necessarily limited depth and completeness of this information renders it a less than useful aspect of the dissertation.

As discussed in earlier chapters, the level of information provided regarding *Jukurrpa*, and other versions of The Dreaming, is limited to that which has already been published (e.g. Cane, 2002) and what has been told to this author by Aboriginal elders. In doing this, the elders have explicitly said that their desire is for this author to tell other non-Aboriginal people about these aspects of their social structures, culture, spirituality and ethics. That was the purpose of them sharing this non-secret level of knowledge.

Such social, cultural and spiritual information also facilitated this author to navigate around the many potential ethical quagmires that arise in this type of inter-cultural ethnographic activity. These issues were discussed in earlier Chapters in the context of US anthropologist Peter Whiteley's book *Rethinking Hopi Ethnography* (1998) and publications on ethical issues relevant to investigations of indigenous society, culture, spirituality and landscape language, such as: Turk and Trees (1998a; 2000); and Turk and Mark (2011).

The information about various versions of The Dreaming (e.g. *Jukurrpa*) provided in this dissertation is limited to that which various Aboriginal elders from different language groups have requested to be provided to non-Aboriginal people. Sometimes this was in the course of developing and/or presenting formal cultural awareness courses, especially to mining company personnel. When this author checked the validity of sharing such information with a powerful Ngaanyatjarra female elder she laughed and said "don't worry AT, its just kindergarten (pre-school level) *Jukurrpa*, nothing secret." A representative of the Martu culture and land management organisation Kanyirninpa Jukurrpa (KJ) has reviewed the level of detail of cultural and spiritual information presented in Chapter 8 and confirmed that it is in accord with the research contract for the Manyjilyjarra landscape language case study.

The material presented in this dissertation, while not exceeding ethical constraints, is of sufficient depth for readers to achieve some appreciation of the holistic complexity and cultural and spiritual significance of The Dreaming, operating, in this context, as a strong example of a topo-socio-cultural-spiritual framework, strongly influencing mode of dwelling and landscape language. A detailed analysis of versions of The Dreaming, in the context of

dwelling in landscape, is provided in Chapters 2, 6, 8 and 9 and Appendix 13. In addition, the use of these concepts to help understand data from the Manyjilyjarra landscape language case study is discussed in Chapter 8. Additional references regarding dwelling in place and Australian aboriginal concepts of 'The Dreaming' are provided in Table A7.9, in Appendix 7.

The discussion above demonstrates that the level of detail provided concerning *Jukurrpa* (and its equivalents) has been at least sufficient for the purpose of this dissertation. However, the necessary limitations involved in applying indigenous cultural and spiritual concepts is clearly articulated here and in previous chapters. This produces limitations in the detailed descriptions of topo-socio-cultural-spiritual frameworks such as *Jukurrpa*, and also the extent to which the full power and complexity of such systems can be demonstrated. Such limitations were inevitably involved in this investigation and dissertation, despite the best efforts of this author, and the very generous sharing of indigenous knowledge and culture by numerous Aboriginal elders.

9.5.4 Other methodological limitations

This PhD project is quite unusual because of its transdisciplinary nature and wide scope of inquiry. The five literature reviews undertaken in this dissertation were reasonably comprehensive, although, because of the duration of the whole investigation, some were initially undertaken some years before completion of the dissertation. These were revised to ensure that as many recent examples of relevant literature were incorporated as possible. Of course, this can never be a complete success, so there are bound to be holes in the coverage, given the wide range of disciplines investigated.   There is a substantial reference list. The style of the referencing cannot follow the traditions of each discipline, so a neutral and effective style has been used consistently.

The ability to report all aspects of the detailed literature reviews was limited by the maximum word count permitted for this dissertation. Additional discussion of many aspects will be re-inserted in an expanded version of this dissertation that will be published after the PhD examination process.

The use of summary tables in this dissertation is an application of a technique from phenomenography, where analysis of texts includes transcripts of interviews and other relevant academic or popular literature texts (Sections 4.3.5; 7.4.4; and 8.6.3.7). It is part of

the use of phenomenology as an over-arching paradigm for this transdisciplinary investigation.

This method of summarising, in phenomenographic tables, key aspects or issues, identified in the literature reviews, is unusual for humanities disciplines. However, this approach significantly increased the ability to explicitly identify the provenance of all ideas and to provide a structured way to 'feed forward' the detailed analysis, so as to comprehensively implement the project methodology. It is contended that this process was successfully implemented across the entire investigation and preparation of the dissertation.

As stated above, the capstone case study was only able to provide a partial validation of the EDM and new transdisciplinary methodology. There is also the possibility that the validity of the results of the case study and their generalisability are limited by the study design. That design, and the methodology used were considered sound, though innovative, however, the study is necessarily limited by the language chosen for investigation, the prevailing topography and ecological conditions, the number of participants, and other such factors. There is also the consideration of the representativeness of indigenous lifestyles, cultures and worldviews provided by the Australian Aboriginal and Navajo case studies. These are considered as useful examples but are very limited in number. They were augmented by review of many other case studies, especially those published in articles in Burenhult (2008a). It is anticipated that this dissertation, especially the EDM and transdisciplinary methodology, will facilitate even greater collaboration with linguists and others to contribute to improved comparisons of landscape language across different topography and cultures.

While raised, the issue of gender was not comprehensively discussed within this dissertation because of lack of space. Nor was this issue adequately addressed during the capstone Manyjilyjarra landscape language case study, partly because of constraints imposed on the researchers under the research contract, and by the limited number of local participants and duration of the study. This issue will be more comprehensively addressed in future research (Section 9.8.1).

It is valid to question the extent to which it was possible to demonstrate the generalisability of the topo-socio-cultural-spiritual framework concept beyond indigenous examples, especially in multicultural societies. An effort has been made to explain this concept by using some

examples. This issue will have to be addressed in future research by this author, his collaborators and others.

Because this dissertation investigates the use of phenomenology within other disciplines it necessarily involved analysis and understanding of relevant aspects of philosophy. Although this author has had some training in philosophy, including a major sequence of study units during his honours in Arts degree at Melbourne University in the late 1980s and early 1990s, he does not consider himself a philosopher. Neither does he claim strong expertise in phenomenology. He can claim expertise in topography (after more than 50 years working, teaching and researching in the fields of surveying, cartography, geography and GIS), however, he is far less expert in the field of phenomenology of place than the researchers he quotes in Chapter 5. Bearing all this in mind, it is important to note that this is not a PhD in philosophy (it is transdisciplinary) and this author does not claim significant advances in that field. It is up to philosophers to interpret and evaluate whether this dissertation includes any useful contributions to theory, in addition to the clear demonstration of coherent and comprehensive ways to implement key aspects of phenomenology of place, across several disciplines. This investigation and dissertation provide strong encouragement for philosophers to engage as effectively as possible with other disciplines.

9.5.5 Conclusions regarding limitations and generalisability

Any PhD investigation is, by definition, limited in terms of its duration and the resources (financial and other) normally available to the candidate. Virtually all of the activities must be carried out by the candidate, including analysis of literature reviews, carrying out investigative research, including case studies, and writing the dissertation. However, as in the case of this project, it is possible to include contributions from collaborators, especially in the case of interdisciplinary or transdisciplinary case studies, provided that such contributions are clearly identified and incorporated in the analysis in a manner that does not contravene the PhD principles.

The overall result is that this investigation and preparation of the dissertation does not include more limitations and threats to the validity of generalisation than most PhD projects. The principal issues are clearly identified and assessed in earlier subsections of this section. Some are also addressed in Section 9.8, which discusses proposals for future research.

9.6 Final Version of EDM

The purpose of the EDM and its relationship to the new transdisciplinary methodology developed in this dissertation are briefly discussed above and in Appendix 15. The EDM was introduced in Chapter 2, including Table 2.2 listing the initial versions. Table 2.2 is copied as Table A15.1 in Appendix 15.

As the dissertation progressed, successively more effective versions of the EDM were developed via review of targeted research literature and case studies. Each version incorporated a more comprehensive and effective set of independent and dependent factors, as summarised in Table A15.2 in Appendix 15. Version 7 of the EDM is provided in Tables A15.3 and A15.4.

This process of development of the EDM throughout the PhD investigation and dissertation means that it reflects the key issues identified in literature reviews and many landscape language (ethnophysiography) case studies. It is designed to interface with the PTM-ECS to provide a means of comparing case study results between different languages and topographic environments.

9.7 Final Version of New Transdisciplinary Methodology

The PTM-ECS developed during this dissertation aims to facilitate a comprehensive, efficient, effective and ethical investigation, tailored to the prevailing circumstances and the objectives of any particular landscape language (ethnophysiography) project. In particular, it must accommodate the needs, paradigms and methods of the specific set of disciplines that are involved in that project. It also needs to interface effectively with the EDM. The final version (for this dissertation) of the new transdisciplinary methodology is presented (with 8 steps) in Appendix 15, Section A15.2, including Tables A15.5 to A15.7.

Appendix 15 includes a brief explanation of the contingency approach to using this generic methodology. This starts at the first stage of the project when collecting background information about the target language, the social-cultural-spiritual framework(s) of the community of speakers, and their topographic environment. When research questions are being formulated, this needs to interact with choice of methods to be used. The phenomenographic tables discussed in Chapters 5 to 8 are one way to facilitate decision-making in this initial phase. Summarising a diverse range of approaches by many authors, they raise many issues of potential significance to a project, and the tables (conceptual

models) provide a structured and thorough way of surfacing methodological challenges and options.

Use of these tables can be augmented by review of independent and dependent factors listed in the EDM, and consideration of the sets of phenomenology-based methods reviewed in Chapters 7 and 8. This informs the choice of theories, methods and techniques to apply in the operations and analysis phases of the investigation. They can also help in the development of specific approaches to evaluation and validation of project results, as part of the final phase of producing project outputs and outcomes, including the final report. The tables of phenomenographic research summaries incorporated in the PTM-ECS are an innovative and effective way to operationalize the transdisciplinary approach.

9.8 Possible Future Research

9.8.1 Ongoing collaborations regarding EDM and methodology

This PhD research investigation is part of collaborations with other researchers that have lasted decades and have not ceased with the completion of this dissertation. Some of the collaborations involve continuing the development of the EDM and the new contingent transdisciplinary methodology and applying the main concepts from this dissertation in other topographic and cultural domains.

Review of EDM

As noted in Sections 9.2, 9.3 and 9.6 the development of the EDM is ongoing, including collaborations regarding definition of its detailed factors and its overall role in landscape language research.   For instance, through meetings and on-line communication collaboration continues with Bill Palmer (University of Newcastle, NSW), and through him, his collaborators Bill Pascoe and Dorothea Hoffmann, regarding research on spatial frames of reference (Appendix 15, Section A15.1.4). This aspect of dwelling in landscape has important consequences for landscape ontologies. Such collaborations will lead to improvements in the EDM and more effective ways to use it.

Review of Methodology

Details of the new contingent, integrated, phenomenology-based, transdisciplinary methodology (PTM-ECS) have not been published prior to completion of this dissertation. It is anticipated that responses to this proposed methodology will be received from this author's research collaborators and other readers of this dissertation and the proposed journal articles

and conference presentations. This will lead to improvements in the details of the methodology and how it can be utilised in landscape language case studies. This is especially relevant to the contingency approach adopted in this methodology and how this can facilitate adapting the methodology for differing research objectives, resources and the particular disciplines involved in any proposed investigation.

The contingency aspects of the transdisciplinary methodology could be strengthened after reviewing the effectiveness and comprehensiveness of the approach used in the dissertation. For instance, the second step in the contingency process involves the use of tables assembled from Chapters 5 and 6, reviewed in Chapters 7 and 8 and Appendix 15. These phenomenographic tables summarise key aspects of phenomenology of place and relationships involved in dwelling in landscape as place. This includes a set of aspects especially relevant to case studies with indigenous peoples, such as those dwelling in Australia or SW of USA. Additional tables may be developed in future research to facilitate design of methodologies for case studies with indigenous peoples in other parts of the world.

As discussed in Subsection 9.8.2, further investigation of phenomenological methods can assist in implementing the PTM-ECS. In addition, computational spatial analysis methods discussed in Section 7.3.1 of Chapter 7 will be explored to see whether they can be applicable, especially when development of a customised GIS is an objective of ethnophysiography research. Because of the scientific nature of such methods, care is needed to ensure they are integrated appropriately within the PTM-ECS.

The review of the PTM-ECS will include further investigation of relevant linguistic fieldwork and analysis methods and techniques. These will include those used in ecolinguistics and sociolinguistics, especially for collection and analysis of data relevant to gender roles [see also Sections 3.4 and 9.5.4].

Application of approach to mode of dwelling

Collaboration is continuing regarding the application of the topological (mode of dwelling) approach (TSCS-MOD), developed in this dissertation, to other topographic, socio-cultural and ecological domains. For instance, there is ongoing discussion with John Manning regarding the Antarctic ethnophysiography case study (Manning and Turk, 2016). New collaborations are expected to develop from discussion of these issues at two conferences in June 2019: Sensus Communis: Exploring the Ontologies of Coexistence (12th - 14th June

2019, Århus, Denmark); and the International Human Sciences Research Conference (University College, Molde, Norway, June 24-28, 2019).

Engagement with Indigenous Ecological Knowledge (IEK)

Further investigation is required to better understand the relationship between landscape language and IEK. This will include further review of the work of Holmes and Jampijinpa (2013) with elders from the Warlpiri in the Tanami Desert region of central Australia. This includes their concept of 'Ngurra-kurlu', which facilitates cross-cultural understanding and collaborative natural resource management.

9.8.2 Further investigation of methods from phenomenology

It is clear from previous sections, especially 9.2, 9.3, 9.4 and 9.5, that it would be useful to investigate further some particular phenomenological methods to potentially strengthen the contingent transdisciplinary methodology developed in this investigation and dissertation. This subsection explores two of these possibilities.

Hermeneutic phenomenology:

A hermeneutic phenomenological approach to understanding patterns of movement, affect, mimesis and language are discussed in Chapter 4, Sections 4.2.5 and 4.3.5. It was noted that some of the latest developments regarding a phenomenological approach were brought together under the term 'life phenomenology' (Smith, Saevi, Lloyd and Churchill, 2017). This approach includes the development of rich, pure descriptions of key behaviours of people, without including any pre-judgements or theories of meaning (Henriksson and Friesen, 2012; Saevi, 2014; Van Manen, 1990; 2002a; b; 2007; 2014; 2016; 2017a; b). Such an approach could, for instance, be used to describe formal protocols carried out at sacred places by indigenous peoples. Further research will also review relevant aspects of McHoul (1998; 1999; 2009; 2010), including the notion of culture as equipment (in the Heideggerian sense).

This was not done as part of the Manyjilyjarra landscape language case study as such rich first-person observations were not undertaken, being beyond the permissions provided under the research agreement with KJ. However, during earlier cultural awareness presentations with Martu elders, this author heard such accounts about visiting sacred permanent springs (*yinta*) and soaks (*jurnu*), which indicated that a hermeneutic phenomenological descriptive approach could be effective.

Hermeneutic phenomenology methods of description of phenomena, especially group behaviours (e.g. Friesen, Henriksson and Saevi 2012) were discussed in Chapter 8, subsection 8.6.3.8. Possible uses of these methods/techniques in transdisciplinary ethnophysiography case studies were highlighted in rows Ex-HP-a to f in Table A10.1 (in Appendix 10), listing the summary of potential applicability of phenomenology methods to the Manyjilyjarra case study.

As discussed in Chapter 7, Section 7.4.4, this author is developing a proposed new research program with Tone Saevi, combining his transdisciplinary landscape investigation approach with her hermeneutic phenomenology methods (Friesen, Henricksson, and Saevi, 2012; Saevi, 2011; 2014; Saevi and Eilifsen, 2008). It will concentrate on phenomenology of dwelling for island communities.

David Seamon's (2018) systems theory based method:
In Section Ex-SM in Table A10.1 (Appendix 10), an attempt has been made to align key data from the Manyjilyjarra case study with each of the methodological steps proposed by Seamon 2018 (reviewed in Turk, 2018). This demonstrates that, apart from sociological, cultural and spiritual aspects of the Manyjilyjarra lifeworld, Seamon's method provides a useful basis for some key aspects of data analysis. This provides at least partial evidence for the viability of Seamon's approach in non-urban environments. Further work is required to more fully validate this approach. This will be informed by review of responses by other researchers to Seamon (2018).

9.9 Chapter Conclusions
The principal stated aim of this investigation was to determine whether some form of phenomenology can provide a suitable over-arching paradigm for transdisciplinary landscape language (ethnophysiography) case studies. This entails the ability to operationalise appropriate aspects of phenomenology to play a meaningful role in a new (contingent) methodology for ethnophysiography research. The earlier sections of this chapter describe the research process and its main findings, including the answers to the research questions. It is important to make clear that the conclusions expressed in this dissertation do not necessary apply to phenomenology as a set of philosophical principles. As noted in earlier chapters, this author does not claim to be a phenomenologist and it will be up to those better qualified in that field to draw (if they wish) phenomenological conclusions from the analysis of literature

and fieldwork data contained in this dissertation. This relates to the second key objective of this dissertation; that the investigation identify ways that results from ethnophysiography case studies can help explain aspects of phenomenology and to assist in making phenomenology more tractable for use in non-philosophical research. This aim has been at least partially achieved.

This dissertation provides reasonable conclusions to all the research questions and thus, to the extent possible, fulfils the research project objectives. It provides a practical demonstration of how phenomenology can be used as an over-arching paradigm for a complex transdisciplinary investigation of landscape concepts and language. This can be seen as, at least partially, supporting Edmund Husserl's contention that phenomenology can play the role of a meta-science, grounding the natural and human sciences.

Appendices

Appendix 1: Yindjibarndi and Navajo (Diné) Ethnophysiography Case Studies

A1.1 Yindjibarndi Ethnophysiography Case Study

A1.1.1 Introduction

As discussed in Chapter 2, Section 2.4.1, the first ethnophysiography case study was carried out, from 2002 to 2009, with Yindjibarndi people, who live in the Pilbara region of Western Australia. Details of this research project have been published (e.g. Mark and Turk, 2003a; 2016; Mark, Turk and Stea; 2007; Turk; 2007; Turk, Mark and Stea, 2011; Turk and Stea, 2014) and presented at many conferences (e.g. Mark and Turk, 2004a; b). There is only space here for a brief summary of the Yindjibarndi case study.

Like all peoples, especially indigenous ones who have lived for tens of thousands of years in the same place, land is absolutely central to the culture of Yindjibarndi people:

> Hence, terms for parts of landscape play an important role in their language. Terms for landscape features relate to practical activities of Yindjibarndi life and also to deep cultural/spiritual associations with ngurra (country) from the earliest time, Ngurra Nyujunggamu 'when the world was soft' (Ieramugadu Group Inc., 1995).
> (Turk, 2011, p. 25)

A1.1.2 Location, Geography and History

Yindjibarndi country is located in the Pilbara region of northwestern Australia (South-East of Karratha and Roebourne), inland from Ngarluma country and towards the coast from Bangima and Gurrama peoples traditional territory (Tindale, 1974). It covers the area surrounding the Fortescue River, including the Chichester and Millstream National Parks (Figure A1.1). Yindjibarndi country includes tablelands, broad valleys, ranges, rolling hills, extensive flats, and some cliffs and rock outcrops (Figure A1.2).
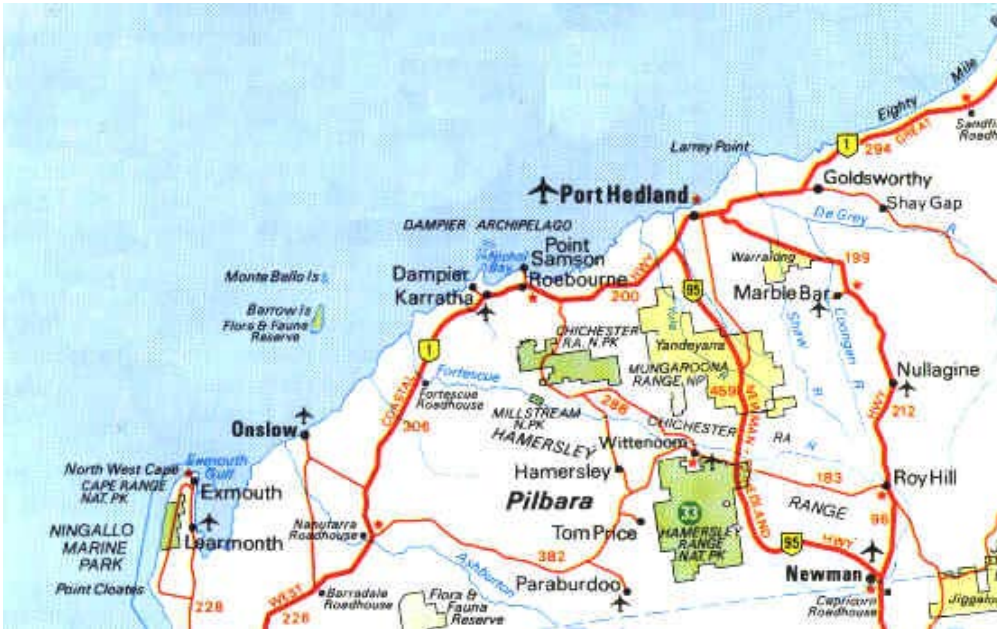
Figure A1.1: Location of Yindjibarndi country.

Figure A1.2: Images of Yindjibarndi landscape.

The climate is hot and dry for most of the year with extreme temperatures (up to 50 degrees C) in summer and usually at least one cyclone, bringing heavy rain, each year between December and April. There are no permanent rivers or creeks, with water only running after major rainfall events. However, there are some permanent pools, springs, and soaks. The vegetation is grass, spinifex, low scrub, and scattered trees.

Yindjibarndi people traditionally lived a semi-nomadic hunter-gatherer lifestyle, mostly along the middle part of the Yarnda-Nyirra-na (Fortescue River) valley and on adjacent uplands. They were progressively displaced by European colonisation, starting in the 1860s. When sheep and cattle stations were started, most Yindjibarndi were not wanted (as unpaid stockmen or domestic staff) and were moved by the police into 'ration camps', which were progressively re-located towards the coast, with the people ending up in Roebourne (in Ngarluma country). Hence, most Yindjibarndi people now live outside their traditional territory but retain strong cultural links to their land, visiting for hunting, gathering, and ceremonies.

A1.1.3 Language
Yindjibarndi belongs to the Coastal Ngayarda language group, within the southwest group of Pama-Nyungan languages. Today, most Yindjibarndi speakers (about 600 people) live in and around the small town of Roebourne, together with predominately Ngarluma and Bangima peoples, and speak both English and their own language (Figure A1.3).
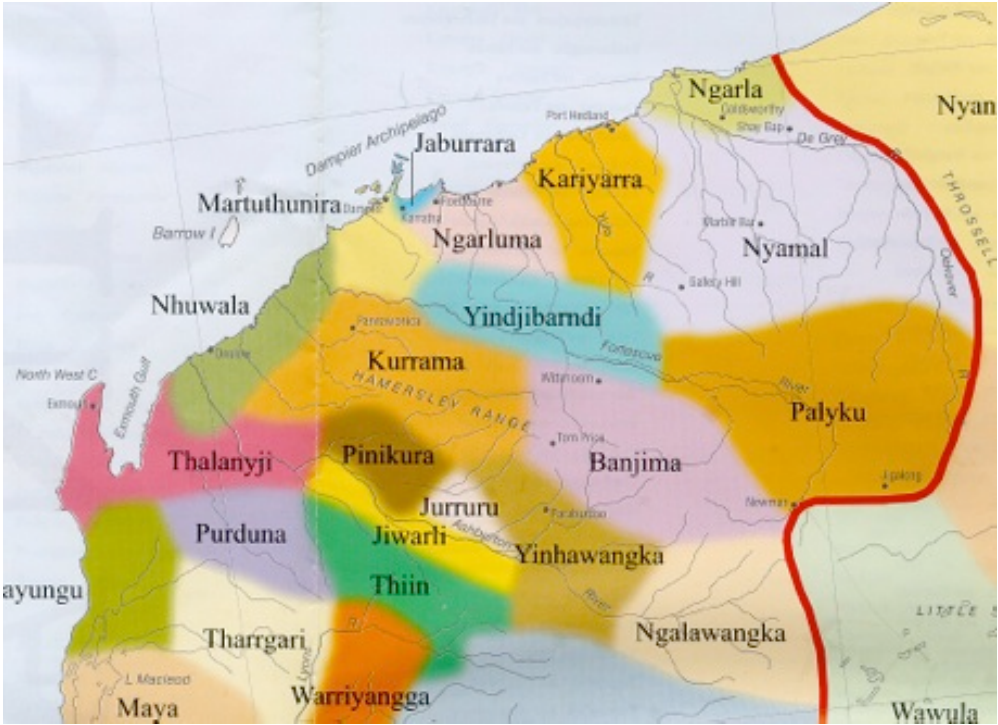
Figure A1.3: Part of Tindale map of Australian Indigenous languages[61]

[61] Aboriginal Australia - published by AIATSIS: Tindale Map - created by Norman B Tindale. See http://www.ourlanguages.net.au/languages/language-maps.html [accedssed 12 February, 2020]

Mark and Turk (2003a, p. 33) summarized the dictionary information used during the Yindjibarndi case study as follows:

> Several linguists have studied the Yindjibarndi language. Von Brandenstein (1970, 1992) studied Yindjibarndi and Ngarluma and collected stories. Wordick (1982) also collected stories and produced both a grammar and a Yindjibarndi-English dictionary. Anderson revised Wordick's system of phonetic spelling for Yindjibarndi, and produced both Yindjibarndi-English and English-Yindjibarndi versions (Anderson, 1986). Anderson also coded the words according to topic. A digital version of Anderson's compilation is available from the Aboriginal Studies Electronic Data Archive (ASEDA) of the Australian Institute of Aboriginal and Torres Strait Islander Studies (Anderson and Thieberger, no date); this electronic source with thematic coding was extremely useful in this study. In this paper, we will sometimes refer to Anderson and Thieberger's reworking of the Wordick (1982) and Anderson (1986) dictionaries, and the 1992 word lists from von Brandenstein (1970) collectively as "the dictionaries".

Although a Yindjibarndi-English dictionary existed (Anderson, 1986), it had been compiled from relatively brief fieldwork and contained errors and omissions. Of particular relevance to this case study, was the inadequacy of the semantic descriptions of landscape terms. Hence, the dictionary was a useful starting point but it was necessary to collect new data from Yindjibarndi participants.

A1.1.4 Preparations and Fieldwork

Prior to commencement of fieldwork, Mark and Turk reviewed existing dictionary sources (described above). They were able to identify words related to landscape features, including 55 terms coded as 'geographical features' in Anderson (1986).

The researchers worked with more than twenty Yindjibarndi participants (informants), mostly elders, including one man, the best Yindjibarndi speaker, who was in his late 90s. Some participants assisted the researchers as independent individuals and some contributed via the Yindjibarndi cultural organization Juluwarlu, which holds the archive of their language. These participants were paid for their time spent with the researchers at the normal rate charged by Juluwarlu.

Juluwarlu provided the community ethics clearance, utilised by Mark and Turk for academic ethics approvals. Juluwarlu also provided access to their newly appointed linguist Vicki Webb, who assisted with aspects of the case study during the latter part of the data collection and analysis period. Minor assistance was also provided by linguists from the Pilbara Aboriginal Language Centre (Wangka Maya) and University of Western Australia linguist Alan Dench. In addition, the Australian Institute of Aboriginal and Torres Strait Islander Studies provided material from the Aboriginal Studies Electronic Data Archive (ASEDA).

Mark and Stea received funding from the US National Science Foundation (NSF) for the project entitled *Collaborative Research: Landscape, Image, and Language Among Some Indigenous People of the American Southwest and Northwest Australia (BCS-0423075 & BCS-0423023)*. This funding was for both the Yindjibarndi and Navajo ethnophysiography case studies. It covered payments to Mark and Stea, their travel costs and many general fieldwork expenses (accommodation, vehicles, payments to participants, etc.) for both case studies. This author also received some minor funding from Murdoch University.

Fieldwork was undertaken during relatively brief visits (one to two weeks duration) to Roebourne by one or more of the researchers, as listed in Table A1.1 (where AT = Andrew Turk; DM = David Mark; DS = David Stea).

Table A1.1: Yindjibarndi ethnophysiography project field trips

2002	November (AT & DM)
2003	January (AT), May (AT + DM) and August (AT)
2006	January (AT) and June (AT, DM, and DS)
2007	March (AT) and August/September (AT and DM)
2009	August (AT and DM)

The methods used in this and the Navajo case study are detailed in Turk, Mark, O'Meara and Stea (2012), discussed in Chapter 7.

The Yindjibarndi study included six stages:

- Stage 1: Preliminary discussions by Turk with individuals and organisations in Roebourne to ensure that they were happy for the research to be undertaken and to obtain their formal support for the necessary university ethics applications.

- Stage 2: Review of the existing Yindjibarndi dictionaries (discussed above) and taking of photographs of landscape features in Yindjibarndi country (and adjacent areas) for preparation of fieldwork 'instruments' (A4 sized colour hard-copy photographs).

- Stage 3: Field interviews with individuals and small groups in Roebourne and on-country to review relevant words from the existing dictionary and identify an initial set of landscape terms and relevant distinctions, associations and usage.

- Stage 4: Photo interpretation sessions, involving asking participants to look at photographs of aspects of landscape and to describe the scene in Yindjibarndi and English to clarify already identified landscape terms and collect new ones. All sessions were audio-taped, and some were video-taped (with permission of participants and assistance from Juluwarlu staff) (Figure A1.4). Transcripts were produced in spreadsheet format, facilitating comparison of the terms used for landscape features (in a particular photograph) during different sessions with participants (Figure A1.5).

- Stage 5: Semi-structured follow-up discussions and photo review sessions (in town and on country) to clarify confusions, probe for extra meanings and to evaluate the quality of interpretations (Figure A1.6).

- Stage 6: Preparation of a draft pictorial dictionary of Yindjibarndi landscape terms. An example page is shown in Figure A1.12. Reporting initial results back to community members, getting feedback on the draft dictionary and preparation of a revised version (Turk and Mark, 2008).

Figure A1.4: Discussing photos of landscape with elder during field interview

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	TS & AS	DS and others	CC and others	Researchers' Notes
35	[1:15:45] TS: I know this river! DS: Are we up to 35? TS: Yeah, 35. TS: This is somewhere up in the Kingbree [??] place. It's where Brendan has his stones [??] there. Is it? DM: I think this is Dawson Creek. It's on the main road to Millstream. Its close to the road. TS: [laughs] TS: It's a wundu. Thunggaawarna wundu. Sandy river. AS: Wundu thunggawarna. TS: Thunggaawarna wundu. DM: We stopped for our lunch there. …	Oh, that's a _____. AT: That's on the way to Millstream too. Where about that? AT: it's a place they call Dawson Creek. That's that… where you go to … [some background talk missed] AT: What would you call this one? See all those leaves. All the things laid on the ground. Barrangarli[1]. Barrangarli bungga[2]. AT: And this whole thing coming down? [33:09] Thungga warna. Wundu. Wundu. Wundu thunggawarna. AT: And this edge of him there? Word for one? Barlu, barlu. [consensus]	[1:08:50] AT: Thirty-five. [some Yindjibarndi tak] ED: This is pretty. ED: Mmmm. Maygan. Maygan. FV: That's not a maygan, that's a wilu[3] ED: Wilu. Wilu ngarli. Wundu-a. [followed by a Yindjibarndi word DMM could not discern] CC: That's a biyungga[4]. ED: Biyu. Dry riverbed, dry wundu. [1:09:23] [camera opens] Biyu. AT: Biyu. ED: Biyu wundu. "Biyu" is dry. FV: Biyungga wundu ana? Wilu. CC: That's a wilu. …	wundu from all three Thunggaawarna (sandy place) from two

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[1] Anderson: **barra** = ingestible leaf
[2] Anderson: **bungga** = fall
[3] Anderson: **wilu** = "blackheart tree" (Eucalyptus vitrix)
[4] Anderson: **biyu** = "dry"; **-ngga** = locative, "at".

Figure A1.5: Example of spreadsheet summarizing participant comments regarding photo of a *wundu* (dry river channel)

Figure A1.6: Discussion of landscape terms with elders in Roebourne[62].

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[62] For the Yindjibarndi and Navajo studies, images of people are included with their consent.

A1.1.5 Results and Discussion

This Yindjibarndi case study was an excellent beginning to the ethnophysiography research program. It provided strong support for the 'ethnophysiography hypothesis' by demonstrating considerable differences between how Yindjibarndi and English speakers talk about landscape. The following paragraphs provide a brief summary of the case study results; some illustrated by figures (based on conference presentations by Mark and this author).

There are generally not terms for types of landscape features not found in traditional Yindjibarndi country. One exception was *thanardi* (ocean, sea) a huge feature one language group away.

One term (*marnda*) covers a wide range of features of different sizes, that would be called 'hill,' 'mountain,' 'ridge,' 'range,' 'rock,' 'stone,' etc. in English (Figure A1.7). This term was also used for coins and leg-irons in colonial times, perhaps indicating that the core meaning relates to 'hardness'.
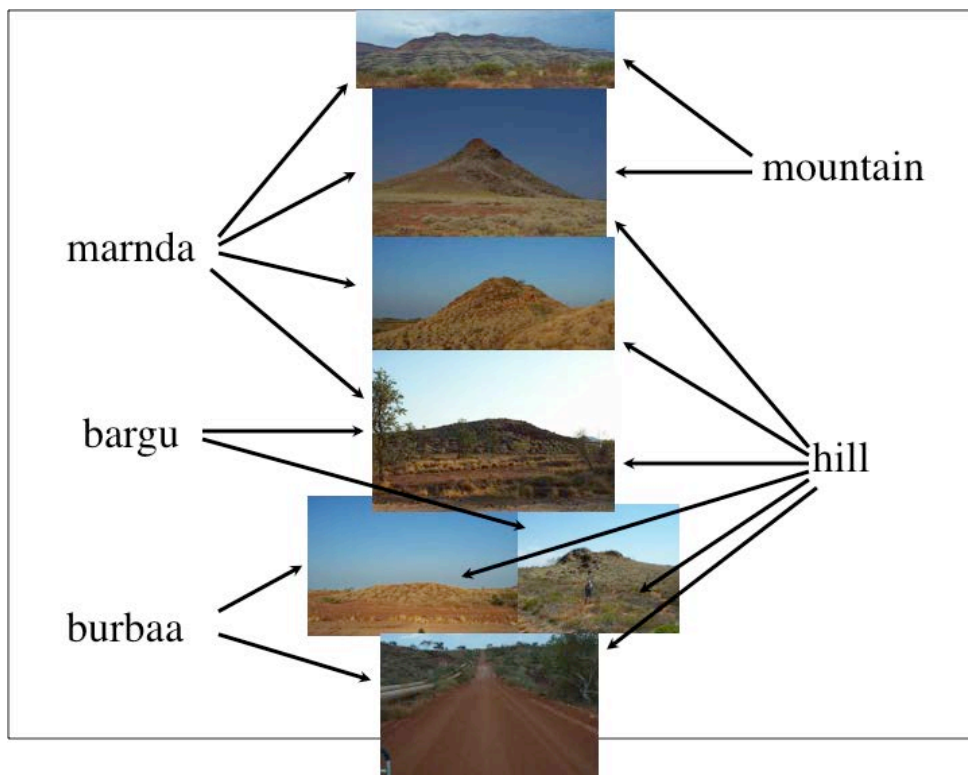
Figure A1.7: Comparison of Yindjibarndi and English terms for convex features

Terms for convex landscape features do not match those in English. For instance, *marnda, bargu, burbaa* do not equate to mountain, hill, rise; the last two are smaller but mainly differentiated by shape (Figure A1.8). In some instances, the shape term also applies (perhaps principally) to non-landscape objects.
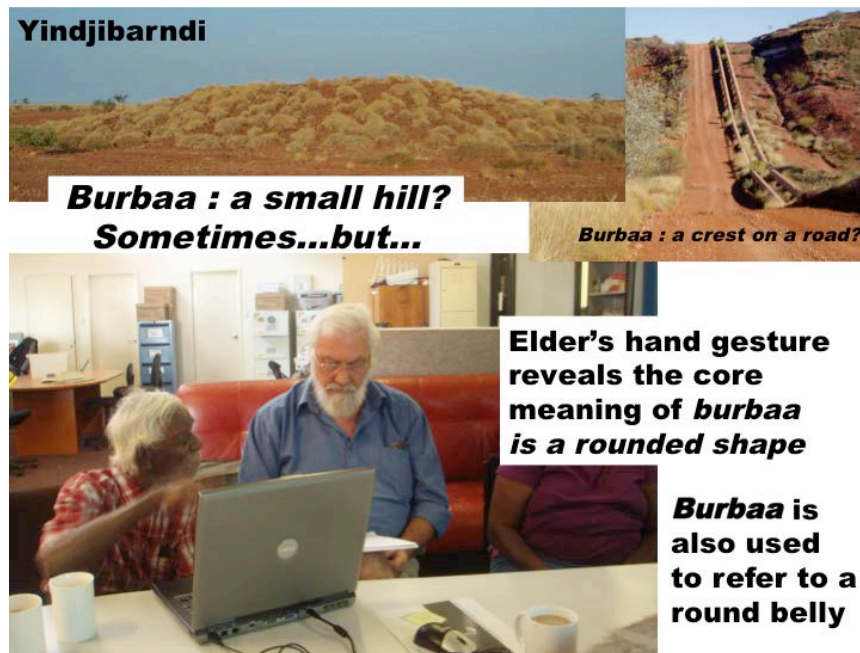
Figure A1.8: Burbaa is a term for rounded shape, used for landscape features of that shape (Ppt slide from Mark).

Yindjibarndi uses some compound phrases for landscape features denoted by single words in English; e,g. *marnda marlirri* (flat-topped hill; mesa) (Figure A1.9) and a single word for a features indicated by two words in English; e.g. *marndawarrura* (literally: hill + black, brown, dark).

Figure A1.9: mesa = *Marnda marlirri*

Yindjibarndi hydrology terms separate water and flow magnitude (*bawa, mankurdu,*

yijirdi) from longitudinal depressions (*garga, wundu*) along which the water sometimes flows. English incorporates both water and channel in the terms 'creek' and 'river'. The same applies for vertical flow of water over a cliff (*thardarr*) (Figure A1.10).
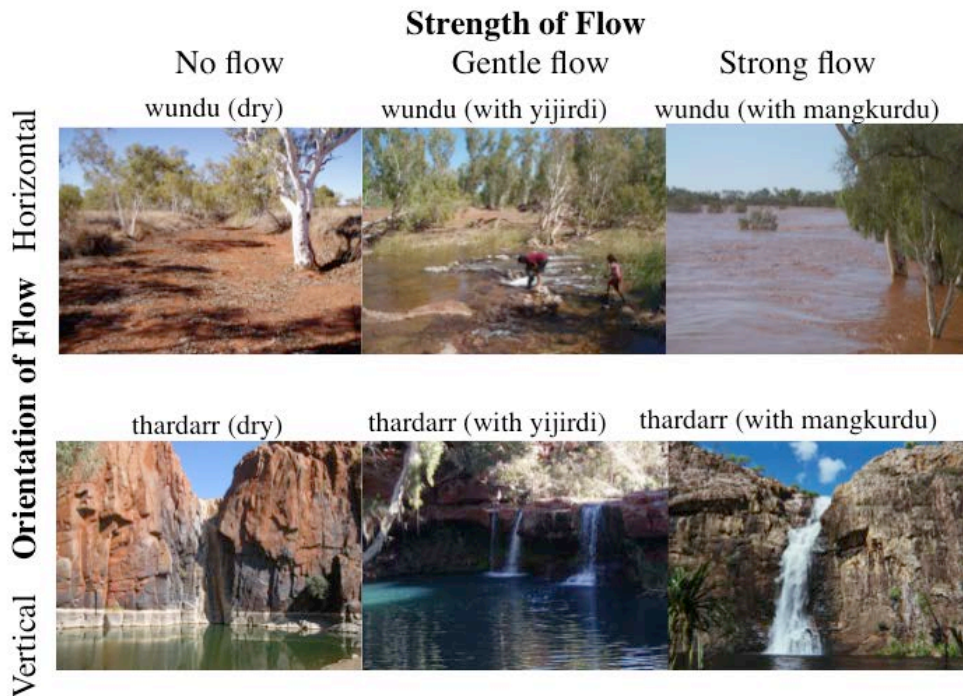
Figure A1.10: Images illustrating water flow terms (Ppt slide from Mark)

Alternative words for some landscape features exist in a special 'respect' language, used in major ceremonies involving visitors from other language communities. An example is *mardiya* (track, trail).

Place names (toponyms) tend not to include generic terms and are unanalyzable, rather than being descriptive. Toponyms are sometimes grouped (i.e. various different types of landscape features in an area having the same toponym), especially when the places are related by 'The Dreaming' (creation beliefs, as discussed in Chapters 6 and 8), e.g. *Jindawurru*, that refers to a set of hills and water features.

Spiritual aspects of features are part of the meaning of terms. For instance, the term *yinda* (permanent pool) includes the concept of a *warlu* ('Dreaming' spirit) that created the pool and remains there (Figure A1.11).

Figure A1.11: Elder says:*"Warlu left permanent water here for the Aboriginal people"*

Some terms are effectively related to generic concepts of shape. For instance, *yirra* = sharp edge (used for cliff); *yirrangga* = at the edge (used for shorelines; edge of a pool); and *burbaa* is used for any rounded feature, even a persons extended stomach (Figure A1.8).

The initial results of this case study were reported at the 2003 COSIT meeting (Mark and Turk, 2003a) and summarized more completely at the COSIT'07 meeting (Mark, Turk and Stea, 2007). This case study is also discussed in some depth in Mark, Turk and Stea (2010) and Turk, Mark and Stea (2011).

A draft Illustrated Dictionary of Yindjibarndi Landscape Terms, including 100 terms, was distributed to participants and other community members, requesting feedback, and then revised (Turk and Mark, 2008). Improvements to the dictionary were made following further discussions in 2009. Figure A1.12 shows an example page from the dictionary.

Marnda

English words with similar meaning:

hill, mountain, ridge, range, rock, stone

Marnda refers to an area of **ngurra** (ground) that stands higher than the country around it. A person standing near a **marnda** looks up at it.

You can climb up a **marnda** to see things in the distance.

A **gubija** (small) **marnda** might take less than a minute to climb.

However. it could take a couple of hours to climb a **marnda wajigarda** (large).

Figure A1.12: Example page from draft pictorial landscape dictionary

These results confirmed the differences in landscape categorization (ontology) between English and Yindjibarndi. This supported the ethnophysiography hypothesis, encouraging the Ethnophysiography Research Group to extend collaboration with linguists (and others) and to undertake further case studies.

A1.2 Navajo (Diné) Ethnophysiography Case Study

A1.2.1 Introduction

This section provides a brief summary of the Navajo (Diné) ethnophysiography case study, which is introduced in Chapter 2, Section 2.4.2. This case study was initiated by Mark and Stea[63], after the latter attended a seminar by the former concerning the first phase of the Yindjibarndi case study (Chapter 2, Section 2.4.1 and Appendix 1, Section A1.1). Stea had worked with Navajo people in his early career and said that their landscape was similar to the Yindjibarndi landscape displayed in Mark's PowerPoint slides. A second ethnophysiography case study with Navajo would permit the comparison of terms used for similar landscape features by people with vastly different languages.

Navajo are a very large group of Native American (First Nations) people, with about 240,00 officially registered tribal members (2000 census). A further incentive for this project was provided by the fact that the Hopi people have a reservation within the Navajo Reservation. Hopi are much earlier occupants of this country and have a very different language to Navajo. Hence, a further (more direct) landscape language comparison might be possible.

Both the Navajo and Hopi people are independent self-managed nations who, because of bad past experiences, are very wary of outside researchers (Whiteley, 1998). After attending appropriate meetings, and completing requested documentation, Mark and Stea obtained formal research approval from the Navajo Nation. However, a similar process with the Hopi Nation was unsuccessful because of their refusal to be involved in a research project that also involved Navajo (their traditional invading enemies and current opponents in land and environmental disputes).

Mark and Stea received funding for the US National Science Foundation (NSF) for the project entitled *Collaborative Research: Landscape, Image, and Language Among Some Indigenous People of the American Southwest and Northwest Australia (BCS-0423075 & BCS-0423023).* This funding included the Navajo ethnophysiography case study. It covered payments to Mark and Stea, including their travel costs and many general expenses (accommodation, vehicles, payments to participants, etc.). Navajo

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[63] Some of the photos used in this appendix were taken by the researchers (Hill and Turk).

collaborator, Carmelita Topaha, assisted with the fieldwork and some of the translation. This author and linguist Niclas Burenhult have also assisted with some of the fieldwork and interpretation of data. Some details of the Navajo case study are provided in Turk et al. (2011), Klippel, Mark, Wallgrün and Stea (2015) and Mark and Turk (2016).

A1.2.2 Location and Geography

The Navajo Reservation consists of 67,339 square kilometres and is located in north-eastern Arizona, north-western New Mexico, and south-eastern Utah (Brown, 1995; McPherson, 1992); see Figure A1.13. The 2000 U.S. census reported that 58% of Navajos (173,987 people) lived on the reservation (Turk et al, 2011).
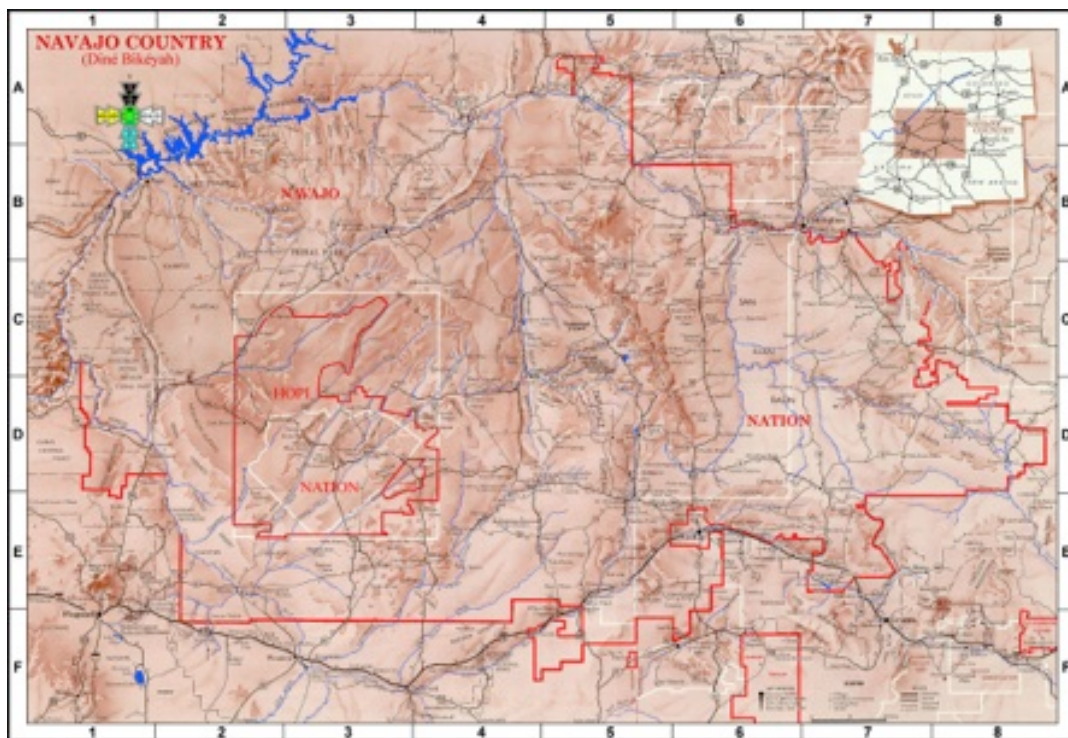
Figure A1.13: Map of location of Navajo Reservation and Hopi Reservation, within it.

Navajo country is of much higher elevation than that of Yindjibarndi, with very large mountains (snow-capped in winter), plateaus, long ridgelines, mesas and butes, with some hills being of volcanic origin (cinder cones). There are also vast plains, eroded 'bad-lands' and spectacular canyons (Figure A1.14). The climate is relatively dry and many arroyos and washes (gullies) often have no water, however, winter snows feed several large rivers. Vegetation in lower flat areas consists of sagebrush (Artemisia tridentata) and other shrubs and grasses. Large forests of junipers (Juniperus monosperma and J. osteosperma), piñon pines (Pinus edulis and P. monophylla) and

ponderosa pines (Pinus ponderosa) are found at intermediate elevations and low shrubs near the tops of mountains.

Figure A1.14: Photos of Navajo Landscape.

A1.2.3 Navajo Language

The Navajo language has a very large number of fluent speakers. Within the USA, it is the most frequently spoken indigenous language; 47 percent of those who speak a First Nations (Indian) language at home speak Navajo. Turk et al. (2011 p. 32) provide more details:

> The Navajo language, which the people call Diné Bizaad, is a member of the Athabaskan language family (Young and Morgan, 1992). Most of the Athabaskan languages are spoken today in Alaska and north-western Canada, but those spoken in the western United States include Navajo, various Apachean languages, and several others along the Pacific Coast. Like other Athabaskan languages, Navajo has an elaborate prefixing system with words formed by fitting elements into templates, with many words combining several components (Kari, 1989). The Navajo language has a large number of verbs, relatively few nouns, and no word-class that corresponds to adjectives in English.

A1.2.4 History and lifeways, past and present

Navajo people sometimes assert that they originated in the location of their reservation, with origin stories placing their traditional lands where they now live, bounded by their four Sacred Mountains (Semken and Morgan, 1997). Non-Navajo archaeology and anthropology, however, suggests that some of the Athabaskan speaking peoples from what is now western Canada invaded this area, displacing the Puebloan peoples (like the Hopi) somewhere between 1200 and 1500 A.D. (Jett, 1997). They led a hunter-gatherer lifestyle, sometimes complemented by raiding. They increasingly adopted the corn-growing practices of the

Puebloans. Horses and sheep introduced by Spanish invaders became central to Navajo culture (Iverson and Roessel, 2002).

Like the Yindjibarndi people in Australia, the Navajo world was severely impacted by European colonization (Turk et al. 2011, p. 33):

> The majority of the Navajo people were forcibly removed from their land by the United States government in 1864, but after four and a half years of exile on the plains of north-eastern New Mexico, they were allowed to return to their traditional lands, some of which were designated as a reservation straddling what is now the Arizona-New Mexico border. They promptly expanded into neighboring lands and have continued to gain considerable land up to the present […] Today, many Navajos live on the reservation in dispersed settlements, and some herd sheep, while many others, wage-earners living in towns on and off the reservation, return home on weekends.

Such displacements of people can mean that they start dwelling in different landscapes. This can impact their landscape language, including the use of 'loan words' from other languages.

A1.2.5 Preparations and Fieldwork

Preparations and fieldwork activities for the Navajo case study were similar to those for the Yindjibarndi study, with variation due to the much greater population and somewhat different geography. Data collection was mostly via the same sort of methods used in the Yindjibarndi case study, however, with a much greater emphasis on Navajo participants and researchers undertaking vehicle trips through the countryside (Figure A1.15). The Navajo Nation has about 100 Chapter Houses where local people (especially elders) regularly gather. These were great places for the researchers to run sessions where participants discussed the language project in general and talked about features in photographs of landscape, while also enjoying some food (Figure A1.16).

Figure A1.15: Carmelita Topaha, Serena Jumbo and David Stea during a drive through landscape - Chuska Mountains, New Mexico, August, 2005.

Figure A1.16: Researchers discussing landscape photos with Navajo elders - Sanostee Chapter House, August 2006

Another technique used early in the case study is described as follows in Turk et al. (2011 p. 34) :

> Following preliminary examination of published dictionaries and other literature, the first exploration of Navajo landscape terminology involved having Navajo speakers sort landscape photographs into groups; participants were then asked to describe why they grouped the photos as they did. Groupings differed widely from speaker to speaker and were difficult to interpret. However, the results of the grouping task did help the researchers in their selection of images for the photograph response protocol.

This photo sort protocol was also carried out with groups of non-Navajo living in the same region. Results were compared with those of the Navago groups, however, the low numbers of participants in sessions, and the widely varying reported motivations for forming groups of photos, meant that only very general conclusions could be drawn.

A1.2.6 Results and Discussion

Not all data from the fieldwork (mainly conducted before 2010, but occasionally on-going) has been fully transcribed and analysed. However, preparation of an illustrated landscape dictionary for community use was commenced in 2009 and final publication was in 2019 (Mark, Stea and Topaha, 2019). Some of the initial findings regarding landscape terms (Mark and Turk, 2016; Turk et al., 2011) are briefly summarized in the following paragraphs.

Navajo seems to have about 200 terms for landscape features. This can be compared to the Yindjibarndi language for which about 100 terms have been documented by Turk and Mark (2009).

Some terms explicitly indicate the materials of which the feature consists. This applies, for instance, to terms beginning with *tsé* (rock) and *to* (water).   For instance, large elongated depressions in the earth, with sides composed of rock, are sometimes called as *tséyi'* in Navajo. *Tséyi'* literally means "within the rock": *tsé* = rock, *-yi'* = within or between, thus "rock canyon".

Different terms (e.g. *bikooh; tsékooh; tséyi; chashk'eh; nást¬'ah; tójí*) are used for longitudinal concave (hydrological) features, such as canyons, river valleys and gullies depending on whether they are cut through rock or sand. Examples are: *bikooh* for a large canyon or small gully with sides of sand or soil; and t*sékooh* for small or large longitudinal depressions cut into rock.

Words for water include 'what it is doing'. For instance, *be'ek'id* is water sitting still. The term usually refers to a small lake or natural pond. A *be'ek'id* can be in the lowlands or up in the mountains. It is still *be'ek'id* even if it has no water in it.

There is the possibility of there being different words used for landscape features depending on the viewing perspective. For instance, for canyon wall, depending on if viewed from above or below. For example, *tó bidah 'iiłį* is the standard term for waterfall, however, *tó hadah 'iiłį* is used for a waterfall when you are standing at the bottom looking up.

There are strong cultural/spiritual associations with landscape features. Some of these may vary depending on season of the year. Cultural and spiritual associations are often related to foundation stories; for instance a larva field is considered the blood of a monster killed by the

Hero Twins (see below). Particular locations can have other cultural associations. For instance, *anaasází t'óó bik'eh haz'á* refers to an abandoned Anasazi[64] place.

Navajo uses compound words. For instance, if the size of a feature is communicated, a general-purpose size term is added, such as *tsé nitsaa*, meaning "rock that is large". Many toponyms are of a compound nature; for instance combining the size, colour, material and posture of a feature; e.g. *tsé 'íí'áhí,* literally means 'the rock that is standing'. This means that there are often subtle differences between landscape descriptions, generic terms and toponyms. Turk et al. (2011, p. 35) note that Jett (1997, 2001), suggests that:

> almost all Navajo toponyms are translatable into English, and the majority translate into descriptive English phrases. The Navajo language has a term, *hoolyé*, translated as "a-place-called" (Kelley and Harris, 1994; p. 85; Kelley, personal communication, 2006). However, *hoolyé* is often omitted, so while its presence removes ambiguity and clearly indicates a toponym, a word not followed by *hoolyé* might still be a toponym.

The Navajo language also tends not to incorporate a generic landscape term as part of the toponym, such as in the English place name *Jones Hill.* Rather the generic is incorporated into the term in a more complex manner, as noted above.

Some Navajo toponyms have associations with traditional spiritual beliefs, many regarding the actions of *Holy Beings,* such as the *Hero Twins* (famous for slaying monsters, whose bodies were turned to stone in the form of hills or mountains). Other much more recent toponyms record significant community events, such as the hill where the boy was chasing a goat then fell off a cliff. Kelley and Harris (1994) discuss Navajo sacred associations with landscape. One of their informants, Mamie Salt, told them "Every inch of ground, all vegetation and the fauna on it, are considered sacred. There are no places that are holier than others. There are so many stories that go with the land that it would take more than twenty years to tell them" (p. 28).

The results of the Navajo case study support the ethnophysiography hypothesis formulated after the commencement of the Yindjibarndi landscape language case study (Section A1.1). This is, that conceptualisations and categorisation of landscape features depends on the nature

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[64] *Anasazi* is the Navajo term for the people who long ago constructed buildings at places like Mesa Verde, Chaco, Aztec, etc. Archaeologists now tend to call them "Ancestral Pueblo" peoples, rather than "*Anasazi*".

of the terrain itself, but also on the social, cultural and spiritual associations which language speakers have with their landscape.

Appendix 2: *Landscape Language* Special Issue 2008 - Key Issues

A2.1 Introduction

This appendix discusses the special issue of the journal *Language Sciences* (Burenhult, 2008a), prepared by MPI researchers as part of the collaborative work undertaken within the Space Project in the Language and Cognition Group. Members of the Ethnophysiography Research Group (Mark and Turk) assisted with editing of these articles, as discussed in Chapter 2, Section 2.6.2. The key aspects of the studies included in the special issue are listed in Table A2.1.

A2.2 Summary of articles

Table A2.1: Key aspects of case studies in Burenhult (2008a)

Author(s)	Title	Language	Geography	Lifestyle
Penelope Brown	'Up, down, and across the land: Landscape terms, place names, and spatial language in Tzeltal'	Tzeltal, a Mayan / Mesoamerican language	Chiapas, southwestern Mexico. Specifically, the municipio of Tenejapa. Steep, precipitous mountainous region. Elevations range between 900 metres in the northeast to 2800 metres.	Subsistence agriculture (corn, beans) plus coffee as a cash crop in higher areas. Lots of travel by foot up/down rivers and ridges.
Niclas Burenhult	'Streams of words: hydrological lexicon in Jahai'	Jahai, a member of the Northern Aslian branch of the Mon-Khmer language family.	Malay Peninsula – Landlocked area of about 3,500 sq km in the interior parts of the Peninsular. Mountains up to 1,800 metres above sea level. A maze of narrow, steep-sided valleys with swift-flowing mountain streams. Rainforest on foothills and lower mountains; bare rock outcrops higher up.	Hunter/gatherer subsistence system based on hunting, fishing and the collecting of wild tubers and vegetables and occasional swidden cultivation. Traditionally lived in mobile bands of 15-50 people. Nowadays most Jahai are encouraged by the government to live in settlements.
Gabriele Cablitz	'When "what" is "where": a linguistic analysis of landscape terms, place names and body-part terms in	Marquesan, a group of Austronesian / Polynesian languages closely related to Hawai'ian.	Steep rocky volcanic islands in Pacific Ocean.	Sea-oriented and agriculture lifestyle, similar to Hawai'ian.

	Marquesan (Oceanic, French Polynesia)'			
Nick Enfield	'Linguistic categories and their utilities: the case of Lao landscape terms'	Lao, a Southwest Tai language of Southeast Asia.	Flat, well-watered mostly cultivated flat land with adjacent mountains with cliffs, ridges, peaks and ravines. Vegetation is thick, tropical.	Inhabit flat land where they conduct irrigated paddy agriculture. Mountains are typically inhabited by other ethnic groups.
Stephen Levinson	'Landscape, seascape and the ontology of places on Rossel Island, Papua New Guinea'	Yeli Dnye, an isolate, Island Melanesian language.	Island. Mountainous, tropical rainforest, beaches, barrier reef, lagoon, rocks, etc.	Gathering nuts and game, planting taro, coconuts – slash and burn agriculture – and fishing.
Loretta O'Connor and Peter Kroefges	'The land remembers: Landscape terms and toponyms in Lowland Chontal of Oaxaca'	Chontal, a language isolate, although perhaps in the Hokan family of Mesoamerica languages.	Pacific coast of Mexico in the State of Oaxaca, near Guatemala. Rugged foothills rising to 1,000 meters, river valleys. Scrub vegetation.	Fishing and farming.
Carolyn O'Meara and Jürgen Bohnemeyer	'Complex Landscape Terms in Seri'	Seri, an isolate Mesoamerica language.	Sonora, Mexico. Coast, plains and mountains.	Fishing and farming.
Gunter Senft	'Landscape terms and toponyms in the Trobriand Islands – the Kaile'una subset'	Kilivila, an Austronesian Island Melanesian language.	Fairly low island covered with bush and gardens and with a swamp in the middle.	Islanders are expert navigators and gardeners, with complex culture/spirituality.
Thomas Widlok	'Landscape Unbounded. Space, Place, and Orientation in =Akhoe Hai//om and Beyond'	=Akhoe Hai//om, a Khoisan language of southwestern Africa.	The Oshikoto region of Northern Namibia, in south-western Africa. An arid region, mostly covered with bush (forest savanna and woodland) – higher rainfall and taller trees towards the North. No mountains or ridges. Riverbeds and salt lakes usually dry.	Hunter/gatherer society.

A2.3 Key Contributions From the Introduction and Nine Case Studies

This set of nine case studies in diverse locations, and the Introduction to the special issue, provided a good phenomenographic basis for identifying the important features of landscape language and, hence, the requirements for ethnophysiography investigations. The key issues/factors (identified by this author and Mark) regarding landscape language raised in these articles are listed in Tables A2.2 to A2.11. The letters a, b, c, etc. attached to most issues/factors listed refer to the key aspects of landscape language case studies that this author considers are especially relevant to this dissertation, as explained in Section A2.4 below (following the summary of the articles).

Table A2.2: Issues/factors identified in the Introduction: Burenhult & Levinson (2008)

Why the landscape domain is linguistically interesting and how patterns emerge from cross-linguistic comparison of case studies.	
Potential implications from this research for international law, navigation systems, etc.	
Possibility of universal landscape categories (which evidence from case studies seems to preclude for most terms) and how difficult it is to translate terms between languages.	a
Relationship between generic landscape terms and toponyms.	
Possibility of structured sets of terms (semantic fields) with syntactic implications; they introduce term 'semplates' for a semantic template that structures a lexical set of landscape term.	d
Role of language in potentially integrating (developing a 'consensus') of cognitive style across a community of language speakers.	k
Landscape places as individual features or areas containing perhaps many features.	
Landscape categorization driven by factors such as perceptual salience, interactional properties of features (including affordance) and cultural, linguistic and ecological / utilitarian considerations (including subsistence and spiritual aspects).	e
The cognitive utility of toponyms, e.g. in way-finding.	k
Insights from comparing the nine languages include:	
Considerable cross-linguistic variation in denotational properties of landscape terms.	a
Considerable differences in sets of landscape terms found in different environments (including in some case studies terms for features in the sea).	a
Different importance (between languages) of factors in landscape feature category formation.	e
Insufficient evidence from these studies to claim 'landscape' as a specific semantic domain, as physical landscape is intertwined with cultural and other notions, however, landscape is an important domain for research.	
Physical environment (terrain) as a setting for activities and relationships that influence categorization of landscape features.	e

Sets of landscape terms can conform with a schema/template/model/frame, perhaps using metaphor (like body parts or kinship), which the authors call 'semplates'.	d
What gets a place name and ways of generating toponyms (and their forms) differ considerably, as do their relationship with generic landscape terms.	J

Table A2.3: Issues/factors identified in Brown (2008)

The Tzeltal spatial relations system is based on a general uphill/downhill reference frame.	d
Some landscape terms in Tzeltal "form a lexical category of their own" because "they take a distinctive set of plural endings".	
Some landscape terms and toponyms utilize a body parts metaphor; e.g. locations are specified using body part terms, mapped onto inanimate objects using shape.	d
No relation of landscape terms to kinship metaphor.	d
Caves, cliffs, waterholes and mountains are intimately associated with spiritual beings.	h
Landscape features given toponyms include: agricultural fields, hunting areas, woods, topographic areas (e.g. marsh, plains), with institutions like churches and schools given Spanish (colonizer) names.	g
Following Bohnemeyer et al. (2004) this author suggests that determinants of whether something gets a toponym are: perceptual salience; interactional affordances; and cultural importance (which is a strong consideration).	e

Table A2.4: Issues/factors identified in Burenhult (2008a)

Many Jahai terms for hydrological features and water processes, including use of metaphors; body parts (creating partonomy) and kinship terms (creating size taxonomy).	d
Complex system of body-part naming for water features applies at any scale, from large river to trickle of water (i.e. it is 'fractal').	d
General term for water, as a substance or landscape feature (still or flowing).	
Role of 'motion verbs' to encode movement in relation to water features (and other landscape features); regarding movements along or across features.	c
About 20% of collected terms are 'borrowed' Malay terms (loan-words).	i
Toponyms seem exclusively linked to aspects of drainage, although non-permanent watercourses are not associated with place names.	j
Use of 'Director/Matcher Task' (photo-matching game) as an elicitation technique for landscape categories and terms.	
Concludes that: "The lexical systems, functionally diverse and driven by different factors, illustrate that principles and strategies of geographical categorisation can vary systematically and profoundly within a single language." (p. 182).	e

Table A2.5: Issues/factors identified in Cablitz (2008)

In Marquesan the preposition *'io* (for "at") is used for an entity considered an object, whereas *'i* is used for places; with some intermediate cases based on characteristics such as size or boundedness.	c

Islands, islets and small lava rocks sticking out of the sea are all *motu*, but small ones take the object-marking preposition *'io* and large islands the place preposition *'i* .	c
Terms included for 'geophysical' phenomena such as ocean currents and celestial phenomena such as clouds and stars.	a
Different terms for "cliff by the sea" and "cliff inland".	a
The word for village is also used for river and valley.	a
Word for mountain is 'spine'+'bone' and word for mountain range is 'spine' + 'back'.	d
Words for up and down used directly for upstream and downstream in ocean currents.	
Words for inside and outside are also used for 'bay' and 'open ocean'.	d
Most Marquesan place names are semantically transparent and derived from landscape description.	j

Table A2.6: Issues/factors identified in Enfield (2008)

Discusses the relation between language, perception and cognition regarding landscape term categories and semantics in Lao language.	k
Particular discussion of relationship between utilitarian (activity-based) and cultural/spiritual factors in categorization of landscape features.	g
Lao terms distinguish between still or flowing water features.	a
Language for mountains, where other ethic groups dwell, indicate this group's distant, yet spiritual, relationship with mountains.	h
Terms for mountain terrain seem to indicate that they relate to the material more than size or shape and there is no Lao word for valley.	a
Data collection was mostly via recording of everyday conversations.	

Table A2.7: Issues/factors identified in Levinson (2008)

Relationship between western science notions (underpinning GIS) and traditional knowledges and links to ontology and language.	k
Organisation of templates/schemas of categories and terms via cultural parameters.	d
Factors motivating landscape categorization include: perceptual salience; human affordance, use for lifestyle activities and cultural and spiritual considerations.	e
In Yeli Dnye terms are used for features of seascape as well as landscape.	a
Toponym organization is usually in terms of landscape schemas, but this is not always the case.	j
There are terms for parts of the sea lagoon but not the whole lagoon.	a
Strong emphasis on spiritual associations of places.	h
Claim that vegetation assemblages may not belong to the landscape domain.	f
Claim that there is no word equivalent to river because the Yeli Dnye term includes the unbounded stream of fresh water through the sea lagoon.	a

Table A2.8: Issues/factors identified in O'Connor and Kroefges (2008)

In Chontal speakers' interactions with nature and beliefs in supernatural forces influence landscape terms and toponyms.	h
Fresh water springs are commonly venerated as sacred places where supernatural beings dwell.	h

There are sacred hills and sacred rivers, dwelling places of either dwarf-like creatures or the Devil.	h
Chontal grammar distinguishes agents and objects, and for geographic entities composed of water, the water is treated grammatically as an agent.	c
Rivers of different sizes are indicated by kinship terms man/woman for large, child for small.	d
The term *ijwala* is used for any elevated entity, whether a mountain or hill, or highlands in general, whereas *cerro* (a Spanish loan-word) is used for tiny mounds such as anthills.	a
Different types of vegetation don't seem to be differentiated by landscape terms.	f
The authors describe the word for landslide as containing a root that commonly refers to 'anus' and 'excrement'.	
The basic words for 'water' and 'earth' are included in terms for other water-related and earth-related features, often as virtual 'doers' or 'possessors' of particular events and attributes, however, they do not appear in toponyms.	b
A single word, *ane'*, refers to any path, from a dirt rack to a paved highway.	
Toponyms are used for settlements, topographically salient features (such as hills), rivers and other water bodies.	j
It is common for a toponym to be used for a group of nearby landscape features of different types.	j
The names of a river may change along its course.	j
Most Chontal toponyms are binomial with a landscape generic followed typically by a plant or animal associated with the place, however, for named rocks, the word for rock comes second.	j
Some binomial toponyms mix a Chontal and a Spanish loan-word, in either order or role.	i

Table A2.9: Issues/factors identified in O'Meara and Bohnemeyer (2008)

The Seri language deals with landscape terms as either mass (material) or object (feature); e.g. feature terms are constructed via words added to the mass word, in different ways.	b
Their analysis of landscape terms specifically excludes vegetation.	f
Seri classify landscape features in terms of: material composition; spatial properties such as shape, orientation and mereological relations, with complex landscape terms based on four substances and posture semantics.	b

Table A2.10: Issues/factors identified in Senft (2008)

In Kilivila landscape sub-domains are unique to this topographic situation; including coral reefs, particular parts of the ocean and currents.	a
Because speakers are subsistence gardeners, there are lots of words for different soil types and types of food gardens.	g
This language includes a structured set of landscape terms appropriate for an island; starting from the sea and moving inland.	d
Landscape terms are mostly (common) nouns, however, there are some that are prepositional phrases; locatives and directional.	b
Metaphor does not seem to be used for landscape terms.	d
Data collection lasted 23 years but the key toponym data was collected in a single session.	
Toponyms reveal much about the culture and humor of the speakers.	j

All caves or grottos with fresh water have a proper name.	J
Almost all toponyms are in the form of simple nouns, although meaning may be complex, and are very culturally specific.	j
Speakers use a suffix *valu* (meaning 'place/area') for proper names; e.g. *valu Amelika* = (the) continent Amerika.	b

Table A2.11: Issues/factors identified in Widlok (2008)

In =Akhoe Hai//om the words for indicating directions, orientation and way-finding indicating a particular mix of egocentric vs absolute approaches, which is influenced by the dominant landscape features and vegetation.	k
Low landscape features and thick vegetation preclude long-distant views and influence orientation strategies and hence language.	f
Orientation terms are used for both the natural and built environments.	k
Importance of occupation history, culture and lifestyle on landscape language, rather than physical form.	i
Parts of landscape are marked in the language as either masculine or feminine.	c
Strong spiritual relationships with landscape features.	h
Toponyms are usually landscape descriptions.	j

A2.4 Summary of Key Aspects of Articles

Although most of the data analysed in these articles was not originally collected specifically for ethnophysiography-like purposes, the collation and phenomenographic analysis of this material for nine reasonably diverse languages in this journal special issue moved the field of landscape language forward considerably. The key aspects that this author considers are especially relevant to this dissertation are listed in Table A2.12 (and indicated by letters a, b, c, etc. attached to relevant points in Tables A2.2 to A2.11). This is also relevant to the development of the EDM discussed in Chapter 2, Section 2.8.

Table A2.12: Key aspects for EDM

a	The set of landscape terms used in a language is influenced by the nature of local topography (terrain) and hence the range of landscape feature types.
b	Compound words and phrases may be used instead of simple generic landscape terms.
c	The structure/grammar of the language and role of nouns vs verbs vs prepositions (etc.) influences the nature of landscape terms.
d	The role of conceptual frames and/or metaphor for structuring landscape terms (e.g. human body parts structuring hydrology terms).
e	The comparative significance of various factors that can motivate categorization of landscape features, including: perceptual salience, interactional properties of features (including affordance) and cultural, linguistic and ecological / utilitarian considerations (including subsistence and spiritual aspects).
f	Influence of vegetation in region where language spoken; variability, density, uses, its affordance re travel, blocking long views, etc.
g	Role of lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc.

h	Influence of religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features.
i	Historical factors such as movement of the people into their current region and/or colonization of the people by outsiders (perhaps yielding loan-words).
j	Structure of place names, whether they are descriptive, if they include generic landscape terms and how they arise and are constructed.
k	Influence of language (including re landscape) in developing communal cognition. This is related to 'communalized intentionality', discussed in Chapters 4, 5 and 6.

A2.5 Conclusion

As detailed above, this analysis confirmed the importance of lifestyle, cultural and spiritual aspects of peoples' lives in interpreting and discussing terms associated with physical landforms. The input of this author and Mark into the detailed editing of the articles also helped cement their relationship with the key MPI researchers.

Appendix 3: ESF Exploratory Workshop (2012)

A3.1 Introduction

This appendix provides some detailed results from the European Science Foundation (ESF) Exploratory Workshop: *Conceptualising European Landscapes Across Languages, Cultures, and Disciplines.* It was held at Las Navas del Marqués, Spain (in the hills near Madrid), from the 2nd to 4th of May, 2012.   An introduction to this event is in Chapter 2, Section 2.7.2.

A3.2 Workshop topics and themes

A detailed set of emergent research topics (and themes), developed by this author (in collaboration with some other workshop participants), was presented to the final session of the ESF workshop in an effort to inspire further research and enhance collaboration. As there was no report prepared for the meeting, this set of emergent topics (and themes) was not published. The themes were grouped into five general topics. A somewhat reworded list is presented in Table A3.1.

Table A3.1: List of themes resulting from ESF Workshop 2012

Topic A	Definitions and Ontologies:
A1	**Definitions of landscape:**
A1.1	Reasons for the various definitions of landscape and options for standardisation.
A1.2	*Definitions of urban vs rural vs natural (wild) types of landscape.*
A1.3	Conceptualisations of categories of landscape types are usually socially constructed but may be determined by regional, national or international regulations or agreements.
A2	**General fuzziness of landscape domain:**
A2.1	Fuzziness makes definition of particular features (in continuous landscape) and physical description difficult.
A2.2	A variety of different approaches to landscape categories are used in different languages.
A2.3	Landscape needs to be considered as place (with all that entails), rather than just as space.
A3	**Temporal dimension:**
A3.1	Multiple time scales need to be considered: geological, historical and current.
A3.2	Time scales can apply to individuals vs a local community vs a national society vs internationally.
A3.3	Time (period) as it is perceived by an individual or group ('perspectival time') may differ from actual time.
A4	**Ontologies of landscape:**
A4.1	Different sorts of categories are used to break landscape into parts and/or represent physical, utilitarian, cultural or spiritual relationships with landscape.

A4.2	Categories are culture and language determined.
A4.3	Methods of categorisation interact with issues of data collection, storage and analysis.
A5	**Representations of landscape:**
A5.1	Representation of landscape can drive definition and vice versa.
A5.2	Representation involves: aesthetics; language; thought; performance; practice; etc.
A5.3	*Role of art in motivating and representing relationships with landscape.*
Topic B	*Ways of thinking about landscape:*
B1	**Perspectives on landscape:**
B1.1	Different perspectives and paradigms are used by different disciplines.
B1.2	Cognitive explanations of perspectives on landscape can be contrasted with and/or complemented by investigation of motivation and emotion.
B1.3	Issues of embodiment, movement, perception and performance are also important.
B2	**Landscape understood with respect to (wrt) a set of functions:**
B2.1	Relationship between activities undertaken by speakers and the meaning of landscape language.
B2.2	*Alternative words may be used in differing circumstances re processes, purposes, affordances and uses of ecosystems.*
B2.3	It may be useful to consider input/output systems models of processes.
B2.4	Processes (wrt landscape) involve individuals, groups, communities, and societies.
B3	**Form of landscape (terrain):**
B3.1	Need consideration of both form and function of parts of landscape.
B3.2	Measurability of terrain can be an issue.
B3.3	Role of geomorphology theory in assisting understanding of form of topography.
Topic C	*Social and political dimensions:*
C1	**Attitudes towards landscape:**
C1.1	Topophilia and other affective aspects make space into place and involve identity of people.
C1.2	Conservatism can be an important consideration, including memories of landscape.
C1.3	Values of landscapes as social construction, involving ethics and norms.
C1.4	Relationships with landscape include cosmology and spirituality.
C1.5	*Impact of new technologies (including social media) on individual and group relationships with landscape.*
C2	**Social, political and policy dimensions:**
C2.1	Power struggles about landscape are virtually universal and continuous.
C2.2	The meaning of landscape cannot be divorced from politics.
C2.3	*Role of conventions, laws, guidelines, etc. regarding landscape (local; regional; national; international).*
C2.4	Use of prescription vs. encouragement regarding management of landscape.
C2.5	Top-down vs bottom-up policy making and consultation processes.
C2.6	Potential endangerment of both tangible and intangible landscape heritage.
C2.7	How to understand the role of value systems in relationship to landscape and relevant policies.
C2.8	Public attitudes to new features in landscape, such as wind turbines.
C2.9	How to influence policy making about landscape.

C2.10	Interaction of this theme with culture.
C3	**Globalisation issues:**
C3.1	Significance of immigration, mobility, demography, consumption, etc.
C3.2	Tourism and roles/rights/opinions of inhabitants vs visitors.
C3.3	Whether local vs global is always good vs bad or sometimes vice versa.
C4	**Economic issues:**
C4.1	Impact of economic issues on ways of life wrt landscape.
C4.2	*Food and landscape, including concept of 'Terroir'.*
Topic D	*Specifically linguistic issues and need for transdisciplinary approach:*
D1	**Landscape in Language:**
D1.1	Role of syntax and form.
D1.2	Meaning, semiotics, metaphor.
D1.3	Mythology, narrative, literature.
D1.4	Comparison of different structure/modes of languages.
D1.5	Preservation of endangered languages
D2	**Toponymy (placenames):**
D2.1	History and evolution of place names in particular locations.
D2.2	Interpretation of place names in social/cultural context.
D2.3	Relationship of place names to generic landscape terms.
D2.4	Comparison of methodological/thematic approaches to place names and regional differences
Topic E	*Methods for landscape language studies:*
E1	**Methods of investigating landscape and culture:**
E1.1	Ethnographic methods of data collection.
E1.2	Complexity of ethnographic qualitative data.
E1.3	Role of artefacts: maps; text; navigation systems, gazetteers, archives, paintings.
E1.4	Digital landscape: information infrastructure; GIS; heritage/storage; multimedia; linked data; and metadata.
E1.5	Comparison of methods used by different researchers.
E1.6	Tractability of particular methods to research of different aspects of landscape and specific research questions.
E1.7	Ethics of research.
E2	**Diversity of places and languages demands diversity of methods:**
E2.1	Different types of landscape, language, culture, societies, admin/policy require different methods to be used.
E2.2	Testing relationships of above factors with types of methods via case studies
E3	**Transdisciplinary approach to Europe Landscape Research:**
E3.1	How to achieve high level of collaboration.
E3.2	Potential role of types of Philosophy (e.g. Phenomenology) as an over-arching paradigm.
E3.3	Alternative definitions of transdisciplinary; some of which include input from non-academic participants.
E3.4	Can landscape language research approaches be extended to post-disciplinary (where disciplines disappear)?
E3.5	Approaches to enhancement of ongoing collaboration on landscape language research.

Many of the issues raised were similar to those discussed in earlier sections of Chapter 2 and its other appendices. However, there were some additional topics among those summarized in Table 7.1. These included matters relevant to international regulation, agreements and guidelines, similar to the situation that applies to the Antarctic Landscape Case Study (Manning and Turk, 2016) discussed in Chapter 6. Some additional key issues/factors/topics arising from the ESF Workshop have been incorporated into the dimensions of Version 4 of the draft EDM presented in Chapter 2, Section 2.8.2 . They related to six items in Table A3.1 (shown in *italic* type face) labelled as Topics: A1.2; A5.3; B2.2; C1.5; C2.3 and C4.2.

A3.3 Conclusion

The themes/aspects listed in phenomenographic Table A3.1 provided an extremely rich and multi-faceted examination of the field of landscape language research, combining a huge number of ideas from the diverse participants; including six significant new topics. The discussions at this ESF workshop, and the listing of emergent themes, consolidated transdisciplinary development of research in the field of landscape. It also confirmed that there were key aspects that apply to most types of societies in most parts of the world, although the emphasis on particular aspects (and approaches to research) needs to differ depending on the nature of each landscape and the peoples who inhabit it.

The set of themes developed at this workshop serves as a checklist for ethnophysiography research topics and methods. Together with the EDM discussed in Chapter 2, Section 2.8 and the summary regarding landscape as place in Chapter 5, this phenomenographic list provides a key element of the answer to Research Question 1: *What are the principal aspects of ethnophysiography (including social, cultural, spiritual and ethical aspects of landscape as place) that should be involved in the Ethnophysiography Descriptive Model (EDM) and PTM-ECS (methodology) to facilitate enhanced future ethnophysiography research?*

Appendix 4: Conceptual Models of Transdisciplinarity

A4.1 Introduction

This appendix brings together the various conceptual models of transdisciplinarity developed in Chapter 3, in order to answer Research Question 2: *Is it possible to build a conceptual model, that integrates definitions and methodological considerations concerning transdisciplinarity from multiple publications, across various disciplines, which can act as an effective guide to the research investigation, and as a mechanism to evaluate the level of transdisciplinarity achieved by the research processes and the dissertation?*

There are an initial set of five models (Section A4.2) then a concatenated sixth model (Section A4.3), which is used to assist in developing the proposed research methodology. It is also used in Chapter 9 to evaluate how effectively this PhD investigation and dissertation have implemented a form of transdisciplinarity.

A4.2 Initial Conceptual Models of Transdisciplinarity

Table A4.1: Transdisciplinary Conceptual Model A – five 'cornerstones of transdisciplinarity' (Montuori, 2005).

Code	Montuori (2005) 'cornerstones' of Transdisciplinarity
M-1	Transdisciplinary is inquiry-driven rather than exclusively discipline-driven, while not ignoring disciplinary contributions. It is reflective concerning the researcher's context, lived experience, values, beliefs and assumptions.
M-2	Transdisciplinary research is meta-paradigmatic rather than exclusively intra-paradigmatic; seeking to address an important complex questions and is open to a plurality of perspectives and constantly iterative. It should be innovative and take creative approaches to problem formulation and investigation.
M-3	Transdisciplinarity should be self-reflective and informed by a kind of thinking that is creative, contextualizing, and connective.
M-4	Transdisciplinary research is not afraid to recognize an inquirer's subjectivity in order to harness their passion, creativity, context and connection, while ensuring that any assumptions or biases they bring with them are surfaced, reflected upon and debated.
M-5	Transdisciplinary inquiry is a creative process that combines rigor and imagination; seeking not just academic justification and accepting of the possibility of multiple ways of knowing and that they can co-exist.

Table A4.2: Transdisciplinary Conceptual Model B: Guiding principles for an open and critical approach (Russell, 2010, pp. 56-58).

Code	Principle
R-1	**The partiality, plurality and provisonality of knowing:**
R-1.1	Recognition that knowledge generation is embedded in social contexts.

R-1.2	Acceptance that the consequences of the complexity of the world is our inability to include everything in our system of inquiry, leading to: partiality; plurality; and consequential provisonality and openness to revision and improvement.
R-2	**Foundations of reliable knowledge:**
R-2.1	Social processes and critical deliberation are necessary to evaluate reliability of evidence and propositions; requiring explicit declaration of underlying values, assumptions and interests.
R-2.2	To avoid a relativist position, sources of knowledge are extended beyond the tradition specific knowledge community to include the wider scholarly community and the broader community.
R-3	**Validity and critical rationality:**
R-3.1	Knowledge about the physical (instrumental rationality) and social worlds (practical rationality) can only be legitimized through inter-subjective critical reflection/rationality (incorporating understanding of relevant purposes, agendas, values etc. that have influenced knowledge production).
R-4	**Ontological commitments:**
R-4.1	Worldview that is 'open' (recognizing unfolding, dynamic and heterogeneous complexity).
R-4.2	Worldview that is an expanded view of what is 'real' (including cultural as well as physical matters).
R-4.3	Worldview that is a 'realist' view (i.e. that the world exists independently of what I may think about it).
R-5	**Including both 'facts' and values in the inquiry processes and validation:**
R-5.1	All systems of inquiry and their consequences are never 'value free' and thus it is necessary to include relevant meta-data about factors such as 'boundary judgements' and pertaining values.
R-5.2	Inquiries constitute interventions in the world and hence should be designed for improvement in values such as environmental sustainability and social justice.
R-6	**Openness across 3 philosophical commitments and 3 rationalities;**
R-6.1	Explicit accounting for all three knowledge commitments: the ontological, epistemological and ethical; utilized in a manner characterised by 'openness' rather than 'closed' orientations.
R-6.2	Openness relates not only who is involved and what knowledge is accepted, but also to the provisionality of any findings (i.e. that it is open to revision and improvement after further scrutiny of 'facts' and values).
R-6.3	Ethically-driven transdisciplinary inquiry into relations between humans and their environment is legitimized via the commitments in R-6.1 and R-6.2.
R-7	**Including ecological conditions in human interests and knowledge:**
R-7.1	Critical inquiry should be guided by the dual concerns of ecological sustainability and social justice (Habermas, 1972).

Table A4.3: Transdisciplinary Conceptual Model C – Nicolescu's '10 Realities', on 3 levels, plus 4 meta-aspects of research (Nicolescu, 1985, 2002; McGregor, 2015)

Code	*Nicolescu's '10 Realities' of Transdisciplinarity*
N-1	**Level 1** is the internal world of humans, where consciousness and perspectives flow:
N-1.1	Political realities
N-1.2	Social realities
N-1.3	Historical realities
N-1.4	Individual realities
N-2	**Level 2** is the external world of humans where information flows:

N-2.1	Environmental realities
N-2.2	Economic realities
N-2.3	Cosmic/planetary realities
N-3	**Level 3** concerns interactions between realities in levels 1 and 2, which are mediated by this 'Hidden Third Level'. "Peoples' experiences, intuitions, interpretations, descriptions, representations, images, and formulas meet on this third level." (This 'intuitive zone of non-resistance to others' ideas'):
N-3.1	Culture and art
N-3.2	Religions
N-3.3	Spiritualities
N-4	**Meta level (4)** of aspects of transdisciplinarity research:.
N-4.1	Research is emergent
N-4.2	Research is complex
N-4.3	Research is embodied
N-4.4	Research is cross-fertilized

Table A4.4: Transdisciplinary Conceptual Model D – Mode 2 Knowledge (McGregor, 2015)

Code	*Aspects for Type 2 Knowledge Conceptual Model of Transdisciplinarity*
Mc-1	Mode 2 knowledge is produced in the same context where it will be applied.
Mc-2-a	Mode 2 knowledge exemplifies transdisciplinary principles by using a framework that evolves in the context of application, via creatively and iteratively seeking theoretic consensus.
Mc-2-b	Mode 2 knowledge exemplifies transdisciplinary principles by solving problems in ways that extend beyond particular disciplinary processes in a cumulative way.
Mc-2-c	Mode 2 knowledge exemplifies transdisciplinary principles by continuous communication about methods and results among research groups, in ways that extend networks of collaboration.
Mc-2-d	Mode 2 knowledge exemplifies transdisciplinary principles by always being dynamic, reflective and open to new transdisciplinary approaches, methods of data collection and analysis techniques.
Mc-3	Mode 2 knowledge involves different disciplines and types of experience and is open to new combinations of viewpoints and methods.
Mc-4	Mode 2 knowledge has research structures that are likely to be transient, deftly changing to meet evolving requirements and relevant combinations of researchers.
Mc-5	Mode 2 knowledge should result from strongly reflective modes of research to ensure it is socially relevant, accountable and ethical and does not privilege the world-view, values or perspective of some researchers over those of others.
Mc-6	Mode 2 research involves evaluation of research processes and resulting knowledge should be external as well as internal to ensure a broad composition of review teams and concentration on the usefulness and social acceptability of results, not just traditional scientific measures of experimental rigor.

Table A4.5: Transdisciplinary Conceptual Model E – Attributes of Transdisciplinarity (various authors)

Code	Attribute of Transdisciplinarity	Reference
E-1	Interprets dynaminism and interaction between types of research.	Jantsch (1972)
E-2	Socially responsible research, which leads to change in government policies.	Bernsteai (2015)
E-3	Involved in reform of teaching and research practices at universities.	Janz (1998; 2006)
E-4	Transdisciplinarity takes a 'weak' or 'strong' form.	Max-Neef (2005)
E-5	Studies mind, thoughts, consciousness, values, feelings, emotions, actions and purposes via investigation of language, beliefs, arts and institutions.	Van Manen (1990)
E-6	Useful to address 'wicked' / 'diabolical' problems via use of modes of inquiry involving individuals, communities, specialist traditions and influential organisations.	Brown, Dean, Harris and Russell (2010)
E-7	'Open Transdisciplinary' includes disciplines but also all validated constructions of knowledge and their worldviews and methods of inquiry.	Brown, Dean, Harris and Russell (2010)
E-8	'Open Transdisciplinary' includes knowledge held by civil society and recognises role of imagination.	Lawrence (2010)
E-9	'Open Transdisciplinary' includes concepts of comprehensiveness, complementarity, participatory research, transcendence and transformation.	Lawrence (2010)
E-10	Utilises a conceptual framework that provides flexibility to respond to ever-changing and unfolding circumstances.	Russell (2010)
E-11	Can utilise either (or possibly both) the *Nicolescuian* approach (grounded in tenets of metaphysics, quantum physics and complexity science) or the *Zurich* approach (including integration of imperatives of science, democracy, humanities and economy).	McGregor (2015)
E-12	Can utilise methods developed for bridging differences within disciplines.	Barry, Born and Weszkalnys (2008)
E-13	Can integrate findings from natural sciences and engineering and social sciences, humanities and arts.	Barry, Born and Weszkalnys (2008)
E-14	Can produce results with greater accountability; easier for industry/business to understand and adopt.	Barry, Born and Weszkalnys (2008)
E-15	Can utilise ethnography and case studies.	Barry, Born and Weszkalnys (2008)
E-16	Incorporates aspects of liberalism, environmentalism, wholism and metaphysics.	Janz (1998; 2006)
E-17	Requires reflective dialogue about philosophical basis.	Janz (1998; 2006)
E-18	Transdisciplinarity can be either: theoretical (well defined methodology from theory); phenomenological (building	Nicolescu (2007)

	models of observed data); or experimental (via replicable sets of procedures).	
E-19	Transdisciplinary research must use a methodology.	Nicolescu (2007)
E-20	Effective evaluation design is critical but difficult because crosses discipline boundaries and differences (between participants) re factors such as: expectations; values; culture; language; and reward structures.	Rouxa, Stirzakerb, Breene, Lefroyd and Cresswell (2010)
E-21	Case studies are very useful for explaining practical approaches to transdisciplinary research, including in teaching situations.	Stauffacher, Waler, Land, Wiek and Scholz (2006)
E-22	ComplexityTheory can be used to integrate and explain elements of a transdisciplinary framework.	Bernstein (2015)
E-23	Both 'etic' (researcher imposed) and 'emic' (subject generated) perspectives to data should be generated and integrated.	Albrecht, Freeman and Higginbotham (1998)
E-24	Can be linked to aspects of Feminist Theory and aspects of gender examined in research methods.	Sandford (2015)
E-25	Explicit definition of terms (and differences between disciplines) is critical.	Kuhn (2012)
E-26	There needs to be a focus on: theory development, training of researchers, team building, finding common aims and rewarding good practice.	Fry (2001)
E-27	For research with indigenous peoples there is a broader range of data sources and methods which need to be developed 'from the ground up' and should result in real changes to people's lives.	Christie (2006; 2008; 2013; 2015; 2016)
E-28	Transdisciplinary research needs to utilise an appropriate overarching paradigm (meta-methodology) to integrate data gathering and analysis undertaken in the various facets of a research project.	Montuori (2005; 2009)

A4.3 Concatenated Model of Transdisciplinarity

Table A4.6: Concatenated Conceptual Model for Transdisciplinarity (integration of Models A, B, C, D, and E)

Code	Source Code	Aspects of Transdisciplinarity
CCMT-1		**Key attributes of transdisciplinarity:**
CCMT-1.1	E-6	Addresses 'wicked' / 'diabolical' problems via use of modes of inquiry involving individuals, communities, specialist traditions and influential organisations.
CCMT-1.2	M-1; E-28	Is inquiry-driven rather than exclusively discipline-driven, while not ignoring disciplinary contributions, which need to be integrated via an appropriate overarching paradigm (meta-methodology).
CCMT-1.3	M-2; N-4.1; N-4.2; N-4.4;	Is meta-paradigmatic rather than exclusively intra-paradigmatic; seeking to address important complex questions and is open to a plurality of perspectives and constantly iterative. It should be emergent, innovative and

	E-1	take creative approaches to problem formulation and investigation.
CCMT-1.4	R-6.1	Explicit accounting for all three knowledge commitments: the ontological, epistemological and ethical; utilized in a manner characterised by 'openness' rather than 'closed' orientations.
CCMT-1.5	R-6.2	Openness relates not only to who is involved and what knowledge is accepted, but also to the provisionality of any findings (i.e. that they are open to revision and improvement after further scrutiny of 'facts' and values).
CCMT-1.6	E-7; E-8; Mc-3	Includes theory and paradigms from different disciplines but also all validated constructions of knowledge and their worldviews and methods of inquiry; including knowledge held by civil society.
CCMT-1.7	R-4.1; R-4.2; R-4.3	Adopting a worldview that is 'open' (recognizing unfolding, dynamic and heterogeneous complexity); that is an expanded view of what is 'real' (including cultural as well as physical matters); and that is a 'realist' view (i.e. that the world exists independently of what I may think about it).
CCMT-1.8	E-8; E-9	Includes concepts of comprehensiveness, complementarity, participatory research, transcendence and transformation and recognises the role of imagination.
CCMT-1.9	E-11	Can utilise either (or possibly both) the *Nicolescuian* approach (grounded in tenets of metaphysics, quantum physics and complexity science) or the *Zurich* approach (including integration of imperatives of science, democracy, humanities and economy).
CCMT-1.10	E-16	Incorporates aspects of liberalism, environmentalism, wholism and metaphysics.
CCMT-1.11	E-17	Requires reflective dialogue about philosophical basis.
CCMT-1.12	E-18	Transdisciplinarity can be either: theoretical (well defined methodology from theory); phenomenological (building models of observed data); or experimental (via replicable sets of procedures).
CCMT-1.13	R-1.2	Acceptance that a consequence of the complexity of the world is our inability to include everything in our system of inquiry, leading to: partiality; plurality; and consequential provisonality and openness to revision and improvement.
CCMT-1.14	M-3	Adopting a self-reflective mode, informed by thinking that is creative, contextualizing, and connective.
CCMT-1.15	M-1; M-4	Being reflective concerning the researcher's subjectivity - context, lived experience, values, beliefs and assumptions - ensuring they are surfaced and debated. It harnesses researcher's passion, creativity, context and connection.
CCMT-1.16	M-5; R-2.2	Is a creative process that combines rigor and imagination; seeking not just academic justification and accepting that multiple ways of knowing can co-exist. To avoid a relativist position, sources of knowledge are extended to include the wider scholarly community and the broader community.
CCMT-1.17	R-1.1; R-2.1	Recognition that knowledge generation is embedded in social contexts. Social processes and critical deliberation are necessary to evaluate reliability of evidence and propositions; requiring explicit declaration of underlying values, assumptions and interests.
CCMT-1.18	R-3.1; R-5.1	Knowledge about the physical (instrumental rationality) and social worlds (practical rationality) can only be legitimized

		through inter-subjective critical reflection/rationality (incorporating understanding of relevant purposes, agendas, values, 'boundary judgements' etc. that have influenced knowledge production).
CCMT-1.19	R-5.2; R-6.3; R-7.1; N-2.1; N-2.3	Critical and ethical inquiry guided by concerns for ecological realities and sustainability, in the context of cosmic/planetary realities; designed for improvement in environmental sustainability values (leading to change in government policies).
CCMT-1.20	R-5.2; R-7.1; N-1.1; N-1.2; N-1.3; N-2.2; E-2	Guided by concerns for social, political and economic realities, in the context of historical situation. Hence, designed for improvement in social justice values (leading to change in government policies).
CCMT-1.21	N-4.3	Research is embodied; involving physical activity of researchers.
CCMT-1.22	N-1.4; N-3.1; N-3.2; N-3.3 E-5	Studies mind, thoughts, consciousness, values, feelings, emotions, actions and purposes via investigation of individual realities, including: culture, religion and spirituality, language, beliefs, arts and institutions.
CCMT-1.23	E-27	For research with indigenous peoples there is a broader range of data sources and methods which need to be developed 'from the ground up' and should result in real changes to people's lives.
CCMT-1.24	E-22	Complexity Theory can be used to integrate and explain elements of a transdisciplinary framework.
CCMT-1.25	E-24	Can be linked to aspects of Feminist Theory and aspects of gender examined in research methods.
CCMT-1.26	E-25	Explicit definition of terms is critical (including differences between their use in different disciplines).
CCMT-1.27	E-26	Focused on theory development, training of researchers, team building, finding common aims and rewarding good practice.
CCMT-1.28	E-3	Involved in reform of teaching and research practices at universities.
CCMT-2		**Transdisciplinary methodological considerations:**
CCMT-2.1	E-4; E-19	Transdisciplinary research must use a methodology, which can be 'weak' or 'strong', depending on the scope of inquiry, range of disciplines and methods used.
CCMT-2.2	E-15; E-21	Can utilise ethnography and case studies; which are very useful for explaining practical approaches to transdisciplinary research, including in teaching situations.
CCMT-2.3	E-23	Both 'etic' (researcher imposed) and 'emic' (subject generated) perspectives to data should be generated and integrated.
CCMT-2.4	Mc-1	Knowledge should be produced in the same context where it will be applied.
CCMT-2.5	Mc-2-a; E-10	Uses a framework that evolves in the context of application, via creatively and iteratively seeking theoretic consensus.
CCMT-2.6	E-12; E-13	It integrates findings from natural sciences, engineering, social sciences, humanities and arts and can utilise methods developed for bridging differences within disciplines.

CCMT-2.7	Mc-2-b; Mc-2-c; Mc-2-d; Mc-3; Mc-4	Solves problems in ways that extend beyond particular disciplinary processes. It is always dynamic, reflective and open to new transdisciplinary approaches, viewpoints, methods of data collection and analysis techniques in an innovative and cumulative way (to meet evolving requirements and relevant combinations of researchers); using continuous communication about methods and results among research groups, in ways that extend networks of collaboration.
CCMT-2.8	Mc-5	Uses strongly reflective modes of research to ensure it is socially relevant, accountable and ethical and does not privilege the worldview, values or perspective of some researchers over those of others.
CCMT-2.9	Mc-6	Involves evaluation of research processes (external as well as internal) and resulting knowledge to ensure concentration on the usefulness and social acceptability of results, not just traditional scientific measures of experimental rigor.
CCMT-2.10	Mc-6; E-20	Effective evaluation design is difficult because crosses discipline boundaries and also because of differences (between participants) re factors such as: expectations; values; culture; language; and reward structures. Hence, a broad composition of review teams is needed.
CCMT-2.11	E-14	Should produces results with greater accountability; easier for industry/business to understand and adopt.

Appendix 5: Diverse Definitions of Phenomenology (Seamon, 2019a)

A5.1 Introduction

As discussed in Chapter 4, Section 4.1.3, a diverse set of definitions of phenomenology is provided in Seamon (2019a). The 23 definitions of phenomenology in Section A5.2 were written by eminent phenomenological thinkers (listed in the citation list in Section A5.3 at the end of this appendix). Those shown in *italics* are especially relevant to this dissertation.

A5.2 Twenty-three definitions of phenomenology (full citations follow definitions):

1. *Phenomenology is the study of human experience and of the ways things present themselves to us in and through such experience (Sokolowski 2000, p. 2).*

2. *Phenomenology is the study of phenomena as experienced by human beings. The primary emphasis is on the phenomenon itself exactly as it reveals itself to the experiencing person in all its concreteness and particularity (Giorgi 1971, 9).*

3. *Phenomenology takes its starting point in a return to the "things" or "matters" themselves, that is, the world as we experience it. In other words, for phenomenologists, experience must be treated as the starting point and ultimate court of appeal for all philosophical evidence (Brown and Toadvine 2003, p. xi).*

4. *Phenomenology is the study of experience, particularly as it is lived and as it is structured through consciousness. "Experience" in this context refers not so much to accumulated evidence or knowledge as to something we "undergo." It is something that happens to us and not something accumulated and mastered by us. Phenomenology asks that we be open to experience in this sense (Friesen, Henricksson, and Saevi 2012, p. 1).*

5. *The aim of phenomenology is to describe the lived world of everyday experience.... Phenomenological research into individual experiences gives insight into, and understanding of, the human condition. Sometimes it "languages" things we already know tacitly but have not articulated in depth. At other times, quite surprising insights reveal themselves.... (Finlay 2011, p. 26).*

6. *Phenomenology is best understood as a radical, anti-traditional style of philosophizing, which emphasizes the attempt to get to the truth of the matters, to describe phenomena, in the broadest sense as whatever appears in the manner in which it appears, that is as it manifests itself to consciousness, to the experiencer. As such, phenomenology's first step is to seek to avoid all misconstructions and impositions placed on experience in advance, whether these are drawn from religious or cultural traditions, from everyday common sense, or, indeed, from science itself. Explanations are not to be imposed before the phenomena have been understood from within (Moran 2000a, p. 4).*

7. *As a method, [phenomenology] serves to remind us of the significance of the full range of meaning of human experience, including taken-for-granted assumptions, values, and perceptions often forgotten about in analytic frameworks. In attending to pre-thematic ways of being-in-the-world, phenomenology helps to comprehend human behavior in its fullness (Stefanovic 2015, p. 40).*

8. Phenomenological method is driven by a pathos: being swept up in a spell of wonder about phenomena as they appear, show, present, or give themselves to us. In the encounter with the things and events of the world, phenomenology directs its gaze toward the regions where meanings and understandings originate, well up and percolate through the porous membranes of past sedimentations—then infuse, permeate, infect, touch, stir us, and exercise a formative and affective effect on our being (van Manen 2014, p. 26).

9. *Phenomenology is an attempt to understand from the inside—and not to dismiss or criticize from the outside—the whole spectrum of experience which we generally call "reality" (Vesely 1988, p. 59).*

10. Phenomenology never purely coincides with lived experience in itself, but by probing its ultimate horizons and seeking to grasp the englobing sense of what appears within them, renders lived experience anew. The subject matter is the intelligibility of lived experience, which phenomenology realizes essentially; and it is in rendering this "intelligibility" that the faithfulness of phenomenology to lived experience lies (Burch 1989, p. 195).

11. Phenomenology seems to take the ground away from under our feet, while at the same time giving us the sense of being where we have always been—only now recognizing it as if for the first time. It's hard to catch hold of it because it's like trying to catch something as it's happening and which is over before we can do so. It can perhaps best be described most simply as "stepping back" into where we are already. This means shifting the focus of attention within experience into the experiencing of it. So if we consider seeing, for example, this means that we have to "step back" from what is seen into the seeing of what is seen (Bortoft 2012, p. 17).

12. Phenomenology recovers the order of truth as residing in things. It is not hidden, it does not lie under or behind or beneath things, and hence does not require Depth Theory to winkle it out. It is what is manifest (what shows) in things and how. If this is very obvious (as it must be) it yet requires a particular way of seeing and understanding in order to grasp it, for it can simply be no-seen at all (Scannell 1996, p. 169).

13. Phenomenology: The disciplined struggle "to let be," to let being appear or break through (Buckley 1971, p. 199).

14. Phenomenology: The gathering together of what already belongs together even while apart (Mugerauer 1988, p. 216).

15. *Phenomenology: To let that which shows itself be seen from itself in the very way in which it shows itself from itself (Heidegger 1962, p. 58).*

16. [Phenomenology] adopts no standpoint and provides no single direction of approach. [It] informs us simply that something we experience is to be disclosed, and this in turn means that it must somehow be hidden from us, though it may be superficially familiar. Phenomenology thus reveals itself as a gentle, responsive way of thinking. It tends to become what it studies. It is the method of imposing no method (Relph 1983, p. 201).

17. Phenomenology invites us to stay with "the experience itself," to concentrate on its character and structure rather than whatever it is that might underlie or be causally responsible for it.... [Phenomenology] facilitates a return to experience, to awaken in us a sense of its importance by demonstrating the founding role of experience in our

conception of the world, however sophisticated that conception has become through the advancement of the natural sciences. In striving to awaken us to our own experience, to the phenomena through which our conception of the world is constituted, phenomenology seeks to awaken us to ourselves, to make us alive to our existence as subjects who bear a kind of ultimate responsibility for that conception (Cerbone 2006, p. 3).

18. [Phenomenology entails] letting things become manifest as what they are, without forcing our own categories on them... [T]he very essence of true understanding is that of being led by the power of the thing to manifest itself... Phenomenology is a means of being led by the phenomenon through a way of access genuinely belonging to it... Such a method... is not grounded in human consciousness and human categories but in the manifestness of the thing encountered, the reality that comes to meet us (Palmer 1969, p. 128)

19. Phenomenology is the study of essences; and according to it, all problems amount to finding definitions of essences: the essence of perceptions, or the essence of consciousness, for example. But phenomenology is also a philosophy that puts essences back into existence, and does not expect to arrive at an understanding of [human beings] and the world from any starting point other than that of their "facticity" (Merleau-Ponty 1962, p. vii).

20. Many aspects of Husserl's original formulation of phenomenology endure as central themes, including his catch cry "back to the things themselves" (Zu den Sachen selbst), which expressed the idea of the avoidance of metaphysical speculation, the attempt to gain a presuppositionless starting point, the use of description rather than causal explanation, and the attempt to gain insight into the essences of all kinds of phenomena (Moran 2001, p. 353).

21. *Phenomenology: The excavation of human experience, first, in terms of particular persons and groups in particular places, situations, and historical moments; and, second, as this excavation engenders a self-conscious effort to make intellectua*l *and emotional sense of what that experience reveals in terms of broader lived structures and more ethical ways of being, willing, and acting (Seamon 2008, p. 15).*

22. Our relation to the world is so fundamental, so obvious and natural, that we normally do not reflect upon it. It is this domain of ignored obviousness that phenomenology seeks to investigate. The task of phenomenology is not to obtain new empirical knowledge about different areas in the world, but rather to comprehend the basic relation to the world that is supposed by any such empirical investigation.... The world is, as Merleau-Ponty writes, wonderful. It is a gift and a riddle. But in order to realize this, it is necessary to suspend our ordinary blind and thoughtless taking the world for granted (Zahavi 2019, p. 67).

23. *[The aim is] making evident an essential distinction among the possible ways in which the pregiven world, the ontic universe [das ontische Universum], can become thematic for us. Calling to mind what has repeatedly been said: the lifeworld, for us who wakingly live in it, is always already there, existing in advance for us, the "ground" of all praxis whether theoretical or extra-theoretical. The world is pregiven to us, the waking, always somehow practically interested subjects, not occasionally but always and necessarily as the universal field of all actual and possible praxis, as horizon. To live is always to live-in- certainty-of-the-world. Waking life is being awake to the world, being constantly and directly "conscious" of the world and of oneself as living in the world, actually experiencing [erleben] and actually effecting the ontic certainty of the world.*

The world is pregiven thereby, in every case, in such a way that individual things are given. But there exists a fundamental difference between the way we are conscious of the world and the way we are conscious of things or objects (taken in the broadest sense, but still purely in the sense of the lifeworld), though together the two make up an inseparable unity. Things, objects (always understood purely in the sense of the lifeworld) are "given" as being valid for us in every case (in some mode or other of ontic certainty) but in principle only in such a way that we are conscious of them as things or objects within the world-horizon. Each one is something, "something of" the world of which we are constantly conscious as a horizon.

On the other hand, we are conscious of this horizon only as a horizon for existing objects; without particular objects of consciousness, it cannot be actual [aktuell]. Every object has its possible varying modes of being valid, the modalizations of ontic certainty. The world, on the other hand, does not exist as an entity, as an object, but exists within such uniqueness that the plural makes no sense when applied to it. Every plural, and every singular drawn from it, presupposes the world-horizon. This difference between the manner of being of an object in the world and that of the world itself obviously prescribes fundamentally different correlative types of consciousness for them (Husserl 1970, pp. 142–143).

A5.3 Full Citations for Definitions

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Appendix 6: Questions and Issues re Phenomenology of place

A6.1 Introduction

This appendix provides details of some topics concerning phenomenology of place discussed in Chapter 5. Section A6.2 presents a set of questions about phenomenology of place from Seamon, D. (2014) (Table A6.1). It has been redacted and amended to only shown those questions relevant to this dissertation. These questions will be addressed in Chapter 9.

Section A6.3 provides a very detailed summary (Table A6.2) of specific aspects of phenomenology of place noted from review of a very wide range of authors in Chapter 5, Sections 5.2, 5.3 and 5.4. This table forms part of the new transdisciplinary methodology for ethnophysiograhy case studies, developed in Chapter 7 and reviewed in Chapters 8 and 9.

A6.2 Lists of Question re Phenomenology of Place (from Seamon, 2014)

Table A6.1: Questions about phenomenology of place - Seamon (2014)

From: Seamon, D. (2014) Human-Immersion-in-World: Twenty-Five Years of *EAP*. *Environmental & Architectural Phenomenology*, Vol. 25, No. 3, p. 8.
[Questions especially relevant to Chapters 4 and 5 are shown in italics: Topic 1 - all 10; Topic 2 - 2 of 8; Topic 3 - all 11; Topic 4 - 3 of 4]

1. Questions relating to phenomenology and related interpretive approaches and methods:

    a. *What is phenomenology and what does it offer to whom?*

    b. *What is the state of phenomenological research today? What are your hopes and concerns regarding phenomenology?*

    c. *Does phenomenology continue to have relevance in examining human experience in relation to world?*

    d. *Are there various conceptual and methodological modes of phenomenology and, if so, how can they be categorized and described?*

    e. *Has phenomenological research been superseded by other conceptual approaches; e.g., post-structuralism, social-constructionism, relationalist and non-representational perspectives, the various conceptual "turns," and so forth?*

    f. *Can phenomenology contribute to making a better world? If so, what are the most crucial phenomena and topics to be explored phenomenologically?*

g. *Can phenomenological research offer practical results in terms of design, planning, policy, and advocacy?*

h. *How might phenomenological insights be broadcast in non-typical academic ways; e.g., through artistic expression, theatrical presentation, digital evocation, virtual realities, and so forth?*

i. *What are the most important aims for future phenomenological research?*

j. *Do the various post-structural and social-constructionist criticisms of phenomenology - that it is essentialist, masculinist, authoritative, voluntarist, ignorant of power structures, and so forth - point toward its demise?*

2. Questions relating to the natural world and environmental and ecological concerns:

a. *Can there be a phenomenology of nature and the natural world?*

b. What can phenomenology offer the intensifying environmental and ecological crises we face today?

c. Can phenomenology contribute to more sustainable actions and worlds?

d. Can one speak of a sustainable lifeworld?

e. What is a phenomenology of a lived environmental ethic and who are the key contributors?

f. *Do the "sacred" and the "holy" have a role in caring for the natural world? For places? For life-worlds broadly?*

g. Can phenomenology contribute to environmental education? If so, in what ways?

h. Can there be a phenomenology of the two laws of thermodynamics, especially the second law claiming that all activities, left to their own devices, tend toward greater disorder and fewer possibilities? Are there ways whereby phenomenological understanding of lifeworld might help to reduce the accelerating disordering of natural and human worlds?

3. Questions relating to place, place experience, and place meaning:

a. *Why has the topic of place become an important phenomenological topic?*

b. *Can a phenomenological understanding of place contribute to better place making?*

c. *Can phenomenology contribute to a generative understanding of place and place making?*

d. *What roles do bodily regularity and habitual inertia play in the constitution of place and place experience?*

e. *What are the lived relationships between place, sustainability, and a responsive environmental ethic?*

f. *How are phenomenological accounts to respond to post-structural interpretations of space and place as rhizomic and a "meshwork of paths" (Ingold)?*

g. *Can phenomenological accounts incorporate a "progressive sense of place" argued for by critical theorists like Doreen Massey?*

h. *Can phenomenological explications of space and place account for human differences; gender, sexuality, less-abledness, social class, cultural back-ground, and so forth?*

i. *Can phenomenology contribute to the politics and ideology of place?*

j. *Can a phenomenological understanding of lived embodiment and habitual inertia be drawn upon to facilitate robust places and to generate mutual support and understanding among places, especially places that are considerably different (e.g., different ethnic neighborhoods or regions)?*

k. *Can phenomenology contribute to mobility, the nature of "flows," rhizomic spaces, the places of mobility, non-spaces and their relationship to mobility and movement?*

4. Other potential questions:

a. *What is the lived relationship between people and the worlds in which they find themselves?*

b. *Can lifeworlds be made to happen self-consciously? If so, how? Through what individual efforts? Through what group efforts?*

c. Can a phenomenological education in lifeworld, place, and environmental embodiment assist citizens and professionals to better understand the workings and needs of real-world places and thereby contribute to their envisioning and making?

d. *Is it possible to speak of human-rights- in-place or place justice? If so, would such a possibility move attention and supportive efforts toward improving the places in which people and other living beings find themselves, rather than focusing only on the rights and needs of individuals and groups without consideration of their place context?*

Questions relating to architecture and environmental design and policy

[NOT RELEVANT TO THIS DISSERTATION – SO NOT INCLUDED HERE]

A6.3 Key Ethnophysiography Issues Identified in Chapter 5

Table A6.2: Key issues regarding phenomenology of place (Chapter 5)

Item	Topics to consider re investigating phenomenology of place	Reference(s)
A	Phenomenology principles and methods re landscape	
A1	Casey quotes the Archytian axiom: "place is the first of all things", and Plato: "any thing that is must needs be in some place". Phenomenology offers an approach to detailed understanding of place.	Casey (1993; 1996; 2002)
A2	Western approaches, under influence of realist/positivist/modernist philosophies, used term 'space'. Return to use of 'place' under influence of phenomenology and post-modernism.	Casey (2002)
A3	Investigation of place needs to be as interdisciplinary and dialogical as possible; an ethical responsibility. Need for new transdisciplinary phenomenology-based contingent, mixed-methods methodology for landscape language research / ethnophysiography case studies.	Casey (2013); Landers (2013); Turk (2011; 2014; 2016)
A4	Consider fundamentals of Husserl and Heidegger notions of people being in landscape (Dasein), and dwelling [Wohnen] together with others (Mitdasein). Dwelling is the fundamental mode of being in place, involving concepts such as 'life-world', 'home-world' and 'alien-world'.	Heidegger (1962); Moran (2000a); Smith (2009); Janz (2017b); Donohoe (2017d)
A5	Whereas philosophy likes dealing in universals, leaving messy particulars to other disciplines, application of phenomenology and hermeneutics to investigation of landscape requires ways of understanding differences between places and cultures, if phenomenology is to be a truly emplaced discipline.	Janz (2014)
A6	Assistance in understanding place is needed from disciplines such as sociology and effective use of hermeneutic approaches, necessarily tied to the concrete situatedness of subjects dwelling in cultural places. Sense of place, at-homeness, and environmental experience and behavior need to be considered, as much as possible, from the point of view of the 'insider' rather than that of the 'outsider' (researcher), via an inclusive and 'reflective' process, seeking to identify aspects of the subject's 'unself-conscious immersion in place'.	Janz (2005); Gieryn (2000); Gans (2002); Harvey (1996); Malpas (2017); Donohoe (2017d); Seamon (1984); Buttimer (1980); Relph (1976)
A7	The hermeneutic interpretive encounter between place, data and analyst, must cope with the necessary vagueness and ambiguity of being in place. Places are indeterminate and dynamic; constantly changing, rather than well defined and fixed.	Gadamer (1977); Janz (2017b); Malpas (2001); Casey (1997)
A8	Places are units of landscape; its main modules. A phenomenological investigation of place should utilise pre-modern as well as post-modern approaches.	Casey (1997; 2002); Janz (2017b)
A9	Need to be 'contemplative' and 'reflective' regarding our contextual relations with aspects of place (e.g. landscape) existing in our life-world.	Patočka (1996b); Smith, 2009
A10	Embedded in the physical landscape is a landscape of personal and cultural history, of social ordering and symbolism; narratives of the land as enculturated and humanised. People's 'hermeneutic situation' is being emplaced within a topographic environment. This leads to 'sense of self' and 'sense of place'.	Malpas (1999; 2010)

A11	Social scientists need to explore the nature of place, via detailed ethnographic studies; requiring development of appropriate research techniques and methods of analysis, summary and presentation.	Tuan (1977)
A12	Need to consider both an observer's literal and metaphorical 'point of view' and use analysis of social context (life-world) to better understand data from individuals, to make effective general inferences. Phenomenology includes consideration of both physical and mental (e.g. cultural) aspects of dwelling with animate and inanimate entities.	Tuan (2014); Casey (2002)
A13	Use a humanistic approach to analysis of ethnophysiography data, including: emotional impacts and meanings flowing from utilitarian, cultural, spiritual and ethical aspects of the life-world.	Adams (2017); Tuan (1974; 1977; 2013; 2014)
A14	Need integration of concepts of place from various disciplines which utilise phenomenology.	Seamon & Mugerauer (1985a; b)
A15	Husserlian tradition of consideration of 'lived space' and 'attuned space'. Don't rely on philosophical insights. Use examination of findings from scientific studies, to reveal limitations of philosophical methods. Best to use synergistic, mixed methods.	Ströker (1965/87)
A16	Malpas contends that a deep understanding of phenomenology is required before applying it to landscape studies.	Malpas (2014)
A17	Cultural geography theories and methods are useful, despite Malpas' criticism of 'social constructionism', as they can deal with issues such as race, class, gender and sexual preference, including spiritual dimensions of dwelling, and 'place consciousness', arising from 'unselfconscious intentionality'. These aspects of 'social spaces' can be studied via various hermeneutics-based (qualitative) methods.	Relph (1976); Pred (1984); Massey (1991); Harvey 1996); Cresswell (2004); Withers (2009); Dörfler & Rothfuß, (2017);
A18	The Eurocentric nature of many classical phenomenologists (e.g. Patočka) has disabled their approach to the diversity and legitimacy of other peoples' knowledges, cultures and spirituality.	Ritter (2017); Janz (2017); Casey (2002)
A19	Structural coupling of place and identity is discussed in many disciplines, such as: philosophy; critical theory; cultural studies; and architecture. Contributions can also be made by empirical sciences, like autopoiesis, neuroscience, cognition and perception studies, and dynamic and developmental systems theories.	Mugerauer (2017a; b); Varela, Thomson & Rosch (1997)
A20	There is strong support in the literature for using ethnomethodology as a way of investigating phenomenology of place. It utilises a 'phenomenological sociology' approach, while interfacing with social science methods and hermeneutics to provide a rich interpretation of how social phenomena of dwelling are constituted, in the context of the social structures and processes that pertain to the particular community. This method can be adapted and augmented to provide a new contingent, transdisciplinary methodology for ethnophysiography case studies. It may also incorporate aspects of Ihde's postphenomenology.	Garfinkel (1967; 1996); Schutz & Luckmann (1973); Psathas (1989); Eberle (2012); McHoul (1998; 2010); Ihde, (2009); Rosenberger & Verbeek (2015); Turk et al (2012); Turk (2014; 2016)

B	Physical, embodiment and perception aspects of phenomenology of landscape	
B1	Investigate a subject's judgements about place - 'attuned corporeity'; both pre-reflective (corporeal) and conscious.	Ströker (1965/87)
B2	Dwelling is holistic. Landscape configures movements, and movements establish place through connection with utilitarian, cultural and spiritual practices. Place is 'attuned' by 'expressive movements', which can indicate intentionality. Paths serve as: a route to a goal; a way back to where one started; and a link between two or more places. Walking reveals a steady stream of places and is configured by rise and fall of terrain; a type of 'muscular consciousness'. Unity of elements of place are established via movements through place, during everyday tasks	Ströker (1965/87); Behnke (2014); Ingold (2015); Casey (1997); Bachelard (1964); Brown (2008); Malpas (2006; 2012b)
B3	Movement can also be on horseback, by bicycle, car, train or boat.	Maskit (2017)
B4	Significance of what Casey terms 'periphenomena'; subliminal perception via glances, or objects noted in the periphery of vision, which orient and guide our movements through place, constituting a 'temporal unfolding', moment by moment. Embodiment is not static.	Casey (2002); Morris (2017)
B5	Significance of aesthetic and cultural bodily movements that occur during dance and ritual. This involves aspects of an authentic phenomenology of the person-world relationship, including bodily behaviours such as 'body ballets' (regular routine activity patterns) and 'time-space routines' in setting ranging from work practices to protocols associated with spiritual ceremonies.	Casey (2002); Morris (2017); Seamon (1979; 1980); Seamon & Nordin (1980); Seamon (1984)
B6	Perceiving and imagining can work in tandem; i.e. perception precipitates imagination, or vice versa, perhaps in an extended sequence, or 'dance'.	Casey (2000)
B7	Physical relationships of 'embodied agents' with landscape can be considered with respect to 'affordance' (what the environment facilitates, for good or ill).	Gibson (1979); Malpas (2006); Ingold (2015); McConnell & Fiore (2017)
B8	Interaction with individual parts of landscape must be considered in relation to the whole environing context; a single 'gathered structure', and in terms of activities (situated and embodied cognition), conducted in a 'task-scape'. This involves activities we perform with others; the potential for 'contentful experience' through 'worldly projects' via social interactions, that tie people together, in a community.	Malpas (2006; 2012b); Gallagher (2008); Ingold (2014); Massey (1993)
B9	Bodies in place may be interpreted via a 'scientific gaze' as natural objects, or via a 'cultural gaze', or both.	Janz (2005a)
B10	Interaction with 'taskscape' involves a combination of attentionality and intentionality. Intentionality, subjectivity and agency form a triad of mutual implication. People can be involved in a 'perception-action cycle'; we perceive in order to move, but also move in order to perceive. We participate in 'environed embodiment' and enact (self-aware) movements in proprioceptive, kinesthetic and tactile/tactual ways.	Ingold (2015); Viveiros de Castro (2012); McConnell & Fiore (2017); Konopka (2017)
B11	There can be a sort of 'social affordance' regarding allowable or encouraged, or discouraged, actions, according to social convention, procedures, protocols and mimesis.	McConnell & Fiore (2017); Gibbs (2010)

C	Utilitarian and actions aspects of phenomenology of landscape	
C1	Self and place are 'thoroughly enmeshed' in practical ways; as part of the 'work-world' and, increasingly, the technological milieu. Set routines of activities (reinforced by mimesis) are subject to improvisation and innovation.	Casey (2001a)
C2	When engaged in activities, an agent has certain attitudes, beliefs and desires, standing in certain causal and spatial relations to objects in landscape (which are sometimes 'equipment'). 'Contentful experience' via 'worldly projects' results in connectedness to place.	Heidegger (1962); Malpas (1999; 2012b)
C3	Place is a space of labour, leisure, festivities, and devotion, that is loved, hated, feared or avoided. Each has it's own 'proper visage'.	Ströker (1965/87)
C4	Activities in place may be classified, so as to describe the place as a 'home', tourist destination', 'suburb' or 'memorial site'.	Janz (2005a)
C5	Places provide capacity and potentiality and are always nested and embedded in a context. Places are permanently in a process of becoming / emerging; created in a dynamic with other places, forces, events, and processes. Hence places can never be completely or exhaustively determined .	Klaver (2017); Foucault (1993)
C6	People have roles in society, involving sets of activities, linked to places and social structures, and involving different types or modes of transport, some of which are parts of systems established for that purpose, facilitating and constraining movements.	Schutz (1962; 1932/1967; 1982); Maskit (2017)
D	Social systems aspects of phenomenology of landscape	
D1	Casey uses term 'idiolocality' (with Bourdieu's 'habitus' and 'habitation') to describe places of special significance; recognizing characteristics that he terms 'peculiar' or 'eccentric'. Meaning associations with places may be 'thin' or 'thick'; acting as ways of 'anchoring' people to place. Experience of 'attuned space' is not casual; it involves those who dwell there being moved and affected, producing 'animated space'.	Bourdieu (1977); Casey (2001a); Cruz-Pierre, (2013); Carr (2013); Ströker (1965/87)
D2	Places may be 'contested' by rival social groups; because of history or current aspects of life-worlds, culture, language etc.	Casey (2007; 2011)
D3	Experiences of pleasure, belief, grief, dwelling and suffering are shared across cultures and geographical diversity.	Relph (2017)
D4	Colonisation often leads to removal and/or domination of indigenous peoples, potentially causing rootlessness and marginalization of some peoples.	Johansen (2014); Harvey (1996)
D5	Politics and power relationships deeply affect people's everyday lives and identity, including relationships with place. There is a continuously modified 'codetermination' of these relationships, within the socio-linguistic community life-world. Multi-perspective investigations are needed to understand such intertwined ethos.	Arendt (1958; 2003); Mugerauer (2017); Bonner (2017); Young-Bruehl (1982)
D6	Places can constitute a system for utilitarian, cultural or spiritual reasons, and have related designated landscape related terms or placenames. In the Australian context, such 'gathered places' includes places on 'Dreaming' (*Jukurrpa*) narrative trails and networks. Hence, places should not be considered in isolation. Also, place names (toponyms) may relate to multiple landscape features, linked by cultural/spiritual associations.	Basso (1996); Hercus, Hodges & Simpson (2002); Sutton (1995); Turk (2011; 2014; 2016)

E	***Culture, knowledge and language aspects of phenomenology of landscape***	
E1	Places gather cultural information; experiences and histories, even languages and thoughts. In the context of people's relationships with history, places have 'cultural memory'; providing 'anchors' to thick and rich notion of 'lived space'.	Casey (1997); Assmann (1997); Carr (2013); Schama (1995)
E2	Casey uses notion of 'lived time' to explain role of memory, in both a personal and communal sense, giving places a temporal and memorial dimension; indicating role of place to direct and stabalise, to memorialise and identify people – linking who we are to where we are – the 'geographical self'. Memory is related to 'memesis'.	Casey (2000); Carr (2013); Landers (2013); Donohoe (2014b)
E3	There is a connection between 'sense of self' and 'sense of place'- hence the 'relational' character of self and 'self-referential' character of understanding place. Thus a deep level of hermeneutic analysis of data is required to understand intentionality, developed by dwelling in place over time.	Gadamer (1992); Malpas (2010; 2013); Levinas (1998/2006); Ricoeur (1967)
E4	Places, while retaining aspects of their own essential character, can be considered as a 'generatrix' (template and mechanism) for generating and recalling historical and cultural knowledge. Places gather cultural information as 'cultural memory', 'lived time' and 'place memory'. Need to investigate nature of place via listening to a 'hybridity of voices', including (where applicable) 'colonised peoples'.	Casey (2002; 2007; 2011); Basso (1996a); Carr (2013); Assmann (1997); Donohoe (2014b); Landers (2003); Saussure (1986); Schama (1995)
E5	Individual (and communal) self-identity and sense of place can be experienced via autobiographical memory; longing for, a certain being-in-a-place, associated with cultural phenomena, such as spirituality and ethics. There is no place without self or self without place.	Malpas (2014); Casey (2001a)
F	***Spiritual and ethical aspects of phenomenology of landscape***	
F1	Investigations of African philosophy include recognition of spiritual aspects of place-based approaches to philosophy, and the role of traditional narratives in understanding indigenous knowledges.	Janz (1997; 2016)
F2	There are many types of sacred places, including those associated with water (often linked to foundation stories/myths in landscape). Prominent mountains are also often sacred, often venerated (and contested) by different groups, in different ways. Sacred places contain and exude a 'mythical residuum', preserved through cultural development.	Buttimer (2017); Cameron (2017a); Turk (2011; 2014; 2016); Ströker (1965/87)
F3	There is often ambiguity and unpredictability about sacred places, including frequency of visits and types of ceremony, which change over time for a wide variety of reasons (e.g. colonisation).	Cameron (2017a); Jones (2017)
F4	Climate change involves ethical challenges regarding nature of place.	Casey (2017)
G	***Structural systems aspects of phenomenology of landscape***	
G1	To investigate dwelling, need to consider life-word as a self-contained whole with its own structural regulations, in order to	Ströker (1965/87)

	acquire a categorical system befitting the consciousness-structure of the people being studied.	
G2	Do not consider elements of landscape (and peoples' relationships with them) individually, but rather, as part of a whole 'gathered' environment. Being in a place is being in a configured complex of things, in a particular 'mode of abstractness'.	Casey (1996; 2002)
G3	Concreteness of place has its own mode of abstractness; in its relationality (there is never a single place existing in utter isolation), and in its inherent regionality (whereby a plurality of places are grouped together). Places need to be considered in terms of their spatial and temporal relationships; places integrate time and space via structural systems of cultural knowledge.	Casey (1996; 1997; 2002); Deleuze & Guattari (1987)
G4	We build culture and social structures together. Heidegger notion of 'topology' can be used for concept of overarching framework of spatial and socio-cultural aspects of landscape; our 'situatedness', connecting lived experience with place and history. An interdisciplinary approach is required to provide a situated understanding of place, events and language within the dwelling group; including its finitude and partiality.	Casey (1997); Malpas (1999; 2006); Gadamer (1992); Ryan (2011); Puente-Lozano (2017); Schutz (1962); Seamon(1984)
G5	Phenomenology and hermeneutics provide ways of peeling away levels of meaning to reveal fundamental, sedimented layers of our approach to the world. This involves examination of both personal and community associations with place, revealing the role played by spatial-socio-cultural frameworks in influencing an individual's response, in combination with other various causes, some natural, some deliberate, and some as a collateral result of other activities.	Gadamer (1992); Donohoe (2017c)
G6	Systems of meaning of places may be gendered, in terms of local culture; as is Australian Aboriginal spirituality and ceremony, divided into 'mens' business' and 'womens' business'.	Glazebrook (2017)
G7	Strong example of spatial-socio-cultural frameworks are provided by Australian Aboriginal 'Dreaming' worldviews, such as *Birdarra Law* (Yindjibarndi) and *Jukurrpa* (Yanangu peoples in Central and Western Deserts).	Rijavec (1995); Sutton (1995); Stanner (2010); Swain (1993); Goddard & Wierzbicka (2015)
H	***Definitions of culture and methodological consequences***	
H1	The definition of culture affects the methods of investigation used, and hence the way culture is interpreted (together with language) in the context of ethnophysiography case studies.	Mark, Turk, Burenhult & Stea (2011)
H2	Culture has been investigated within several disciplines: sociology; anthropology, geography and cultural studies. In each case, recent approaches often utilise phenomenology and hermeneutics, sometimes in order to achieve a synergistic relationship between quantitative and qualitative methods of data collection and analysis.	Schutz (1940/1962); Natanson (1970)
H3	In sociology there has been an increasing emphasis on: the sociology of everyday life and of knowledge; intersubjectivity embedded in culture and language; collective consciousness and intentionality of community members; and the 'historicity' encountered in tradition and habituality. Our common	Berger & Luckman (1967); Luckman (1978); Mathiesen (2005);

	intersubjective goal is to understand the motive of other actors, and, through our relationship with them, our own.	Thompson (2007); McHoul (2010); Chelstrom (2013)
H4	Anthropology has ventured beyond 'structuralism' as a way of interpreting culture.	Lévi-Strauss (1963/1977); Johnson (2003)
H5	Cultural studies has developed strongly and increasingly adopted phenomenological and postmodern approaches. Cultural identity is not something which already exists, transcending place, time, history and culture. Far from being eternally fixed in some essentialized past, cultural identities are subject to the continual play of history, culture and power. Cultures are not deterministic in terms of their influence on actions and the nature of cultural products, such as: literature; art; songs; dance; ceremonies; etc. Individuals make choices from the options and potentialities that present themselves, in the spatial-socio-cultural context.	Hall (1980; 1989); Highmore (2002); Benko & Strohmayer (1997); Dear (1997); Jameson (1991); Pred (1997); Chambers (1986); Cresswell (1997)
H6	Philosophers (especially the New Phenomenologists) have played a key role in the innovative approach to culture. Henry followed Husserl's prioritizing of subjectivity above objectivity, and explaining life via the individual's 'affectivity', in response to what is observed and learned. This approach acknowledges that recognising the social realities for marginalised and/or dominated peoples in societies, is fundamental to understanding their culture.	Henry (1987/2012); Levinas (1998/2006); Simmons and Benson (2013)
H7	Examination of exotic cultures of 'the other' (especially in post-colonial contexts) have informed understandings of all cultures. Current authors argue against the 'evolutionist narrative', which suggested a steady progress in civilisation of native peoples towards the European ideal. Discussion has included the genetic nature of race and 'nature vs nurture' investigations.	Fanon (1968/2008); de Certeau (1984); Wolfe (1999); Wade (2002); Ingold (2000)
H8	Indigenist researchers contend that, for all research with maginalised groups, not just indigenous peoples, there should be meaningful involvement of representative from the group under investigation. This includes data collection, analysis and presentation of results, not only for ethical reasons, but to facilitate a legitimate and effective representation of the particular culture.	Smith (1999); Seuffert & Coleborne (2003); Harris (2003); Nakata (2007)
H9	Understanding of the role of affect in culture has developed considerably, with increasing understanding of its role for individuals, and intersubjectively, for society.	Macgregor Wise (2009); Gregg & Seigworth (2010)
H10	There have been considerable developments in sociology in recent decades regarding a phenomenological approach to culture, however, some authors wish to combine approaches from philosophy and sociology and some want to keep them separate. This impacts considerably on the type of methodology used for acquisition, analysis and presentation of social data.	Connor (2000, 2010); Csordas (1999); Clucas (2000); Psathas (1973; 1989); Backhaus (2006); Viik (2016); Eberle (2012)
H11	Phenomenological approaches to culture within anthropology and geography have impacted on discussion of landscape, including rich ethnographic studies of the relationships between landscape and culture. This has included concepts directly applicable to use of a topo-socio-cultural-spiritual	Feld and Basso (1996); Collins (2003); Keller (2003); Sheeran (2003);

	framework for investigation of landscape as place and applying a 'deep' hermeneutic approach to analysis of culturally shared mental structures and embodied processes. Studies can utilise a 'circling process', aided by anthropology's 'emic' approach of seeking to understand participant's self-understandings, then comparing these to ones in other cultures, via an 'etic' framework, formulated by the researchers.	Worsley (1997); Low (2000); Hastrup (2013); Kohn (2013); Aucoin (2017); Kinsella (2006); Turk (2011; 2012; 2014; 2016)
H12	A radical phenomenology-based, non-representational approach to definition and investigation of culture, is proposed by Alec McHoul, including the notion of culture as equipment (in the Heideggerian sense). This can interface with ethnomethodology and provide a rich approach to investigation of the relationships between culture and landscape, especially for indigenous peoples. More research on relevant methods is required.	Heidegger (1962; 1971a; 1977); McHoul (1998; 1999; 2007; 2010); Garfinkel (1996); Harman (2002)
I	*Linguistic considerations in interpretation of landscape data*	
I1	Understanding landscape requires accurate interpretation of relevant language, including utterances by participants in ethnophysiography case studies. Particular utterances occur in the context of the speaker's attitudes, actions and social and cultural situation, including during 'habitual behaviours', meaning that linguistic and behavioural issues are intertwined. Use of 'triangulation' in data gathering assists in hermeneutic analysis of intentional content.	Malpas (2012b); Bruenhult & Levinson (2008); Mark, Turk, Burenhult & Stea (2011)
I2	All communication, and hence interpretation of utterance events, requires use of imagination, since it is a historically and culturally embedded, humanly embodied, imaginatively structured event.	Ruthrof (2000); Johnson (1987)
I3	Not all communication is oral or written. There is also use of non-verbal signs and other bodily movements, such as dance or aspects of work-place procedures.	Ruthrof (2000)
I4	There are shortcomings in adopting a propositional approach to the nature of language, implying: tight reference, truth-conditional arguments, and definitional sense. This 'objectivism' must be augmented, by using analogue reasoning grounded in imagination.	Ruthrof (2000); Johnson (1987)
I5	The traditional approach to understanding language involves 'structural linguistics', which holds that both syntax and meaning in language are the result of the differential relations within the network of terms in a given language. However, they are also supposed to be independent of non-linguistic referential relations. A phenomenological approach can help resolve these issues.	de Saussure (1986); Ruthrof (1993; 1997; 2000)
I6	Utterances need to be interpreted with respect to the epistemic totality of a language and its socio-cultural situation; its entire way of 'grasping the world'. Language does not drive categorization deterministically; meaning depends on people's 'cultural projects'.	Heidegger (1971a); Gadamer (1992); Ruthrof (2000)
I7	Polysemy and homenymy are present in landscape language and play an important role in expressing complex relationships to place, as has been demonstrated in ethnophysiography case studies (e.g. the term *burbaa* in Yindjibarndi).	Ruthrof (2000); Turk and Mark (2008); Turk (2011)
I8	The semantic content of seemingly similar landscape terms may differ between languages, especially if those languages are not related. Investigators should expect to find novel ways	Turk and Mark (2008); Mark,

	of classifying landscape features and the possibility that terms are not unique to the landscape domain, but applying in general language.	Turk, Burenhult & Stea (2011)
I9	Both explicit and implicit deixis must be considered when interpreting an utterance; including voice tone, gesture and associated body movements, stance, etc. This applies to methods of eliciting and analysing information about people's relationships with landscape.	Merleau-Ponty (1962); Ruthrof (1997; 2000; 2015)
I10	Ambiguity about reference/target (what the word or sentence points to) is especially important in language about landscape as place. There is also the question of the physical extent of any landscape feature (e.g. the boundary of a mountain). Another issue is changes of place names and what those names refer to (e.g. 'Ayres Rock' became 'Uluru', the name which initially referred to a sacred site on top of the rock). In Australian Aboriginal languages a place name (toponym) may refer to a group of landscape features or just one. There is also considerable dispute between cultural or language groups regarding some place names, which carry cultural/historical significance ('cultural deixis').	Peirce (1974); Fauconnier (1997); Ruthrof (2000; 2015); Mark et al (1999; 2003; 2004); Smith & Mark (1998; 1999; 2001; 2003); Turk and Mark (2008); Turk (2011)
I11	Differences in meanings exist within language groups, as well as between them; language is never complete in any single individual, but exists most completely only in the collective.	Casey (2007; 2011); Saussure (1986)
I12	Landscape-related linguistic structures (e.g. 'semplates') need to be considered when analysing landscape language data. These reflect the structure of situated understanding of place, events and language, within a dwelling-group.	Bruenhult & Levinson (2008)

Appendix 7: Phenomenographic Tables from Chapter 6

A7.1 Introduction

In Table A7.1 in Section A7.2 provides an integrated list of general concepts of landscape as place from the phenomenographic literature review in Chapter 6, arranged in key topic groups. Author and publication year are indicated by Source Code(s), with references listed after Table A7.1. Concepts shown in *italics* are those used in the revision of the EDM, to produce v5 (see Chapter 6, Section 6.6) shown in Tables A7.2 and A7.3 in Section A7.3.

Section A7.4 lists landscape concept for indigenous people from SW USA in Table A7.4 and Section A7.5 provides a similar Table A7.5, for indigenous Australians. Section A7.6 provides Table A7.6, the concatenated table for indigenous concepts of landscape. The items in that table in *italics* are used to revise the EDM to produce v6 in Section A7.7, via Tables A7.7 and A7.8. Table A7.9 provides dditional references relating to specific topics, discussed in several chapters.

A7.2 General Landscape Concepts

Table A7.1: Integrated Landscape concepts from literature review in Chapter 6

Integrated Code	*Landscape Concept*	*Source Code(s)*
1.	**Theory and Methods**	
1.1	There is no ontological separation between nature and culture. The aspects of landscape (physical and cultural) exist in interrelation, constituting a reality as a whole which is not expressed by a consideration of the constituent parts separately, but by considering their structure, and function and hence position in a system, that is subject to development, change, and completion. Reductive and objectivist approaches do not do justice to the wholeness of the diverse real-world relationships between people and places. Place scholars should embrace theoretic and methodological diversity and focus on social theory and human-environment relations.	WBH-1 Sa-1 Sea-1 PandL-1 PandL-2
1.2	Understanding landscape requires an epistemological openness and flexibility, rather than adopting a formalized single, totalizing, way of knowing. It also requires interrogation of ambiguity, fragmentation, multiplicity, and difference in social realities. Ontological approaches and subjective methodologies need to incorporate spiritual aspects of concepts of place.	So-1 So-2 So-3
1.3	*Identity with respect to landscape may not necessarily align with linguistic reference or social conceptual shortcuts (such as social /financial circumstances or race or class).*	*Sh-1*

1.4	*Role of international conventions regarding landscape definition and management, especially influencing collaborative transfrontier landscape projects.*	*St-1*
1.5	The effectiveness of the role of GIS and associated technologies in representing landscape, depends at least in part on the conceptual tools, critical frameworks, and linguistic codes we choose to mobilize.	Pi-1
1.6	In building GIS of landscape, there should be use of the 'mental maps' of local people as part of the participatory social process leading to local empowerment, rather than adopting merely a top-down elitist process.	HWWL-1
2.	**Nature of Place**	
2.1	People have feelings for landscape, which may be only obliquely expressed in language, or may be incapable of expression or suppressed due to cultural/spiritual considerations. Authenticity' of dwelling is about "…the capacity to achieve a spiritual unity between humans and things" (quoting Heidegger). Landscape is sentient and imbued with spirit, capable of responding to human action. Relationships with European landscape include remnants of pre-modern cosmography and sacred geography.	Tu-4 Ha-2 WBH-6 Co-1
2.2	*The most relevant physical qualities of landscape are those that have habitat value, present or potential.*	*Sa-2*
2.3	*The aesthetic qualities of landscape, are important and need to be investigated via a subjective approach.*	*Sa-3*
2.4	Landscape forms impact on ontology and epistemology and hence conceptualisations of landscape and language terms.	Pr-1
2.5	*Need to consider relationships with landscape not just within a specific place, nor just with respect to that of immediate neighbors, but also with respect to increasingly globalized economies and cultures.*	*Ha-1* *WBH-3*
2.6	Each place is a special ensemble, with a history and meaning, incarnating the experiences and aspirations of a people. The relationship between people and environment is transactional: people take ⌈SEP⌋something (positive or negative) from and give or do things to the environment; ⌈SEP⌋these acts may alter the environment's influence on the people.	Ol-1 Ste-1
2.7	Narratives (stories) are a key way of building attachments to landscape, and for representing those relationships. Narratives provide specific details, clues to authenticity and the provenance of particular aspects of attachment to place for an individual and/or community. Narratives connect spaces and are spoken about in terms of the past/present/future. Narratives (e.g. of the Dreaming for Aboriginal Australians) give a context of multiple times, connecting human history and geomorphological history through talking about particular events. The messages in the storytelling (e.g. for a river) demonstrate ontological connections between biophysical and cultural landscapes.	Ri-1 WBH-3 WBH-4 WBH-5
3.	**Embodiment and Movement Through Landscape**	
3.1	Embodiment is an important part of the way landscape influences conceptualisations and terms.	Pr-2 Sea-3

	In terms of bodily awareness, one can experience places as enfolding (being within them) or external, even distant (such as a mountain on the horizon).	
3.2	Mobility around the landscape in which you dwell is important for building affective relationships; e.g. in terms of embodiment and different visual perspectives. Movement (and being stationary), at differing spatial-temporal scales, is part of the dialectic between bodies and landscape. Movement through landscape occurs between places of pause/activity. Interaction with landscape involves sets of regular paths of movement (*place ballet*) to accomplish every-day tasks as part of a person's (group's) 'lifeworld' activities.	Le-2 Cr-1 Sea-2 Sea-3 Tu-3 Cr-2 Se-1
4.	**Sense of Place and Place Attachment**	
4.1	*Landscape places range from the small, confined, nurturing and cozy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.*	*Tua-1*
4.2	Environmental settings obviously have an impact on people, both short-term and long-term, and there are some patterns to this impact. Places are constituted, sustained or undermined by: '*place interaction*' (typical every-day activities in a place) whether by individuals or formal or informal groups. Concept of place is psychological or interactional, not just physical. The environment is made up of a combination of physical and social features; the sense of place is an experience created by the setting combined with what a person brings to it. In other words, to some degree we create our own place, they do not exist independent of us.	Ste-4 Sea-4 Ste-2
4.3	*Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places; types of bonds they have with places) and 'community attachment' (depth and types of attachments to one particular place).*	*Cro-1*
4.4	Certain settings that have such a strong "spirit of place" that they will tend to have a similar impact on many different people. The Grand Canyon and the left bank of the Seine in Paris are excellent examples. Culture strongly influences human behavior and values regarding landscape.	Ste-3 Tu-2
4.5	Place attachment is constituted by a set of 'place meanings', which can be conceived of as symbolic statements about the essence of a place, which are populated with descriptive content and are created through human activities. Rather than place attachment being a deep-seated, internalized, emotional affinity that individuals experience towards particular places, discursive research regards it as linguistically constructed as individuals, together, formulate the everyday meanings of person-in-place relationships.	St et al-1 Di et al-1
4.6	*There are six types of relationships (bonds) to place: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material).*	*Cro-2*

4.7	Places are constituted, sustained or undermined by: '*place identity*', which refers to how people dwelling in a place can make it a significant part of their personal and/or communal identity.	Sea-5
4.8	Places are constituted, sustained or undermined by: '*place release*', which involves an environmental serendipity of unexpected encounters and events.	Sea-6
4.9	Places are constituted, sustained or undermined by: '*place realization*', which refers to what physically exists in a particular landscape, coupled with the effects these constituting features have on actual or potential activities, or affective states, for individuals or groups. Important characteristics of places may not be just about utilitarian activities but may relate to beauty, awe and sacredness.	Sea-7
4.10	Places are constituted, sustained or undermined by: '*place creation*', where characteristics (positive and negative) result from human agency/intervention.	Sea-8
4.11	Places are constituted, sustained or undermined by: '*place intensification*', which refers to mechanisms (for example human agency), which increase (or diminish) the characteristics of a place, making it a more (or less) complex place with additional (or fewer) attributes. Relationships with landscape for an individual develop steadily over the years of their life in that place. There is usually strong attachment to the landscape where you dwell, especially if live there for a long time or during a significant stage in your life.	Sea-9 Tu-1 Le-1
4.12	Development and adaption of communal place attachment involves: 'environmental disruption'; 'interpretive processes'; 'place definition' 'place dependence'; 'place identity'; 'place bonding'; 'social capital'; 'collective efficacy'; 'sense of community'; 'neighboring'; 'citizen participation'; 'place-based social interactions'; 'bridging social capital'; 'community response'.	M&P-1 M&P-2
5.	**Aspects of Landscape as Place**	
5.1	Landscape importance transcends nationality, race, religion or culture; despite the progressive loss of landscape character and identity.	Fa-1 St-4
5.2	*Spatial boundaries (natural and fiat) play a key role in categorization of people's identities.*	*B&S-1* *St-2*
5.3	Key role of river systems, including as boundaries (and consequences for river management).	St-3
5.4	Lakes and streams connect surface and sub-surface water.	WBH-2
5.5	*Vegetation (at landscape scales) is an important part of the physical aspects of landscape; as identified via ethnoecology studies.* *'Ecotopes' designate a 'kind of place' related to flora and fauna.*	*J&H-1* *J&H-2*
5.6	The role of virtual representation in understanding landscapes.	St-5
6.	**Australian Aboriginal Concepts of Territory**	
6.1	In the context of Indigenous land claims, having a detailed lexicon of terms that fit the landscapes in a particular region is evidence that those people 'belong' in that landscape.	Ko-1
6.2	Australian Aboriginal territories include particular areas of landscape defined by issues of inheritance and occupation.	Su-1 Su-2

	Australian Aboriginal individuals may well have rights and responsibilities in overlapping territories (perhaps via marriage).	
6.3	A single Australian Aboriginal clan estate may consist of several sections separated by lands of other land-owning units.	Su-3
6.4	'Transitional zones' exist between Australian Aboriginal territories.	Su-4
7.	**Toponyms (placenames)**	
7.1	*Naming of places is related to habitual spatial practices, representations of the world, and a spatial, imaginary geography (linked to culture and spirituality).*	*Sh-2*
7.2	*Ecotope terms may influence toponyms.*	*H&M-1*

Author Codes for Table A7.1:

B&S = Benko and Strohmayer (1997)
Co = Cosgrove (2001)
Cr = Cresswell (1997)
Fa = Fairclough (2018)
Ha = Harvey (1993)
HWWL = Harris, Weiner, Warner and Levin (1995)
J&H = Johnson and Hunn (2010)
Ko = Koford (2003)
Ol = Olwig (2001)
PandL = Price and Lewis (1993)
Pi = Pickles (1995)
Pr = Preston (2003)
Se = Seamon (2006)
Sea = Seamon (2014a; b; c)
Sh = Shields (1997)
So = Soja (1997)
St = Stalder (2010)
Su = Sutton (1995)
Tu = Tuan (1977)
Tua = Tuan (2001)
Sa = Sauer (1925)
WBH = Wilcock, Brierley and Howitt (2013)

A7.3 EDM v5

Table A7.2: EDM v5 Independent Factors

A	*Landscape places range from the small, confined, nurturing and cozy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.*
B	The topography of the region occupied by the language group; whether mountainous, hilly or flat; and the presence or absence of particular landscape features, such as, volcanic cinder cones, sand dunes, coral reefs, etc. *The most relevant physical qualities of landscape are those that have habitat value, present or potential.*
C	The climate of the region; the strength of seasons (e.g. does it snow in winter); its variability (e.g. does rainfall come only from seasonal cyclones/hurricanes); etc.
D	Definitions of urban vs rural vs natural (wild) types of landscape and which types are considered for a particular case study.
E	*Need to consider relationships with landscape not just within a specific place, nor just with respect to that of immediate neighbors, but also with respect to increasingly globalized economies and cultures.*
F	*Spatial boundaries (natural and fiat) play a key role in categorization of people's identities.*
G	Role of conventions, laws, agreements, guidelines, etc. regarding landscape (local, regional, national or international). *With respect to landscape definitions and management, especially regarding collaboration across frontiers.*
H	The vegetation *(at landscape scales)* in the region; its density and variability in space and time. *'Ecotopes' designate a 'kind of place' related to flora and fauna.*
I	The lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc.; including significance of landscape as a source of food (for consumption and/or sale).
J	Religious beliefs and spiritual concerns linked to landscape; e.g. creation beliefs, presence of spirits in landscape features, and cultural practices (e.g. ceremonies; taboos) which accompany such beliefs.
K	*The aesthetic qualities of landscape, which need to be investigated via a subjective approach.*
L	Historical factors such as: movement of the people into their current region; colonization of the people by outsiders with a significantly different culture/language; major changes in lifestyle and economy; etc.
M	The structure/grammar/syntax of the language – the roles played by nouns, verbs, adjectives, compound words, noun-phrases, suffixes, etc.
N	Impact of new technologies (including social media) on individual or group relationships with landscape and language used.
O	*Identity with respect to landscape may not necessarily align with language or social conceptual shortcuts (such as social /financial circumstances or race or class).*

Table A7.3: EDM v5 Dependent Factors

1	Set of landscape terms for different landscape feature types *and their role in narratives and every-day interactions.*
2	Whether landscape terms include vegetation assemblages (at landscape scale) and/or vegetation types used as resource (e.g. medicine; food; wood), its affordance re travel, blocking long views, etc.
3	Relative significance of key factors (salience, etc.) that motivate categorization of landscape features
4	Use of compound words and phrases instead of (or as well as) simple generic landscape terms.
5	Role of nouns, verbs, prepositions, suffixes, etc. in landscape terms.
6	Role of non-verbal language and/or graphics/art in communication about, and representation of, landscape.
7	Whether different landscape terms are used by different genders, during different seasons, in different social settings (e.g. during ceremonies), etc.
8	Role of loan-words from neighbouring language groups and/or colonisers in landscape terms and toponyms.
9	Role of frames e.g. semplates (Burenhult and Levinson, 2008; Levinson and Burenhult, 2009) or metaphor for structuring sets of landscape terms (e.g. family relations as metaphor for hydrology).
10	Whether any landscape terms relate to religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features.
11	*Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places; types of bonds they have with places) and 'community attachment' (depth and types of attachments to one particular place).*
12	*There are six types of relationships (bonds) to place: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material). How are these conceptualized and discussed in language?*
13	*Toponyms are related to habitual spatial practices, representations of the world, and a spatial, imaginary geography (linked to culture and spirituality).* Role of toponyms (place names) vs generic landscape terms in landscape language.
14	Structure of toponyms; whether they are descriptive; if they include generic landscape terms; and how they arise and are constructed. *Whether ecotopes influence toponyms.*

A7.4 SW USA Indigenous Concepts of Landscape

Table A7.4: Key South-western USA Native American Landscape Concepts

Code	Landscape Concept	Reference
Pi-1	Navaho (Diné) have a word "hozho", which expresses aspects of their cultural and spiritual associations with people and place.	Pitts (2007); Neezzhoni (2010)
K&H-1	Many Navajos believe that the whole earth is alive with socially interacting mortals and natural forces animated by human-looking immortal 'inner forms'. These places of special power are the most alive, and stories usually go with them.	Kelley and Harris (1994) p. 1
K&H-2	Because the Holy People are so much a part of Navajo stories, and because they are associated with particular places, landscapes are strongly associated with these stories. Indeed, especially when Navajos pass down their chronicles mainly by word-of-mouth, the landscape provides a material anchor for those stories and thereby stores them. The landscape is a physical link between people of the present and their past.	Kelley and Harris (1994) p. 2
K&H-3	"Every inch of ground, all vegetation and the fauna on it, are considered sacred. There are no places that are holier than others. There are so many stories that go with the land that it would take more than twenty years to tell them." Told by Mamie Salt, quoted in K & H.	Kelley and Harris (1994) p. 30
K&H-4	The inventory of eighty Navajo sacred places on the HPL recorded by the Navajo Nation in 1977 … descriptions tend to combine the observable characteristics of each place and its function. The specific types of places characterized by their observable features include: mesas, hills, clay sources for Navajo pottery, springs, flat areas, "wind homes" (probably air vents in volcanic rocks and cracks or holes in rocks the narrowness of which magnifies the force of air currents that pass through), rock outcrops, waterfalls, dinosaur remains, place where an unusual sound (probably from water or air) occurs, eagle nests, and a big tree.	Kelley and Harris (1994) p. 81
K&H-5	Places get names because people need to talk about them when they are far from the place. The names tend to describe the physical appearance of the place and offer few clues to why the place is noteworthy – the story or activity that might go with it. There are two categories of place names, proper and generic. When someone mentions a place using a descriptive phrase, one can tell when it is a proper name because it is followed by the word "a-place-called." Generic names, as discussed above, are simply translated as "the canyon," "the wash," and so forth, and aren't followed by "a-place-called."	Kelley and Harris (1994) p. 84-5
Wi-1	'Hopi hermeneutics' involve a set of convictions (perspectives), which construct, create, and constrain social life, in the context of their place.	Whiteley (1998)
Wi-2	An autonomously Hopi cultural life is strongly persistent and profoundly vigorous … ritual performance remains	Whiteley (1998)

	largely untransformed into a commoditized register and continually instrumental in its own terms … because of the persistence of traditional commitment that the crisis of Hopi springs and water supplies (running dry) is as much a cultural as a natural resource issue.	
Wi-3	The structure of culture (in place) is encompassing, 'total', including the social order, the natural order, phenomenology, metaphysics, and cosmology; it proposes modes of interpretation, assignments of cause and effect, the terms of explanation, and the forms of art …a realist and holist view of structure that emphasizes its systematicity; not a constructivist view.	Whiteley (1998)
Wi-4	Hopi linguistic forms are processual, 'eventing'-based (producing a predominance of verbs), versus 'entity'-based European languages (with their dominance of nouns); significant regarding the way individual and collective intentionality is expressed through landscape language.	Whiteley (1998)
Wi-5	Hopi 'way of being in the world' is reflected in their naming practices (including toponyms), which resembles "tiny imagist poems" and "celebrates a powerful aesthetics that centrally animates Hopi cognition and cultural values. Thus, a 'pure' translation of the morphemes would miss not only the intended meaning but also the aesthetic force of the poetic image.	Whiteley (1998)
Wi-6	Springs are absolutely central in Hopi social and environmental thought and objects of religious veneration; hence, springs are named	Whiteley (1998)
Ba-1	Apache constructions of place reach deeply into other cultural spheres, including conceptions of wisdom, notions of morality, politeness and tact in forms of spoken discourse, and certain conventional ways of imagining and interpreting the Apache tribal past.	Basso (1996a)
Ba-2	Apache toponyms stand for a story (or stories) about that place and how Apache, as they travel through their 'country' (physically and/or in their memory) recognize the places, say their names, remember the stories and think about their cultural and ethical significance.	Basso (1996a)

A7.5 Australian Indigenous Concepts of Landscape

Table A7.5: Key Australian Aboriginal Landscape Concepts

Code	Landscape Concept	Reference
Mu-1	What maintains the relationships between places is the maintenance of kinship, the interconnected web of kin and country and the roles of custodianship (kirda [owner] and kurdungurlu [manager]).	Muecke (2004)
Mu-2	Aboriginal 'country' comes with a complex set of shared rights and obligations, arising from that group's unique attachment to that place.	Muecke (2004)
D&P-1	The acts of ancestral beings in conferring territories and giving birth to each group established for all time the identity of those groups and the boundaries of the territories with which they are identified.	Davis & Prescott (1992)
D&P-2	Within a 'language group' individuals will have different sorts of rights to different places (within the general area) because of factors such as: the special country of their father and that of their mother; the place where they were born; and places where they have spent large periods of their life.	Davis & Prescott (1992)
Su-1	Relationship to 'country' for a language group constitutes a complex web of affective and cognitive properties, in the context of social and spiritual obligations, which may influence differently for each individual the meanings associated with landscape.	Sutton (1995)
Yu-1	For almost all Australian Aboriginal people water is a scarce resource, which explains its central importance to their sense of landscape; their knowledge of its location and degree of permanence constitutes a key aspect of their lifeworld.	Yu (2003)
Yu-2	Most 'living water' are believed to be inhabited by *pulany/jila*, metaphysical water snakes or serpents which made and reside in the permanent water sources.	Yu (2003)
Yu-3	People's relationship with water in the landscape is not only about survival, or even sets of cultural and spiritual ideas, but also about peoples' behavior in landscape.	Yu (2003)
To-1	Places are meaningful through multi-layered attachments to water, in different ways by different peoples.	Toussaint (2008)
Ca-1	*TJukurrpa* is the foundation of law, religion, philosophy and social structure for Central and Western Desert Aboriginal people and is connected to landscape in intricate, intimate and holistic ways.	Cane (2002
Gr-1	*(T)Jukurrpa* (The Dreaming) is a complex mixture of law, lore, spirituality, social structuring and (perhaps) philosophy.	Grieves (2007)
Gr-2	Academic understanding *of (T)Jukurrpa* is (necessarily) limited as it is the core of Aboriginal philosophy and religious practice and, hence, subject to secrecy and knowledge on a "need-to-know" basis.	Grieves (2007)
My-1	*(T)Jukurrpa*) is for all time: it represents all that exists as deriving from a single, unchanging, timeless source. … human life and being are as permanent, enduring, and unchanging as the land itself.	Myers (1986)
Code	Landscape Concept	Reference

Ri-1	The Yindjibarndi form of *Jukurrpa*,"Bidarra Law is an infinitely rich, veiled, subtly mutable, mercurial, carnival, intimate skein of elements and influences that derive from, and speak of, the Yindjibarndi conception of creation, their country and the life within it, including living landforms and water, and which embodies and gives carriage to the relationships between the people, creatures, spirits and things that share existence in the creation"	Rijavec (2008)
HH&S-1	Toponyms carry information about specific ways of dwelling in landscape.	Hercus, Hodges and Simpson (2002)
HH&S-2	Ways of forming Australian Indigenous placenames, their meanings, the features that they refer to, the networks that they form, and the rights to bestowal of names differ greatly from European toponymic practices.	Hercus, Hodges and Simpson (2002)
Ko&He-1	Strong contrast between the traditional systems of toponymy of Indigenous societies and the Anglo-Australian nomenclature that has been overlaid on the Australian landscape.	Koch and Hercus (2009)
H&S-1	All placenames are shorthand labels given to significant geographic features for the purposes of finding them again, referring to them, and passing on the knowledge of the place to other people.	Hercus and Simpson (2002)
H&S-2	What count as significant features depends on what impression the feature makes on a person seeing it, or in the case of some water features, on the person hearing it.	Hercus and Simpson (2002)
H&S-3	Indigenous placename networks are very often owned. One extended family may have the exclusive right to impart information about particular places, including their names.	Hercus and Simpson (2002)
H&S-4	Some placenames may be powerful and may be secret or sacred (not for public distribution).	Hercus and Simpson (2002)
Ta-1	Toponyms includes associations with the language group's specific cosmogonic beliefs, including the movements of Ancestral Beings who gave shape to the land, brought everything into existence at particular places, and bestowed territories (and all phenomena within that place) upon specific groups of people.	Tamisari (2002)
Ko&He-2	Attempts, in several Australian jurisdictions, to discover and/or re-instate Indigenous names for geographic features, including newly formed entities such as national parks.	Koch and Hercus (2009)
Ko&He-3	Interpretations and evaluations of older documentary sources on Indigenous placenames in the light of modern methods and insights.	Koch and Hercus (2009)
Ko&He-4	Continuing role of placenames in the memory of Indigenous social groups, even if no longer living there.	Koch and Hercus (2009)

A7.6 Concatenated Indigenous Concepts of Landscape

Concepts shown in *italics* are those used in the revision of the EDM, to produce v6 (see Chapter 6, Section 6.9.2) shown in Tables A7.7 and A7.8.

Author(s) and publication year indicated by Source Codes are shown in Tables A7.4 and A7.5.

Table A7.6: Concatenated Summary of Indigenous Landscape Concepts

Integrated Code	*Landscape Concept*	*Source code(s)*
1.	**Integrated Culture-based Ontology and Epistemology**	
1.1	Navaho (Diné) have a word "hozho", which expresses aspects of their cultural and spiritual associations between people and place.	Pi-1
1.2	Many Navajos believe that the whole earth is alive with socially interacting mortals and natural forces animated by human-looking immortal 'inner forms'. "Every inch of ground, all vegetation and the fauna on it, are considered sacred. There are no places that are holier than others. There are so many stories that go with the land that it would take more than twenty years to tell them." (Mamie Salt)	K&H-1 K&H-3
1.3	Because the Holy People are so much a part of Navajo stories, and because they are associated with particular places, landscapes are strongly associated with these stories. Indeed, especially when Navajos pass down their chronicles mainly by word-of-mouth, the landscape provides a material anchor for those stories and thereby stores them. The landscape is a physical link between people of the present and their past.	K&H-2
1.4	*The structure of culture (in place) is encompassing, 'total', including the social order, the natural order, phenomenology, metaphysics, and cosmology; it proposes modes of interpretation, assignments of cause and effect, the terms of explanation, and the forms of art …a realist and holist view of structure that emphasizes its systematicity; not a constructivist view.*	*Wi-3*
1.5	*TJukurrpa (The Dreaming) is the foundation of law, religion, philosophy and social structure for Central and Western Desert Aboriginal people and is connected to landscape in intricate, intimate and holistic ways.* *TJukurrpa is for all time: it represents all that exists as deriving from a single, unchanging, timeless source.*	*Ca-1* *Gr-1* *My-1*
1.6	Movements of Ancestral Beings gave shape to the land, brought everything into existence at particular places, and bestowed territories (and all phenomena within that place) upon specific groups of people.	Ta-1
1.7	The Yindjibarndi form of *Jukurrpa* is 'Bidarra Law': "an infinitely rich, veiled, subtly mutable, mercurial, carnival, intimate skein of elements and influences that derive from, and speak of, the Yindjibarndi conception of creation, their country and the life within it, including living landforms and water, and which embodies and gives carriage to the	Ri-1

	relationships between the people, creatures, spirits and things that share existence in the creation"	
1.8	*Academic understanding of (T)Jukurrpa (The Dreaming) is (necessarily) limited as it is the core of Aboriginal philosophy and religious practice and, hence, subject to secrecy and knowledge on a "need-to-know" basis.*	*Gr-2*
2.	**Social Structures and Behaviours**	
2.1	'Hopi hermeneutics' involve a set of convictions (perspectives), which construct, create, and constrain social life, in the context of their place.	Wi-1
2.2	Apache constructions of place reach deeply into other cultural spheres, including conceptions of wisdom, notions of morality, politeness and tact in forms of spoken discourse, and certain conventional ways of imagining and interpreting the Apache tribal past.	Ba-1
2.3	*For Aboriginal Australians, the acts of ancestral beings in conferring territories and giving birth to each group established for all time the identity of those groups and the boundaries of the territories with which they are identified.*	*D&P-1*
2.4	*Australian Aboriginal 'country' comes with a complex set of shared rights and obligations (and hence of affective and cognitive properties), arising from that group's unique attachment to that place.* *Within a 'language group' individuals will have different sorts of rights to different places (within the general area) because of factors such as: the special country of their father and that of their mother; the place where they were born; and places where they have spent large periods of their life.* *What maintains the relationships between places is the maintenance of kinship, the interconnected web of kin and country and the roles of custodianship (kirda [owner] and kurdungurlu [manager]).*	*Su-1* *Mu-1* *Mu-2* *D&P-2*
3.	**Landscape Language Elements**	
3.1	The inventory of eighty Navajo sacred places on the HPL recorded by the Navajo Nation in 1977 … descriptions tend to combine the observable characteristics of each place and its function. The specific types of places characterized by their observable features include: mesas, hills, clay sources for Navajo pottery, springs, flat areas, "wind homes", rock outcrops, waterfalls, dinosaur remains, place where an unusual sounds occur, eagle nests, and a big tree.	K&H-4
3.2	*Hopi linguistic forms are processual, 'eventing'-based (producing a predominance of verbs), versus 'entity'-based European languages (with their dominance of nouns); significant regarding the way individual and collective intentionality is expressed through landscape language.*	*Wi-4*
4.	**Relationships with Water**	
4.1	*Places are meaningful through multi-layered attachments to water, in different ways by different peoples.* *People's relationship with water in the landscape is not only about survival, or even sets of cultural and spiritual ideas, but also about peoples' behavior in landscape.*	*To-1* *Yu-3*
4.2	An autonomously Hopi cultural life is strongly persistent and profoundly vigorous.	Wi-2 Wi-6

	Because of the persistence of traditional commitment that the crisis of Hopi springs and water supplies (running dry) is as much a cultural as a natural resource issue. Springs are absolutely central in Hopi social and environmental thought and objects of religious veneration; hence, springs are named.	
4.3	For almost all Australian Aboriginal people water is a scarce resource, which explains its central importance to their sense of landscape; their knowledge of its location and degree of permanence constitutes a key aspect of their lifeworld.	Yu-1
4.4	Most 'living water' are believed to be inhabited by *pulany/jila*, metaphysical water snakes or serpents which made and reside in the permanent water sources.	Yu-2
5.	**Toponyms (placenames)**	
5.1	Toponyms carry information about specific ways of dwelling in landscape. All placenames are shorthand labels given to significant geographic features for the purposes of finding them again, referring to them, and passing on the knowledge of the place to other people.	HH&S-1 H&S-1 H&S-2
5.2	Navajo places get names because people need to talk about them when they are far from the place. The names tend to describe the physical appearance of the place and offer few clues to why the place is noteworthy – the story or activity that might go with it.	K&H-5
5.3	Hopi 'way of being in the world' is reflected in their naming practices (including toponyms), which resembles "tiny imagist poems" and "celebrates a powerful aesthetics that centrally animates Hopi cognition and cultural values. Thus, a 'pure' translation of the morphemes would miss not only the intended meaning but also the aesthetic force of the poetic image.	Wi-5
5.4	*Apache toponyms stand for a story (or stories) about that place and how Apache, as they travel through their 'country' (physically and/or in their memory) recognize the places, say their names, remember the stories and think about their cultural and ethical significance.*	*Ba-2*
5.5	*Indigenous placename networks are very often owned. One extended family may have the exclusive right to impart information about particular places, including their names. Some placenames may be powerful and may be secret or sacred (not for public distribution).*	*H&S-3* *H&S-4*
5.6	Ways of forming Australian Indigenous placenames, their meanings, the features that they refer to, the networks that they form, and the rights to bestowal of names differ greatly from European toponymic practices.	HH&S-2 Ko&He-1
5.7	Attempts, in several Australian jurisdictions, to discover and/or re-instate Indigenous names for geographic features, including newly formed entities such as national parks. Interpretations and evaluations of older documentary sources on Indigenous placenames in the light of modern methods and insights.	Ko&He-2 Ko&He-3
5.8	*Continuing role of placenames in the memory of Indigenous social groups, even if no longer living there.*	*Ko&He-4*

A7.7 EDM v6

Table A7.7: Revised EDM (Version 6) – Independent Factors

A	Landscape places range from the small, confined, nurturing and cozy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.
B	The topography of the region occupied by the language group; whether mountainous, hilly or flat; and the presence or absence of particular landscape features, such as, volcanic cinder cones, sand dunes, coral reefs, etc. The most relevant physical qualities of landscape are those that have habitat value, present or potential.
C	The climate of the region; the strength of seasons (e.g. does it snow in winter); its variability (e.g. does rainfall come only from seasonal cyclones/hurricanes); etc.
D	Definitions of urban vs rural vs natural (wild) types of landscape and which types are considered for a particular case study.
E	Need to consider relationships with landscape not just within a specific place, nor just with respect to that of immediate neighbors, but also with respect to increasingly globalized economies and cultures.
F	Spatial boundaries (natural and fiat) play a key role in categorization of people's identities. *Boundaries of language group territories may be considered to have been conferred by Ancestral Beings at the beginning of time, which may well conflict with current national, state or local boundaries, due to historical factors.*
G	Historical factors include: movement of the people into their current region; colonization of the people by outsiders with a significantly different culture/language; major changes in lifestyle and economy; etc.
H	*The particular culture-based structure (ontology, epistemology, natural order, phenomenology, metaphysics, and cosmology) providing a total system for all aspects of relationships with place, including the social order; such that it provides modes of interpretation, assignments of cause and effect, terms of explanation, and forms of art. For instance, Jukurrpa (The Dreaming) for Australian indigenous Yarnangu peoples.*
I	Role of conventions, laws, agreements, guidelines, etc. regarding landscape (local, regional, national or international), with respect to landscape definitions and management, especially regarding collaboration across frontiers.
J	The vegetation (at landscape scales) in the region; its density and variability in space and time. 'Ecotopes' designate a 'kind of place' related to flora and fauna.
K	The lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc. including significance of landscape as a source of food (for consumption and/or sale).
L	Religious beliefs and spiritual concerns linked to landscape; e.g. creation beliefs, presence of spirits in landscape features, and cultural practices (e.g. ceremonies; taboos) which accompany such beliefs. *A fundamental cultural structure (like Jukurrpa), connects people to landscape in intricate, intimate and holistic ways, hence, it can be the foundation of law, lore, religion, philosophy, ethics and social structure for all time, past, present and future. However, academic understanding of such a system is necessarily limited because the knowledge is subject to strong rules about secrecy and "need-to-know".*
M	*Each language group territory has a complex set of shared rights and obligations (and hence of affective and cognitive properties), arising from that group's unique attachment to that place. Within a 'language group' individuals will have different sorts of rights to different places (within the general area) because of family, personal history and other factors, hence, kinship systems and land-use roles are important.*
N	Aesthetic qualities of landscape, which must be investigated via subjective approaches.
O	The structure/grammar/syntax of the language – the roles played by nouns, verbs, adjectives, compound words, noun-phrases, suffixes, etc.
P	Impact of new technologies (including social media) on individual or group relationships with landscape and language used.

Q	Identity with respect to landscape may not necessarily align with language or social conceptual shortcuts (such as social /financial circumstances or race or class).

Table A7.8: Revised EDM (Version 6) – Dependent Factors

1	Set of landscape terms for different landscape feature types and their role in narratives and every-day interactions. *For instance, places are often meaningful through multi-layered attachments to water (in different ways by different peoples) relating to Utilitarian issues (ultimately survival) and sets of cultural and spiritual ideas.*
2	Whether landscape terms include vegetation assemblages (at landscape scale) and/or vegetation types used as resource (e.g. medicine; food; wood), its affordance re travel, blocking long views, etc.
3	Relative significance of key factors (salience, etc.) that motivate categorization of landscape features.
4	Use of compound words and phrases instead of (or as well as) simple generic landscape terms.
5	Role of nouns, verbs, prepositions, suffixes, etc. in landscape terms. *For instance, linguistic forms may be processual, 'eventing'-based (producing a predominance of verbs) [e.g. Hopi] versus 'entity'-based European languages (with their dominance of nouns).*
6	Role of non-verbal language and/or graphics/art in communication about, and representation of, landscape.
7	Whether different landscape terms are used by different genders, during different seasons, in different social settings (e.g. during ceremonies), etc.
8	Role of loan-words from neighbouring language groups and/or colonisers in landscape terms and toponyms.
9	Role of frames e.g. semplates (Burenhult and Levinson, 2008; Levinson and Burenhult, 2009) or metaphor as linguistic ways of structuring sets of landscape terms. For istance, family relations as metaphor for parts of hydrology (water systems).
10	Whether any landscape terms relate to religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features. *For instance, Apache toponyms stand for a story (or stories) about that place. Apache, as they travel through landscape (physically and/or in their memory) recognize the places, say their names, remember the stories and think about their cultural, spiritual and ethical significance.*
11	Six types of relationships (bonds) to place may be defined: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material). How are these conceptualized and discussed in any particular language?
12	Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places; types of bonds they have with places) and 'community attachment' (depth and types of attachments to one particular place). *This can influence toponyms, with placename networks sometimes owned by a group or extended family, which have exclusive rights to information about particular places, including their names. Some placenames may be powerful and may be sacred or secret.*
13	Role of toponyms (place names) vs generic landscape terms in landscape language. Toponyms are related to habitual spatial practices, representations of the world, and a spatial, imaginary geography (linked to culture and spirituality). *Continuing role of placenames in the memory of language group members, even if no longer living there.*
14	Structure of toponyms; whether they are descriptive; if they include generic landscape terms; and how they arise and are constructed. Whether ecotopes influence toponyms.

Table A7.9: Additional references relating to specific topics

Topic	Relevant Chapter / Section	Additional References
Jeff Malpas' interpretation of Heidegger's 'topology'	Chapter 6, Section 6.2.1	Arendt (1978, p. 270), Burenhult and Levinson (2008, p. 3), Crowell (2011), Davenport, Johnson and Yuwali (2005), Gadamer (1992), Harrison (2007, p. 625-628, 636), Heidegger (1962/2007), Langton (2018), Levinas (1969, p. 153; 1989, p. 488), Malpas (1999; 2001; 2006, pp. 16, 29, 44, 45, 58, 60, 74-83, 86-88, 92, 127, 221, 263; 2007, pp. 126, 129; 2012b, pp. 2-4, 13, 14, 18-21, 29, 31, 33, 40, 44-53, 63, 66, 105, 111, 138; 2014, p. 31; 2016), Macfarlane (2012, pp. 228/229), Mansbach (2018), Massey (1993; 1994; 2005), Massumi (1995; 2002), Moran (2000a, p. 233), Puente-Lozano (2017), Robinson (1986, p. 59), Rynne (2002), Seamon (2012; 2014b; 2018, pp. 85-87), Smith and Varzi (2000), Tonkinson (1991), Tuan (1974), Turk (2006), Turk and Mackaness (1995) and Wolin (2001, p. 50)
Cultural and social geography, in the context of hermeneutics, phenomenology and social constructivist approaches	Chapter 6, Section 6.3.2	Anderson (1983; 1991), Anderson and Harrison (2010), Ash and Simpson (2014, p. 487-489; 2016), Berger and Luckmann (1966, p.1), Casey (1997, p. 286), Cox (2002), Crang (1998, pp. 2, 3, 11, 12, 27, 109, 180/1, 184/5), Cresswell (2004, pp. 32, 39), Dardel (1954, p. 41), DeLamater and Shibley Hyde (1998, p. 14), Dörfler and Rothfuß (2017, p. 415), Garkovich and Greider (1994, pp. 2, 21), Harrison (2007), Harvey (1989, p. 209; 1994, p. 127; 1996, pp. 293, 294), Holstein and Miller (1993), Ihde (2003), James (1902), Johnson, Schein and Winders (2013), Kakkori (2009), Kögler (2017b, p. 114), Lerner (2014, p. 1227), Ley (1979), Malpas (1999; 2006, pp. 18, 23, 65, 322; 2014b, p. 12), Massey (1991; 1993, pp. 64, 67), Merriman, Revill, Cresswell, Lorimer, Matless, Rose and Wylie (2008, pp. 191, 196, 197, 207), Milne (2014), Mitchell (2000), Patterson and Williams (2005, pp. 361, 362, 374), Pickles (1985; 1987), Pred (1984), Relph (1976; 2014, pp. 56, 57), Rose (2012), Seamon (1979; 2012, p. 3; 2015, p. 35, 39; 2018), Seamon and Gill (2016, p. 7), van Manen (2007, p. 18), Willis (2014) and Withers (2009, pp. 638, 640, 642)
Key chapters in Johnson and Hun (2010) regarding ethnoecology	Chapter 6, Section 6.3.3	Abraao, Shepard, Nelson, Baniwa, Andrello and Yu (2010, pp. 83-115), Aporta (2010, pp. 175-199), Davidson-Hunt and Berkes, (2010 pp. 222-240), Ellen (2010, pp. 119, 121, 128), Johnson (2010, pp. 203-221),Johnson and Hunn (2010b, p. 1, 3), Mark, Turk and Stea, (2010, pp. 27-45) and Meilleur (2010, pp. 159-174)
Affect	Chapter 6, Section 6.4.2	Benjamin (1979, p. 163), Bertelsen and Murphie (2010, pp. 139, 145-147, 157), Gibbs (2010, pp. 196, 201, 202) and Guattari (1995a, p. 15; 1996, p. 158)
Affect and movement	Chapter 6, Section 6.4.2	Macfarlane (2012, p. 341), Massumi (2002, p. 15; 2003), Michael (2017, pp. 13, 14; 2018, p. 124), Spinoza (1985)
Affect, perception and cognition	Chapter 6, Section 6.4.2	Carman and Hansen (2005, p.12), Gibbs (2010, p. 193, 196, 198- 200, 203), Merleau-Ponty (1945/1962) and Tomkins (1992, p. 287)

Mimesis	Chapter 6, Section 6.4.2	Foucault (1973, p. 24), Genosko (2002, p. 53, 54), Gibbs (2010, pp. 186-189, 191, 193, 194), Kockelmans (1994), Taussig (1993, p. xiii) and Tomkins (1962)
Indigenous relationships with landscape: Native American language groups in SW USA	Chapter 6, Section 6.8.2	Basso (1996a, pp. xiv, xv, 17-22, 54, 101, 102), Brown (1995), Frisbie (1987), Fowler (2010, p. 246), Iverson and Roessel (2002, p. 12), Jett (1997; 2001, 2011), Kelley and Harris (1994, p. 30), McPherson (1992, p. 7), Pitts (2007, p. 1), Semken (2005, p. 149, 153), Tapahonso (1993, p. 67), Tuan (1974, p. 69; 1977, p. 131), Whiteley (1998, pp. 3, 13, 18, 28, 30, 32, 39, 40, 43, 106, 113, 165, 189/190, 192, 193, 195, 196) and Whorf (1956)
Indigenous relationships with landscape: Australian Aboriginal	Chapter 6, Section 6.8.2	Benterrak et al. (1984, p. 12), Black (2009, p. 485), Cane (2002, pp. 81-85), Clendon (2009, p. 350), Grieves (2007), Hercus, Hodges and Simpson (2002, p. 1), Hercus and Simpson (2002); Ieramugadu Group Inc. (1995), James, Hockey and Dawson (1997, p. 7), Koch and Hercus (2009, p. 2, 5), Layton (1997), Mountford (1948; 1977), Muecke (2004, p 16), Myers (1986, pp. 12, 47, 48, 51-53), Rijavec, et al (1995), Stanner (2010), Sutton (1995, p. 44/45), Tamisari (2002, pp. 87-89, 93), Thrift (2012), Bromhead (2017); Toussaint (2008) and Yu (1999; 2002, p. 35-39, 52)
Representation and discussion of indigenous concepts of place	Chapter 6, Section 6.8.2	Biber and San Roque (2006), Davis and Prescott (1992, p. 132), Gerlach (2010; 2013, pp. 2, 5, 12), Levinas (1998/2006, pp. 34, 36, 40, 42, 43), Lévy-Bruhl (1910/1927, p. 6/7; 1922/1923), Lippard (1997, pp. 10, 18, 20), Mogi (2017, pp. 5/6, 15, 77/78, 81), Moran (2011a), Nakata (2007/2013, p. 42, 76, 114, 182-184), Turk (2006), Turk and Mackaness (1994; 1995), Turk, Mackaness and Tinlin (1995), Turnbull (1989, pp. 2, 28, 61, 62), Unwin (2008) and Watson, the Yolngu community at Yirrkala and Chambers (1989).
Essences and universals in ethnophysiography - Search for essences, Husserl's *epoché* and phenomenological reduction	Chapter 7, Section 7.3.2	Archer (2007; 2010; 2012), Bourdieu (1977; 1989, p. 18; 1990, p. 53), Carman and Hansen (2005, p. 9/10), Farber (1970, pp. 2, 11), Finlay (2012, pp. 17, 31, 32), Gurwitsch (1957, pp. 375-376), Heidegger, 1962), Henriksson and Friesen (2012), Iverson and Roessel (2002), Mark, Smith and Tversky (1999), Mark, Skupin and Smith (2001), Mohanty (1997, pp. 3, 4, 7), Moran (2000a, p. 3; 2014, p. 29-33, 40, 41, 42, 44), Pöllmann (2016, p. 3), Schütz (1970), Smith, Flowers, and Larkin (2009) and Tuan (1977)
Hermeneutic phenomenology approach to essences and universals	Chapter 7, Section 7.3.2	Friesen, Henriksson and Saevi (2012, p.1), Kakkori (2009), Saevi (2011; 2014), Saevi and Eilifsen (2008), Smith (2011) and van Manen (2007; 2014, p. 215, 220/21; 2016; 2017a, p. 775, 778; b)
Landscape meanings, differences and universals	Chapter 7, Section 7.3.2	Benterrak, Muecke and Roe (1984), Burenhult (2008a; b), Casey (1997, p. xii), Fisher, Cheng, and Wood (2007, pp. 312/313, 327), Fisher, Wood and Cheng (2005, p. 209), Ihde (2009), Mark, Kuhn, Smith and Turk (2003, p. 49), Mark, Smith and Tversky (1999), Mark, Skupin and Smith (2001), Mark, Smith, Egenhofer and Hirtle (2004), Mark and Turk (2003b, p. 35; 2004b, p. 155), Mark, Turk and Stea (2007), Nash (2015; 2018),

		Patočka (1996a, p. 1), Smith and Mark (2003) and Turk and Mark (2008)
Linguistic universality	Chapter 7, Section 7.3.2	Dąbrowska (2015, p. 7), Evans and Levinson (2009, pp. 429, 474, 475), Goddard (2003) and Lee, Lee, Gordon and Hendrick (2010, p. 2695)
Alternative approaches to universality of dwelling in landscape	Chapter 7, Section 7.3.2	Basso (1996, p. 87), Foucault (1967/84, pp. 22, 23, 25), Frake (1996, pp. 229-231, 236, 252, 254, 255), Gurwitsch (1957, p. 372), Haluza-DeLay (2006, p. iii), Hawkes (1951/1991), Macfarlane (2012, pp. xi, 13, 14-17, 22, 24, 28, 30, 33, 40, 44, 48, 143, 144, 147, 191, 309; 2015, p. 1, 39), Mohanty (1997, p. 60), Naipaul (1987, p. 24), Tuan (1977) and Thomas (1913)
Placed Philosophy and ethnophilosophy	Chapter 9 Section 9.3.2	Chimakonam (2015), Deleuze and Guattari (1994), Fanon (2008, p. 86), Ikuenobe (2004), Janz (1997, pp. 222, 223, 225, 227, 230-232; 2005b; 2014, pp. 21, 22; 2015; 2016), Malpas' (1999), Tabensky (2017, pp. 505-507, 509/10, 513) and Taylor (1985).
Consideration of this issue includes discussion of African philosophy (by Bruce Janz and various African philosophers).	Chapter 9 Section 9.3.2	Bodunrin (1981), Chimakonam (2015), Egbunu (2013), Janz (1997, p. 224, 226, 228, 234, 235; 2014, p. 21; 2016, p. 42, 47), Okafor (1997), Okere (1983), Oruka (1990; 1991), Serequeberhan (1994, p. 83-4) and Tabensky (2017).
There are also contributions on this topic regarding placed philosophy in Australia and China.	Chapter 9 Section 9.3.2	Charlesworth, Dussart and Morphy (2005), Gelder (2005), Graham (2008, pp. 181, 182, 184, 187, 189), Hinkson and Beckett (2008), Kerwin (2010), Moreton-Robinson (2000; 2004), Muecke (2004; 2005), Ng (2017, pp. 519-521, 523-527), Nicoll (2006), Patton (2013; 2016), Reynolds (2017, p. 10, 11), Rose (1996; 2000; 2004), Stanner (1965; 2010) and Watson (2016).
Criticism of placed philosophies and ethnophilosophy and responses.	Chapter 9 Section 9.3.2	Appiah (1989), Bodunrin (1981), Botz-Bornstein (2006), Egbunu (2013, p. 138, 139, 142, 143,163), Hountondji (1983), Ikenuobe (1997, p. 190; 2004, p. 479, 484, 492), Okafor (1997) and Oruka (1990; 1991).
Dwelling in place and Australian aboriginal concepts of 'The Dreaming'.	Chapter 9 Section 9.5.3	Andrews (2019, pp. 2, 5, 6, 13, 17-21, 27, 33, 35, 37, 38, 47, 49, 61, 73-75, 83, 87 89-94, 98), Durkheim (1912), Harvey (1996), Levy-Bruhl (1910/1927), Malpas (1999; 2001; 2014b), Manning and Turk (2016), Moran (2011), Withers (2009) and Woolf (1915).

Appendix 8: Ethnophysiography Case Study Methodologies

A8.1 Introduction

This appendix provides details concerning Ethnophysiography Case Study Methodologies. It commences with the methodology discussed in Chapter 7, Section 7.2. Table A8.1 in Section A8.2 draws heavily on the publication:

> Turk, A.G., Mark, D.M., O'Meara, C, and Stea, D. (2012) Geography: Documenting Terms for Landscape Features. In: Thieberger, N. (Ed.). *The Oxford Handbook of Linguistic Fieldwork*, Oxford: Oxford University Press. pp. 368-391.

In Section A8.3, Table A8.2 provide phenomenographic details of new aspects of ethnoecological and phenomenological methodologies discussed in Sections 7.2.2, 7.3 and 7.4 of Chapter 7. Table A8.3 provides a summary of tables from Chapters 5 and 6 to be used to assist in providing for a phenomenological approach to design and execution of transdisciplinary ethnophysiography case studies.

A8.2 Table Summarising Existing Ethnophysiography Case Study Methodology

Table A8.1: Ethnophysiography Methodology from Turk et al. (2012)

Stage	Activity reference	Description of activities for each step in each stage	Extra literature reference(s)
1		**Study preparation; scoping the domain; dictionary work; photo collection; and preparing 'instruments'.**	
	1.a	Finalise and document case study objectives and obtain funding and other resources, such as software (e.g. ELAN) and equipment.	
	1.b	Review potential languages, possible participants and community organisations, then choose language for case study and potential communities.	
	1.c	Design project filing systems (digital and physical), including suitable security and back-up.	
	1.d	Obtain copies, then study, information regarding the history, lifestyle, culture and spirituality of the target language group communities and ecology, flora and fauna, weather and travel conditions for group's area.	
	1.e	Prepare initial case study plan of field trips, procedures and timetable.	
	1.f	Discuss potential plan with representatives of communities and linguists and others knowledgeable about the language and people.	
	1.g	Seek approvals to undertake case study; obtain formal permissions, including ethics clearance(s).	

	1.h	Obtain copy of existing dictionary(ies) and tabulate potential landscape terms.	
	1.i	Obtain copies, then study, recordings and transcripts of interviews, stories, songs, etc. in the target language and mine for sentences mentioning landscape features and/or utilitarian, social, cultural or spiritual associations with landscape and the lifeworld of speakers.	Burenhult (2008a) Mohanty (1997, p. 60)
	1.j	Collect digital and hard copies of photographs of as wide a range as possible of landscape features in case study area and take new photographs, if necessary.	Mark & Turk (2003) Mark, Turk & Stea (2007; 2010)
	1.k	Review planned methods, procedures, techniques and equipment and revise plans as necessary.	
	1.l	Prepare sets of landscape photographs and other data collection instruments, such as lists of terms ordered by landscape types.	
	1.m	Confirm permissions to visit communities; arrange for recruitment of participants and agree on suitable payment amounts and mechanisms; and schedule initial visits to cultural organisations and communities.	
	1.n	Collect together all information in project files (digital and physical) and prepare the Stage 1 Report, summarising activities and results.	
2		**Carry out field interviews, identifying the set of landscape terms and the distinctions, associations and usage for each term. Some activities may be integrated with, or iterate with, some of those in Stages 3 and 4.**	
	2.a	Ensure all data collection activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	Whiteley (1998) Turk and Mark (2011)
	2.b	Discuss known landscape terms with individuals or small groups of speakers to identify their usage (potentially for different sizes or types of landform) and any relevant cultural or spiritual constraints on use or 'life-world' associations; including checking spelling of terms and whether other terms are used for similar landscape features, perhaps of different sizes or shape or material (e.g. sand or rock), or in different physical or 'life-world' circumstances. Terms for landscape scale assemblages of vegetation types should be included, an openings within, say, a forest or other dense vegetation.	
	2.c	Some terms (and/or their associations) may be gender[65] related, so, if this is suspected, the interviewer should be the same gender as the	

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[65] This author recognizes that 'gender' is a questioned term and that LGBTQIA complications may apply. Here 'gender' is used in the traditional way, referring to female or male persons.

		informant. Hence, having both male and female researchers in the team is important.	
	2.d	Terms may be written on large sheets of paper or a whiteboard, or projected onto a screen, to facilitate discussions with groups; sessions can be audio or video taped as well as notes taken by the researchers.	
	2.e	Researchers need to be careful not to stress participants, particularly very elderly people, most likely to be the best speakers of the language. Having a younger family member assist with the session (e.g. with translation) can be very useful.	
	2.f	Initial sessions might concentrate on what are the general objectives of the researchers (in simple terms), general features of the language, and history of contact with linguists or other ethnographers.	
	2.g	Photographs of landscape features can be used to assist in discussion of known landscape terms or to elicit new terms and to clarify the physical extent of application of the term and/or other characteristics of the term's use. See details in Stage 3 activities list.	
	2.h	If at all possible, discussions about landscape terms and their context of use should be held in the landscape (familiar to the participants), where explanations can be more effective. This might involve audio or video recording and/or taking of photographs. Elderly participants may need to be driven to locations and may need wheelchair assistance to move about.	
	2.i	Discussions should be exploratory, with researchers avoiding directing the discussion to too great an extent. They should include, if possible, links between landscape terms and community 'life-world' activities; utilitarian, social, cultural and spiritual. This may involve the trips replicating the route of regular community activities, such as food gathering. This can facilitate speakers describing the activities and route (in language), facilitating 'natural' use of the terms and clarifying forms and circumstances of usage. Recording conversations about activities can assist.	
	2.j	Conversations about every-day activities might lead to informants providing personal narratives, including examples of landscape terms used in context. Such sentences can be used as examples in dictionaries or other publications.	
	2.k	Toponyms and their meanings and cultural/spiritual associations can be collected, especially during field-walks, provided that informants are not encouraged to provide secret or sacred information, which should not be recorded. GPS may be used to record locations, provided this is approved.	Hercus and Simpson (2002)
	2.l	Transcripts and digital records of the terms and their associations should be prepared as soon as possible after sessions with informants in the community or during field-walks. New material can be compared with dictionary entries and other information. Notes	

		on follow-up questions can be made and the possibility for using other ways to elicit specific information in future sessions.	
	2.m	Asking participants to draw diagrams or maps or sketches may assist in eliciting landscape terms and their context of use and cultural associations. This can be done in the community or in the field. The informant can possibly label parts of their drawing with landscape terms, then discuss their usage.	
	2.n	More formal methods may be used to elicit relationships between terms, e.g. in terms of taxonomical (kind-of) and meronymical (part-of) relations. Use of metaphors (e.g. family relations or body parts for hydrological systems) can be identified through careful (un-guided) questioning.	
	2.o	Collect together all information in project files (digital and physical) and prepare the Stage 2 Report, summarising activities and results.	
3		**Photo interpretation sessions - clarifying existing terms and collecting new ones. Some activities may be integrated with, or iterate with, some of those in Stages 2 and 4.**	
	3.a	Ensure all activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	
	3.b	Sets of images of different examples of one particular type of landscape feature (e.g. hills) can be used as hard copy photographs. or projected onto a screen. Landscape terms can be confirmed or new ones elicited. This can be used to focus attention on sets of terms, especially regarding what changes in size, shape or material of a feature means a different term is used, or perhaps an adjaitive is added. However, it must not be assumed that terms will follow patterns observed in other languages. Photo interpretation sessions may be audio or video taped.	
	3.c	Informants can be asked to discuss a landscape scene potentially containing several or many landscape features. This is most useful if it displays landscape that informants are familiar with, indeed, some participants may refuse to discuss scenes from locations outside their 'country'. Participants may make hand, head or body movements, or facial expressions, as part of their explanation of activities in landscape.	
	3.d	Photo interpretation sessions are best held in locations where participants feel relaxed and may be accompanied with food and drinks, if considered appropriate.	
	3.e	Another technique is to request participants to sort photographs of landscape features into groups. Researchers can then ask participants to explain the basis of their chosen grouping.	

	3.f	Collect together all information in project files (digital and physical) and prepare the Stage 3 Report, summarising activities and results.	
4		**Semi-structured follow up- clarifying confusions, probing for extra meanings, evaluating quality of interpretations. Some activities may be integrated with, or iterate with, some of those in Stages 2 and 3.**	
	4.a	Ensure all activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	
	4.b	This stage involves follow-up interviews, field-walks or photo interpretation sessions to clarify any issues identified in summarising the results of Stages 2 and 3. This may involve iterating techniques used in those stages.	
	4.c	Activities might involve clarifying confusions, probing for extra meanings, and/or evaluating the quality of interpretations of definitions of terms and their 'life-world' associations.	
	4.d	Where terms have cultural or spiritual associations, and current data is only from informants of one gender, it can be useful to check this information with informants of the other gender, using a researcher of that gender.	
	4.e	Other less frequently used methods might be used to provide additional data, specifically aimed at addressing key issues. These could include: • More extensive photo sorting protocols; • Use of questionnaires for eliciting landscape terms, where participants have sufficiently high levels of literacy (however, this is likely to provide data according to an etic, rather than an emic structure[66]; • Having children take photos of landscape and record discussions about them with parents and/or grandparents (much more possible now that many more children have mobile phones); • So called 'Director/Matcher photo sessions (discussed in detail in Appendix 12 and Chapter's 7 and 8); • Various types of drawing exercises, role-playing scenarios, 'knowledge-trees', memory exercises, genealogical charts and nomenclature exercises; • Researchers could produce a video of a person (or animal) real or animated, travelling through landscape and ask language speakers	Bohnemeyer and Enfield (2002) O'Meara and Bohnemeyer (2000) Burenhult (2008b) Heyes (2007)

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[66] An etic view of a culture is the perspective of an outsider researcher looking in. An emic view is focused on the intrinsic cultural distinctions that are meaningful to the members of a given society - an 'insider's' perspective. https://courses.lumenlearning.com/culturalanthropology/chapter/two-views-of-culture-etic-emic/ [accessed 20th Sept., 2018]

		to provide a narration in language, for later translation. This is an example of using narration of a journey to better understand context of use of landscape terms; • There may be potential for use of three-dimensional relief models, especially if participants could change their shape; • Virtual reality rendering of landscape my also be useful, but probably only in a laboratory setting, unless funding enabled use of mobile equipment	Wisner, Stea and Kruks (1991) Rambaldi and Cullosa-Tarr (2002)
	4.f	Sometimes this phase might involve returning to the language community on an extra fieldtrip, once the researchers have had time to fully digest the data from previous trips. It may also be facilitated by identifying additional participants, who may provide data leading to a new interpretation on the meaning of terms, or provide the researchers with confirmation of previous interpretations.	
	4.g	It may well be useful to start this stage with a visit to the cultural organisation which approved the researcher's interaction with community members. This will ensure that they are happy with the work the researchers have undertaken, including issues such as appropriate payments to participants. The researcher's plans for stage 5 can also be discussed, especially proposed community feedback arrangements, the types of products to be produced, any confidentiality issues (e.g. concerning cultural or spiritual information), who will have copyright for, for instance, a pictorial dictionary of landscape terms and who has the right to hold detailed linguistic information. Such discussions might include what practical benefits the researchers can provide to the cultural organisation, and/or communities, in recompense and thanks for their participation in the research, beyond their 'contribution to the advancement of science', which some participants may not value, or even understand. This is likely to include providing multiple copies of any proposed landscape dictionary to each school in the language group area. It is much better to consult too frequently than not frequently enough.	
	4.h	A review of adherence to ethics approvals could also be useful at this stage to, for instance, identify whether any permissions that are needed, can be collected during what might be the last fieldtrip for this project with the possibility of visiting all participants.	
	4.i	Collect together all information in project files (digital and physical) and prepare the Stage 4 Report, summarising activities and results.	
5		**Reporting the initial results back to community members and getting their feedback; producing publications and reports.**	

	5.a	The researchers should provide feedback about their research results and its practical benefits, if possible, to all participants, or at least to their representatives. This should explicitly seeking **their feedback**, to the researchers about the research processes and results.	
	5.b	A pictorial dictionary of landscape terms is likely to be among the physical products of the research project. Obtaining feedback about a draft or 'mock-up' version could be very useful, if only to demonstrate the researcher's desire to include participants in this process. Other products, such as a 'children's language workbook' may be useful, especially if the target language is endangered.	
	5.c	Linguistic products are likely to need to be distributed to relevant government and cultural organisations, in line with the project agreement and in accordance with relevant regulations of conventions.	
	5.d	If the researchers are collaborating with others in this type of research, it needs to be decided what results (and perhaps data) should be shared with them, in accordance with the research agreement. This may include papers or presentations to group research meetings.	
	5.e	Especially if the researchers are members of university communities it will be desirable to publish article to high class journals as soon as practicable. It is important to adopt a well-considered publication strategy that treats all stakeholders fairly. Details of collaborating cultural organisations and informant's names should be included in publications unless there is some specific reason not to do this.	
	5.f	Confirm ethics information matches approval conditions and submit ethics report.	
	5.g	Discuss all proposed publications with stakeholders and obtain appropriate permissions.	
	5.h	Prepare Pictorial Dictionary of Landscape Terms, including appropriate photographs, sketches of landform scenes with labels, definitions of terms, examples and constraints of usage of terms, example sentences, and discussion 'life-world' associations; show stakeholders; revise as necessary; print copies for distribution to participants and other stakeholders.	
	5.i	Prepare articles and other publications and presentations, after consultation with stakeholders.	
	5.j	Collect together all information in project files (digital and physical) and archive; and prepare and distribute Final Project Report.	

A8.3 Proposed Additions to Methodology

Table A8.2 lists additional phenomenological case study methods and techniques to add to the approaches used in the ethnophysiography case study methodology listed in Table A8.1. Discussion of each extra method is provided in Chapter 7, Sections 7.2.2, 7.3 and 7.4.

Table A8.3 provides a summary of tables to use from Chapter 6, Appendices 6, 7 and 13 to assist in implementing a phenomenological approach to ethnophysiography case studies.

Table A8.2: Ethnoecological and Phenomenological Additions to Ethnophysiography Case Study Methodology

Extra Method	Activity reference	Description of activities for each step in additional method	Literature reference(s)
Ex-ECO		Methods from ethnoecology and ecologically-embedded linguistics - Chapter 7, Section 7.2.2.	
	Ex-ECO-a	A 'free-listing' protocol to establish habitat categories; structured interviews with local speakers to elicit landscape terms and toponyms; informative graphs and diagrams generated from quantitative analysis data sets of plant types.	Abraao, Shepard, Nelson, Baniwa, Andrello & Yu (2010)
	Ex-ECO-b	Participatory mapping exercises conducted with local speakers to elicit toponyms.	Ellen (2010)
	Ex-ECO-c	Using an elicitation framework with local speakers to identify landscape and ecotope terms and follow-up questions to elicit toponyms.	Meilleur (2010)
	Ex-ECO-d	Elicitation of toponyms and associated information via interviews with local speakers and access to a database assembled for an oral history project.	Aporta (2010)
	Ex-ECO-e	Adopting a culturally appropriate experiential learning process, including: elicitation of landscape and ecotope terms and toponyms via interviews with elders and other community members; use of audio-visual and visual documentation; listening to narratives about speaker's lifeworld; participated in activities in communities and on the land related to their relationship with the topographic environment; analysis via understanding their holistic socio-cultural-spiritual framework.	Johnson (2010)
	Ex-ECO-f	Field research conducted in collaboration with a community researcher, elders and local government personnel, involving targeted conversations with elders during visits to key sites and travel routes.	Davidson-Hunt & Berkes (2010)
	Ex-ECO-g	An ecologically-embedded linguistic approach (ecolinguistics) provides a basis for analysis of a cross-disciplinary mix of linguistic and environmental relationships.	Nash (2015; 2018)
	Ex-ECO-h	Combining place names and scientific knowledge on soil resources through an integrated ethnopedological approach.	Capre, Ganga, Filzmoser & Vacca (2016)
Ex-CG		Methods recommended by cultural geography authors.	
	Ex-CG-a	Pay attention to 'minute particulars' via fine-tooth-comb searches of information about people's life-world.	Merriman, Revill, Cresswell, Lorimer, Matless, Rose
	Ex-CG-b	Develop descriptions of 'knowing-by-doing' and practical forms of intelligence relating to routine 'taskscape' activities.	

	Ex-CG-c	Investigating gender differences in terms of activities, beliefs and knowledge sets.	& Wylie (2008)
	Ex-CG-d	Investigation of the role of affect (at individual and community levels), including 'the politics of affect'.	
Ex-E&U		**Methods related to traditional phenomenological search for essences and universals – Chapter 7, Section 7.3.2.**	
	Ex-E&U-a	Traditional phenomenological methods seeking 'essences' seem inappropriate for landscape features, however, evidence should be collected regarding the potential future use of this approach.	Chamberlain (1974); Carman & Hansen (2005); Farber (1970)
	Ex-E&U-b	Develop a strong understanding of the socio-cultural-spiritual framework that applies to the language community studied.	Moran (2014); Carman & Hansen (2005)
	Ex-E&U-c	Identify any aspects of universality, which apply to study data, especially at higher levels of abstraction.	Frake (1996); Casey (1997); Yuan (1997)
	Ex-E&U-d	Identify any phenomenological insights and understandings that flow from the study data, analysis and results.	Van Manen (2017)
Ex-EM		**Ethnomethodology (EM), including conversation analysis (CA) - Chapter 7, Section 7.4.1.**	
	Ex-EM-a	Ethnomethodology provides ways for integrating phenomenology and social science approaches in a manner tailored to any specific research domain, including ethnophysiography.	Heritage (2013); Eberle (2012); Heap (1991)
	Ex-EM-b	Participant observation, involving the researcher immersing him or herself in the daily lives and routines of those being studied and adopting a phenomenological stance.	Wilson (2012)
	Ex-EM-c	Interviewing participants about particular aspect of social life for their particular social group.	Eberle (2012); Maynard & Clayman (1991)
	Ex-EM-d	Examination of artifacts and texts used by the community to regulate or explain their common practices and protocols, such as written descriptions of common practices, commentaries, educational handouts, etc.	Wilson (2012)
	Ex-EM-e	Possible use of small experiments designed to reveal participants' taken-for-granted assumptions regarding social life.	Wilson (2012)
	Ex-EM-f	Record instances of every-day use of language regarding life-work activities (utilitarian, social, cultural and spiritual) and social processes, which include landscape terms and/or toponyms - 'talk-in-interaction' data.	Heritage (2013); Eberle (2012); Heap (1991); Wilson (2012)
	Ex-EM-g	Record relevant examples of social interaction, embracing both verbal and non-verbal communication in the context of regular tasks and social processes. Researcher needs to immerse him or herself in daily lives and activities of people being studied.	Heritage & Clayman (2010); Wilson (2012)

	Ex-EM-h	Use conversational analysis (CA) techniques with records of conversations regarding every-day activities and social / cultural processes of community members, and also for recorded conversations during 'Director/Matcher' sessions.	McHoul & Rapley (2005); McHoul (2008);
	Ex-EM-I	Interpret social interactions between community members in the context of their social and cultural milieu, including communicative acts and their intended purposes.	Eberle (2012)
	Ex-EM-j	Examine 'social fact' data that people construct/produce/interpret regarding every-day activities Collection of artefacts, including texts that are used to teach and regulate social/cultural practices, such as written descriptions of common practices, commentaries, educational handouts.	Eberle (2012); Williams (2017); Wilson (2012)
	Ex-EM-k	Conduct small experiments designed to reveal participants' taken-for-granted assumptions regarding social life.	Wilson (2012)
	Ex-EM-l	Retain a focus on 'radical reflexivity'; i.e. recursive comprehensive consideration of the 'accomplished' character of *all* social activity, free from bias.	Pollner (1991)
	Ex-EM-m	Avoid too rigid use of formalisms that might limit the diversity of interpretations of data. So need a contingent flexible methodology.	Williams (2017)
	Ex-EM-n	Comparisons should be made between data and results from different language groups – e.g. via EDM.	Williams (2017)
Ex-PP		**Methods from Ihde's Post-Phenomenology, in the contest of 'New Phenomenology' and human geography – Chapter 7, Section 7.4.2.**	
	Ex-PP-a	Use of 'multistabilities' approach to investigating landscape terms that are use for different types of landscape features and (potentially) for things in non-landscape domains.	Ihde (2003; 2009); Ash & Simpson (2014)
	Ex-PP-b	Investigate 'intersubjective' daily activities in terms of their 'intercorporeal' aspects.	Ash & Simpson (2014); Simonsen (2013)
	Ex-PP-c	Investigate role of 'affect' and its links with processes of 'mimesis' that embed societal and cultural notions within the minds of members of the dwelling group, as an expression of 'alterity' (encounters with 'other' humans).	Seigworth & Gregg (2010); Ash & Simpson (2014); Wylie (2009); Taussig (1993)
	Ex-PP-d	In analysis of data consider 'intentionality' as an emergent relation with the world, rather than an a priori condition of experience.	Ash & Simpson (2014)
	Ex-PP-e	Rather than concentrating on individual mental and physical activities, focus more on the lifeworld of groups, 'communalized intentionality', social relations and shared structures of meaning, such as the applicable overarching 'socio-cultural-spiritual framework'.	Ash & Simpson (2014); Harrison (2007); Rose (2012); Ley (1979)

	Ex-PP-f	Need an academic openness to alternative conceptions of place and place experience; i.e. a "critical pluralist" framework to provide an overarching coherence (e.g. via phenomenology as a transdisciplinary paradigm, providing foundational structures of coherence and continuity to manage richness and 'chaos' of human experiences of place). This provides expanded placed-based approaches beyond Ihde's original version of Post-Phenomenology.	Patterson & Williams (2005); Seamon (2012); Seamon & Gill (2016); Kakkori (2009); Willis (2014); Ash & Simpson (2014)
	Ex-PP-g	Investigate and document landscape-related action routines, scripts and protocols, to emphasise importance of routine sets of actions, often performed with others and subject to processes of 'mimesis'; embedding in communal memory to produce standard (perhaps automatic) ways of doing and thinking about activities, within a socio-cultural framework.	Ash & Simpson (2014)
	Ex-PP-h	Gendered aspects of interactions with landscape need to be surfaced and considered, in terms of utilitarian tasks and potentially social/cultural/spiritual roles and beliefs.	Ihde (2003)
Ex-SM		**Methods from David Seamon (2018) – Chapter 7, Section 7.4.3.**	
	Ex-SM-a	A phenomenological approach to landscape language studies can be very effective. Seamon advances a systems theory based method of multiple stages and rejects integration with social science methods. Seamon's (2018) method seems not to adequately address social and cultural aspects.	Seamon (2012; 2014a; b; c; 2018); Bermudez (2014); Olivier (2017)
	Ex-SM-b	If the Seamon (2018) method is used, there is a need to also include deep data collection and analysis of social and cultural aspects of dwelling and landscape language. An option is to reinforce Seamon's method by adopting an an 'exterophenomenological' approach which emphasises the role of place as a 'grounding structure' for experience by examining the socio/cultural structure of the language group and using this in data analysis.	Chelstrom (2013); Olivier (2017)
	Ex-SM-c	Seamon's method starts from the need to consider dwelling in place, as a 'monad', i.e. a complex holistic system. Such an approach is always useful.	Seamon (2012; 2014; 2018)
	Ex-SM-d	The next step is to consider complementary or opposing pairs of aspects of place as 'dyads'. Lots of different types of dyads can be usefully examined (with the nature of the investigation determining which issues to pursue), such as: • Seamon's set (movement vs rest; insideness vs outsideness; the ordinary vs extra-ordinary; the within vs without; homeworld vs alienworld); • historical (e.g. whether colonised people or not);	

		• utilitarian (e.g. predominating form of work: hunter/gatherer and agricultural vs manufacturing and utilities); • social (e.g. dominant vs marginalised people); • political (e.g. democratic vs totalitarian); • cultural (e.g. indigenous vs multicultural customs and languages); or • spiritual (e.g. sacred vs secular places) aspects.	
	Ex-SM-e	The third step in Seamon's method starts with identification of three place 'impulses: 'people-in-place', 'environmental ensemble' and 'common presence', which are fundamental aspects of dwelling, requiring examination. Seamon's consideration of the three impulses leads him to develop different combinations of them, producing six 'triads'. The analysis of at least some triads could be effective.	
	Ex-SM-f	Seek examples of phenomenological experiences in aspects of dwelling such as: sensation, perception, thought, memory, imagination, emotion, desire, … volition, … bodily awareness, embodied action, and social activity, including linguistic activity.	Olivier (2017); Smith (2013)
	Ex-SM-g	Examine people's relationship with landscape 'objects', in terms of what they mean to us, and what impressions, beliefs, perspectives, images, ideas, thoughts, or uses we have with different types of landscape 'objects'. This can related to them as 'equipment' (or 'tools'), in the broadest sense of those terms, for individuals or groups.	Olivier (2017); Chelstrom (2013); Heidegger (1962); Harman (2002)
Ex-PG		**Methods from Phenomenography - Chapter 7, Section 7.4.4.**	
	Ex-PG-a	A key phenomenographic method of data collection is semi-structured, open-ended interviews, where informants are encouraged to speak freely about their experiences, giving concrete examples to avoid superficial descriptions about how things should be or ought to be. This assists in revealing their beliefs, values, interpretations of reality, feelings and experience of aspects of dwelling. Interviews can involve a mixture of etic (researcher) and emic (interviewee) categories. The in-depth interviews are tape recorded and transcribed verbatim. Data from 20 informants is usually sufficient.	Ornek (2008); Larsson & Holmström (2007)
	Ex-PG-b	Phenomenographic analysis of interview data can be carried out by two or more researchers, acting independently, and maintaining an unbiased, open mind regarding integration of etic and emic categories. Suggested steps are: 1. Read the whole transcribed text for each interview. 2. Read it again and mark where the interviewee gave answers to each of the main interview questions. 3. In these passages look for what the focus of the interviewee's attention is and how she/he	Ornek (2008); Larsson & Holmström (2007)

		describes her/his way of experiencing this aspect of dwelling. 4. Make a preliminary description of each interviewee's predominant way of understanding their relationship with that aspect of landscape as place. 5. Group the descriptions from various interviewees into categories, based on similarities and differences. 6. Formulate appropriate integrative categories of description. 7. Look for non-dominant or unorthodox ways of understanding the interview data. 8. Find a structure in the outcome space, i.e. the sets of emic categories that have been uncovered. 9. Assign a metaphor to each major category of description (in terms of the role of people dwelling in landscape that it represents). 10. Compare the analysis results achieved by each researcher and develop an integrated and/or contradictory set of conclusions.	
	Ex-PG-c	In addition to interviews, researchers can interpret people's conceptions of landscape by studying their behaviour while completing specific tasks under controlled situations. Tasks could potentially relate to different aspects of dwelling, from the following general categories: physical, utilitarian, social, cultural and spiritual. However, this approach should only be used when participants have explicitly agreed that they are happy to undertake such tasks while being observed.	Khan (2014)
Ex-HP		**Methods from hermeneutic phenomenology-Chapter 7, Section 7.4.4.**	
	Ex-HP-a	Hermeneutic phenomenology methods can be used for initial descriptions of key activities carried out by members of a speech community. These descriptions are produced, very deliberately, to include as little as possible (perhaps no) interpretation, just 'pure' observations. This allows for later interpretation of 'clean' data. Since hermeneutic phenomenology seeks to ensure the absence of the investigator's influence or bias, it requires 'self-reflection' by researchers.	Friesen, Henriksson & Saevi (2012); Saevi (2014); Sloan & Bowe (2014); Laverty (2003); Polkinghorne (1983)
	Ex-HP-b	Hermeneutic phenomenology involves examination of texts, to reflect on the content, to discover something 'telling', something 'meaningful', something 'thematic'. Hence, it can aid in understand the role of topo-socio-cultural mode of dwelling, including understanding links between culture and spirituality, especially for indigenous peoples.	van Manen (1997)
	Ex-HP-c	Adopting 'interpretive phenomenological methodologies' involves skilful reading of texts, such as transcripts of personal experiences, and	Sloan & Bowe (2014)

		isolating their key 'themes', as interpretations of lived experience. These can be called 'phenomenological vignettes'.	
	Ex-HP-d	Time/history is a key factor in interpretation of the lifeworld of people being observed and/or interviewed. This information can be encapsulated in short 'thematic statements', depicting key relevant aspect of every-day practices.	
	Ex-HP-e	Interpretative Phenomenological Analysis (IPA) is an approach to qualitative analysis with a particularly psychological interest in how people make sense of their experiences. It can 'give voice' to participant's thoughts and feelings and 'make sense' of oral or written accounts of experiences. However, IPA is also criticised as being too psychological. IPA does not aim for transcendent knowledge.	Sloan & Bowe (2014); Smith (2011); Smith, Flowers & Larkin (2009); Larkin & Thompson (2012); Clarke (2010)
	Ex-HP-f	IPA is used most often to analyse verbatim transcripts of a first-person accounts, generated by research participants in semi-structured, one-to-one interviews. It can also be used with transcripts of focus group discussions.	

Table A8.3: Summary of tables to use from Chapter 6, Appendices 6, 7 and 13 to assist in implementing a phenomenological approach to Ethnophysiography case studies.

Description of table.	Chapter reference
Table A6.1 in Appendix 6: Seamon (2014, p. 8) questions concerning place and phenomenology	Chapter 5, Section 5.2.1
Table A6.2 in Appendix 6: Summary of key issues regarding phenomenology of place.	Chapter 5, Sections 5.2 to 5.3.6 and 5.5
Table A7.1 in Appendix 7: Review the nature of place from the perspective of various disciplines (aggregation of tables 6.1 to 6.8 in Chapter 6)	Chapter 6, Section 6.3 and 6.4
Tables 6.9 to 6.18 –regarding philosophy of anthropology, ethnoecology, landscape architecture and planning, spatial/cultural theory and sense of place - (Additional aspects of landscape to those concatenated in Table A7.1 in Appendix 7).	Chapter 6, Section 6.3.3 and Section 6.4
Table A7.4 in Appendix 7 – Aspects of place regarding SW USA indigenous peoples.	Chapter 6, Section 6.8
Table A7.5 in Appendix 7 – Aspects of place regarding Australian indigenous peoples.	Chapter 6, Section 6.8
Table A7.6 in Appendix 7 – Concatenated table re place issues for indigenous peoples.	Chapter 6, Section 6.8
Table A13.1 in Appendix 13 - Key Aspects of *TJukurrpa* Identified in Cane (2002, pp. 81-85).	Chapter 6, Section 6.8.4

Appendix 9: Sections From Manyjilyjarra Case Study Final Report and Pictorial Landscape Dictionary

A9.1 Introduction

Section A9.2 contains key sections of the summary of the *Final Report for the Martu Ngurra Wangka: Manyjilyjarra Landscape Language Case Study* (Hill and Turk, 2017). Section A9.3 provides some selected sections of the Manyjilyjarra pictorial landscape dictionary (Hill and Turk, 2016), which illustrate aspects of the way initial research findings were utilised in the dictionary (see Chapter 8, Section 8.4). Table A9.1 lists terms for size and/or shape of landscape features (Hill, Turk and Ashmore, 2016). Some additional sections of the dictionary are provided in Section A9.3.5, copied from the project final report (Appendix 8).

A9.2 Sections from Final Manyjilyjarra Landscape Language Case Study Report
A9.2.1 Manyjilyjarra landscape language project overview

This summary provides a very brief description of the objectives, activities and initial outputs of the *Martu Ngurra Wangka: Manyjilyjarra Landscape Language Project*. The project documented landscape terms in Manyjilyjarra, a Western Desert language variety from the Great Sandy Desert. Analysis of data collected from Manyjilyjarra speakers resulted in the *Manyjilyjarra - English Pictorial Dictionary of Landscape Terms* (Hill and Turk, 2016), the main initial output of the project.

A9.2.2 Project objectives

The main objectives were to: document landscape aspects of this endangered language; describe in detail aspects of the form, meaning, and use of landscape terms; and compare these findings cross-linguistically.

A9.2.3 Researchers

Linguist Clair Hill was a LACOLA researcher (a European Research Council funded project). She is now on the linguistics staff at the University of Sydney and is an affiliated researcher with Lund University (Sweden). Her research interests include: language documentation and description; Australian Aboriginal languages; semantics and pragmatics; morphosyntax discourse interface; lexicography; and toponymy.

Andrew Turk ('AT' to Martu) is a transdisciplinary researcher (geography; cartography; psychology; philosophy; cultural studies; ICT; etc.) who is a founding member of the

Ethnophysiography Research Group. He is an Adjunct Associate Professor and a (second) PhD candidate in the School of Arts, College of Arts, Business, Law and Social Sciences, at Murdoch University in Western Australia.

Hill and Turk spent a total of more than 25 person/months working on this project. Hill was employed for most of her time on this project through a European Research Council grant to the LACOLA research group at Lund University, Sweden. That project funded many aspects of the fieldwork and other research costs. Turk received no payment for his work on this project. Martu participants (listed below) were paid for their contribution to the project at the standard KJ hourly rate, via the KJ payments system.

A9.2.4 Project activities

The project consisted of three phases:

A. Scoping and Establishment of Collaborations Phase (initial investigations, project definition, planning and approvals) - September 2011 to May 2014;

B. Operations Phase (carrying out fieldwork and initial data analysis) - June 2014 to October 2015;

C. Completion Phase (completing data analysis, publications and final report) - November 2015 to February 2017.

The project activities were linked to particular aspects of the KJ Ranger and Cultural Heritage programs to the greatest extent practicable. During the Operations Phase, landscape language information was collected from senior Manyjillyjarra speakers, sometimes with assistance from younger Martu, mostly at Punmu Community and partly at Kunawarritji Community and at 'on-country' locations in Manyjilyjarra and Warnman country. A variety of data collection techniques were used, including: elicitation using photo stimuli; fieldwalk based data collection; and formal tasks such as 'Director/Matcher' sessions. This data was then analysed to determine the following: the meanings for the identified Manyjilyjarra landscape terms; the semantic relationship between the terms; key grammatical aspects in the construction of landscape descriptions; and cross-linguistic comparison between landscape terms in Manyjilyjarra and other Pama-Nyungan Australian indigenous languages.

One interesting aspect of this case study was the very successful use of the relatively new 'Director/Matcher' technique (see Figure A9.1, a photograph taken by Hill). During these sessions, the participant allocated the role of 'Director' chose one photo (from a set of about

twelve photographs of landscape) and described the landscape in the photo. The 'Matcher"
(who was sitting behind a visual screen) used the description to identify the same photo from
their (identical) set of landscape photographs; asking questions as necessary. These sessions
were video-recorded. Not only were these sessions very successful at clarifying the meanings
of terms, the participants said that they were interesting and enjoyable.

Figure A9.1: Mangjilyjarra participants involved in a Director/Matcher session.

References used in the Manyjilyjarra landscape language case study concerning Martu
language, culture and history include Burgman (2008; 2009), Clendon (1988), Davenport
(1987; 1988), Davenport, Johnson, and Yuwali (2005), Marsh (1969; 1976), Edwards
(1998), McConvell(1980), Sharp and Thieberger. (2002), Tonkinson, R. (1974; 1991) and
Walsh (2008).

A9.2.5 Project outputs

The main initial outputs from this project were as follows:

1. The primary data collected on three fieldwork trips (totalling 11 weeks) working with
   speakers at Punmu and Kunawarritji: 23 audio recordings; 5 video recordings; 24
   fieldnotes, recording elicitation and interactions with speakers; and extensive photographic
   material collected on fieldwalks and during travel between locations.

2. Analysed data: *Toolbox* note files summarising the primary data collection; compilation of
   a *Toolbox* database, spreadsheets and Word files, which include information on each of the
   landscape terms and cross-references to relevant data files and photographic images.

3. The *Manyjilyjarra – English Pictorial Dictionary of Landscape Terms* (Hill and Turk, 2016). The dictionary includes: introduction; four illustrations representing typical landscape scenes (watercourse, salt lake, rocky hill and sandridge); main entries for 82 landscape terms, grouped according to categories of feature type; a describing landscape section listing terms which describe attributes of landscape features; and an English Finder List and Manyjilyjarra Finder List (see example pages in Appendix 9). The dictionary will aid language preservation by encouraging development of strong language use, through cross-generational language exchange. A key target usage is within the Martu Ranger Program, both for non-Indigenous support staff and specialists and among younger Martu Rangers, as a reference resource and language transmission aid. As soon as copies of the dictionary were provided to community members at Punmu, they started being used to facilitate Martu school children learning Manyjilyjarra language from elders (Figure A9.2).

4. The researchers also produced conference papers and are working on journal articles reporting the results of the project, especially comparing Manyjilyjarra landscape terms with those in other languages.

Further work is planned, utilising the data collected, to develop and extend the analysis of Manyjilyjarra landscape terminology and cross-linguistic comparisons. This project has made a significant contribution to Manyjilyjarra language preservation, the cultural and land management activities of KJ, and to the research programs of LACOA and the Ethnophysiography Research Group.

Figure A9.2: Manyjilyjarra elder showing the pictorial landscape dictionary to Punmu School children

A9.2.6 Acknowledgements

A9.3 Example Sections of Manyjilyjarra Pictorial Landscape Dictionary

A9.3.1 Part of Introduction to Dictionary

In the Introduction to the dictionary, the section discussing the Structure of Dictionary (p. 3) has the following two paragraphs that discuss key aspects of how initial research findings were utilised in the dictionary:

> There are many different aspects or dimensions of relationships with landscape that can be used for categories to group the dictionary entries, such as: physical, utilitarian, cultural and spiritual. As this is a 'landscape' dictionary (and a bilingual one), generic landform categories have been adopted. These are based on the general shape of landscape features and 'affordance' (Gibson 1979); that is the opportunities and dangers that parts of the landscape provide to people. That said, the groups are still very much influenced by Manyjilyjarra semantics (the meaning of the words). Shape is one of the two main underlining semantic aspects of Manyjilyjarra landscape feature terminology and this has been used to generate categories used; e.g. *tumun* for eminences (hills, etc.), t*akurru* for depressions and *larrku* for inclines.

> The other main semantic aspect is material; that is whether the landscape feature is composed of rock, sand, etc.; e.g. *yapu* for rock entities and *langa* for sandy areas. In many instances semantic aspects of both material and shape come together to compose the core meaning (here we mean the coded or conventionalised meaning) of Manyjilyjarra landscape words, e.g. *wirrkuja* for rockhole (a depression composed of rock) and *yintiri* for sandridge (an eminence made of sand). The option of organising the dictionary categories by both shape and material was considered, however that would have introduced greater complexity into the structure of the dictionary. Another consideration was that a key objective for the project and the dictionary is to facilitate comparison of Manyjilyjarra landscape terms with those in other languages cross-linguistically and the adopted categorisation approach also supports this, as it is aligned with previous case study dictionaries for Yindjibarndi (Turk and Mark 2008) and Navajo (Mark et al. in press).

A9.3.2 Illustralions of typical environments

Pages 6 to 9 of the dictionary provide four illustrations of various typical landscape features in ways that they are spatially associated in frequently encountered scenes in Manyjilyjarra

country. An example illustration "1. Watercourse scene" is reproduced in Appendix 9. Particular landscape features can be physically associated, via their involvement in topological/environmental systems, such as water drainage. For instance, a *jurnu* (soak) and a *talypurr* (boggy place) can be located within *karru* (water channel).

On page 6 of the dictionary the illustrations are introduced as follows:

> Example locations of key generic landscape terms are indicated on the sketches by numbers, which are listed in the table below each illustration, together with the relevant Manyjilyjarra term(s) and general English meaning. Fuller details regarding the meaning and usage of each term are provided in the main dictionary entry for each term.

A9.3.3 Dictionary entry for *yinta*

Pages 20/21 of the dictionary contain the entry for *yinta* (a permanent source of water). This is probably the most important landscape term for traditional Manyjilyjarra people, living in a harsh desert. It therefore has strong spiritual associations. The entry for dictionary *yinta* is as follows:

yinta *n.*   [see also: jurnu; **wirrkuja**]

> Yinta is used for a permanent source of water: a soak (jurnu) or spring, in sand, earth or in a salt lake (warla), or a claypan (linyji); or for a rockhole (**wirrkuja**). Also, a yinta can be a very large lake, as at Karlamilyi. The water in a soak type of yinta is not necessarily on the surface, so may require digging, with the distinction between a soak jurnu) and a yinta being that, for a yinta, the water is permanent; thus a person may be unsure, if they are not familiar with that specific place, whether the feature is a jurnu or a yinta. This is probably the reason why a yinta is sometimes said to only be used to name certain water sources in a person's own home country, because calling it a yinta might be considered as asserting rights/responsibilities, which could be presumptuous if not in your own country. Yinta water is usually drinkable; but may not be - e.g. permanent pools at Wirlarra (multiple small and medium sized springs in rock at edge of a salt lake) termed yinta are very salty. Camp sites were/are often at a yinta so yinta are usually named and are often spoken of as birth places, ceremonial sites and/or stopping places on a journey. Yinta have extremely strong *Jukurrpa* associations. In some other Western Desert varieties like *Pitjantjatjara and* Ngaanyaatjarra, a permanent water feature is called a jila (the word for snake). In Manyjilyjarra, a yinta is also sometimes called a jila (for the 'Dreaming' snake which created the yinta). This may perhaps occur if the speaker is concentrating on spiritual, rather than utilitarian, aspects of that place, or, if the latter, with surface water visible, it may be called just kalyu (water). One speaker when talking about a yinta near Punmu called Rawa said: "***Rawa yinta jila kaninypa"* meaning '*Rawa yinta has snake underneath'.* **Another speaker commented about the permanence of water, saying:** *"its water all the time yinta, yinta fella".*
>
> *Tirritiwa-laju-ra kanyinyjarra yintaku.*
> *We would go right down to the waterhole.* (Davenport 1987)

Karru yanu Mijikirtinyukukarti yintakarti. Nyinapayi-laju Mijikirtingka yintangka.
The creek went to the Mijikirti waterhole. We were staying at the Mijikirti waterhole.
(Davenport 1987)

Maa tiyirrijanu parra-laju maa tiyirritika parra-laju jikila yintangka-lanyaju.
And then we went over to the other side and had a drink of water in the main soak.
(Davenport 1987)

A9.3.4 Dictionary entries for *juurl* and *tumun*

This section provides a copy of the dictionary entries for *juurl* (p. 23) and *tumun* (p. 25), two terms that refer to similar landscape features. These two dictionary entries illustrate how distinctions between the meanings of related terms are expressed. Note that *juurl* is possibly a Warnman language term, with *tumun* being its Manyjilyjarra equivalent (or close approximation). This is an indication of how multiple terms for similar (or even the same) landscape feature can be in use, because traditionally people often spoke the languages of their close neighbours, as well as their own. Another example is terms for rocky hill etc., *purli* and *yapu*.

juurl   *n.*   [see also: tumun]

    Juurl is a mound or hill i.e. rounded convex or elevated shape of any size, consisting of sand or soil and in some cases with significant rock content visible on the surface, but not sufficiently rocky to be called a yapu (or purli). Juurl may sometimes be used for a small short (bounded) sandridge (yintiri). Juurl is distinct in some dialects/speech varieties as a mound constructed artificially (by human or animal). In this case roadworks in progress can often include a juurl, an elongated regular shaped mound of sound, earth or gravel waiting to be spread on the road. Another common example of this use of juurl is a small mound adjacent to a burrow (like a pirti, kartal) where an animal has been digging. Juurl is possibly a Warnman term, with tumun being its Manyjilyjarra equivalent (or close approximation).

Whitefellalu jawarnu parna, ka-jurnu juurlpa juurljunujunu.
The whitefella dug the road making mounds of earth.

Parnajarrpalu jawarnu pirti juurljunu.
The sand goanna dug a hole making a mound.

tumun   *n.* [see also: juurl]

Tumun is used for a mound, hill or island; i.e. a rounded convex (elevated) shape of any size, consisting of sand/soil and, in some cases, rock content (which may be visible on the surface or dispersed throughout). Instances indicated by speakers range from the miniscule mound of an ant's nest through to hills; including small mounds on a sandridge through to larger sand islands in a large salt lake (warla). It may also be used for mounds of vegetation, such as spinifex, which collect wind-blown sand. To date most instances appear to be somewhat circular or bounded, but tumun can also be used for elongated features as well. A tumun is always convex, with the opposite type of generic landform (**takurru) being concave.**

Yintiri, tali mulyajanu, tumun warlangka.
From the end of the sandridge there is an island (mound) on the salt lake.

Tumun spinifex janpi warulu yumarnu.
The fire burnt the spinifex mound.

Table A9.1: Scale Lexicon in Manyjilyjarra (Hill, Turk and Ashmore, 2016)

japu	small, little
juku	small, little
juli	small, little
juma	big, large
jarlu	big
maju	big
juuly	swollen
karlka	big and round
kuta	short
lipi	wide
mulyju	deep
takarnpa	thin, skinny
warlpu	long, tall

A9.3.5 Appendix 8 from Final Report of Manyjilyjarra Landscape Language Case Study

Manyjilyjarra - English Pictorial Dictionary of Landscape Terms:

Example Pages and Word Lists

Prepared for Kanyirninpa Jukurrpa by Hill and Turk, with assistance from Martu language speakers: Gladys Bidu; Jakayu Biljabu; Nancy Chapman; Mulyatingki Marney; Minyawu Miller; Reena Rogers; Bugai Whyoulter; Rosie Williams; Nora Wombi; Marjorie Yates.

This dictionary was produced as one of the products of the *Martu Ngurra Wangka: Martu Landscape Language Project*. This project documented and described landscape terms in Manyjilyjarra, a Western Desert language variety spoken in the central Great Sandy Desert region. The three main objectives of the project were to:
- document the landscape domain in this endangered language setting;
- describe in detail aspects of the form, meaning, and use of this language; and
- compare these findings cross-linguistically.

Example page:

Illustrations of typical Manyjilyjarra environments
Four illustrations show various typical landscape features in ways that they are spatially associated in frequently encountered scenes in Manyjilyjarra country. Example locations of key generic landscape terms are indicated on the sketches by numbers, which are listed in the table below each illustration, together with the relevant Manyjilyjarra term(s) and general English meaning. Fuller details regarding the meaning and usage of each term are provided in the main dictionary entry for each term.

Illustrations were created by Patrycia Buckland for this publication.

Example:

1. Watercourse scene
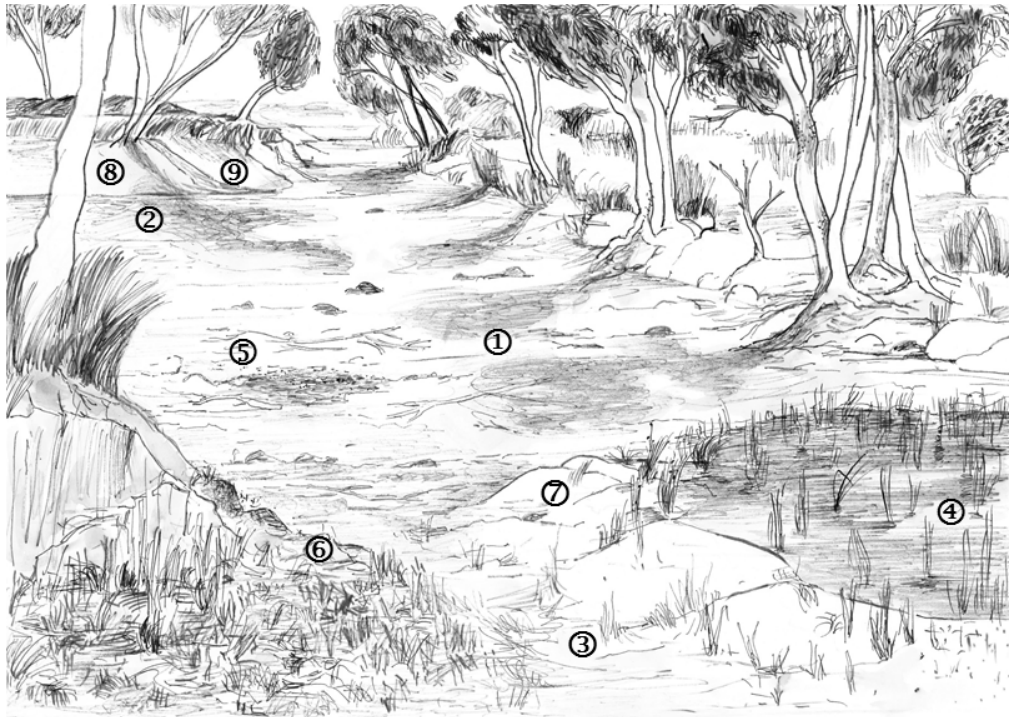
① **karru**	water channel	⑥ **jijimarra**	flood area
② **karlkajarra**	water channel junction	⑦ **tumun**	mound
③ **warli**	gully	⑧ **larrku**	slope
④ **talypurr**	boggy place	⑨ **yirriti**	side, edge
⑤ **jurnu**	soak		

Main Entries for Landscape Terms

The main section of this dictionary is structured so as to group 82 landscape terms according to general categories of landscape feature type, as follows:

      A. Rivers, creeks, lakes and other water-based features;
      B. Hills, rocks, sandridges and other convex (i.e. protruding) landscape features;
      C. Valleys, hollows, caves and other concave (i.e. dish-like) landscape features;
      D. Flat areas and types of ground;
      E. Vegetation and burnt areas;
      F. Other landscape-related terms.

Example page:

warli   *n*.

     A warli is a gully, containing an ephemeral (usually dry) watercourse, usually thinner than a creek/river (karru); it might be very narrow and small channel (a rivulete). A warli can be of steep or flat gradient. It may join a watercourse drainage system or run for just a short distance, through sand, earth or rocks. A sloping area of sand or earth has the potential for a warli (an ephemeral gully) to form after rain or to be conceived as a warli when a speaker is thinking of that potential water movement. A warli might run

down the side of a sandridge and disappear into the sand or flow a short distance into a soak (junru) or a claypan (linyji)). A warli may be a narrow channel running in the bed of a wider watercourse (karru). In some instances both warli and karru were given for a small water channel not in a creek, probably indicating that there is not a definite cut-off distinction by width of the channel. Takurru (the general term for a depression) may be used for a broader more rounded gully/valley, through which perhaps a narrow warli flows.

Kalyu punkarnu warlingka, karruwana jarrparra yarr.
The water ran down the gully along the creek and into the cracks.
Yapu yirriti yirritingka warli.
At the rock edge was a gully.

English Finder List

		Group
algae; algae water	*n.* **karawangaly**	A
barren (flat) area	*n.* **parlkarra**	D
bog	*n.* **talypurr**	A
boulder	*n.* **yarlawara**	B
burnt country, fresh-	*n.* **nyurnma**	E
burnt country, regrown-	*n.* **waru-waru**	E

calcrete (rock; ground)	*n.* **pulpurr**	**D**
cave; rock shelter	*n.* **jarri**;	**C**
	n. **jurnti**;	**C**
	n. **pirnki**;	**C**
	n. **purl**	**C**
claypan	*n.* **linyji**	**A**
clay; mud	*n.* **wira**	**D**
clay/mud, dry-	*n.* **marntu**	**D**
clay/mud, wet-	*n.* **yamarla**	**D**
cliff; rock face	*n.* **jiwalykarra**	**B**
creek (see: water channel)		
depression	*n.* **takurru**	**C**
edge; end	*n.* **mulya**	**F**
fear; sacred/taboo place	*n.* **ngurlu**	**F**
flat country; sand plain	*n.* **pararra**	**D**
overflow area, water-	*n.* **jijimarra**	**A**
flow; crawl	*v.* **wayirni**	**A**
flood water; flood plain	*n.* **parlkurta**	**A**
gap; a pass	*n.* **karnta**	**C**
grass species, samphire-	*n.* **kalaru**	**E**
grass species	*n.* **kirtil**	**E**
grass species, samphire-	*n.* kukulyuru	**E**
gravel; gravel area	*n.* **rirra**	**D**
gravel, fine-	*n.* **larri**	**D**
ground; earth	*n.* **parna**	**D**
ground, hard-	*n.* **parnka**	**D**
gully	*n.* **warli**	**A**
heat-haze	*n.* **marrka-marrka**	**F**
high ground	*n.* **warrarta**	**B**
hill (see: rock; -outcrop, -hill)		
hilly area	*n.* **turntururru**	**B**
hole	*n.* **kartarl**;	**C**
	n. **pirti**	**C**
lake, salt-	*n.* **warla**	**A**
lower area	*n.* **lawu**	**C**
mound	*n.* **juurl**;	B
	n. **tumun**	**B**
mountain (see: rock; -outcrop, -hill)		
nose	*n.* **mulya**	**F**
path; track	*n.* **karru-karru**	**F**
path; track	*n.* **yiwarra**	**F**
place; country; home	*n.* **ngurra**	**F**
place characteriser	*morph.* **– (lyu)kurru**	**F**
	morph. **–marri**	**F**
plain (see flat country; sand plain)		
river (see: water channel		
rock; -outcrop, -hill	*n.* **purli**;	**B**
	n. **yapu**	**B**
rock, flat-	*n.* **limpi-limpi**	**D**
rockhole	*n.* **wirrkuja**	**A**
sacred place	*n.* **japiya;**	**F**
	n. **ngurlu**	**F**
salt; salt water	*n.* **kalyjil**	**A**
sand; sand area	*n.* **langa**	**D**
sandridge	*n.* **tali**;	B
	n. **tuwa**;	B
	n. **yintiri**	**B**
sandridge-inter-area	*n.* **piti yintiri-**	**C**
shade; shadow	*n.* **puri**	**F**
side	*n.* **yirriti**	**F**

slope	*n.* **larrku**	**B**
smooth; slippery	*n.* **jiraly**	**F**
soak	*n.* **jurnu**	**A**
spinifex plant	*n.* **janpi**;	**E**
	n. **marnkal**;	**E**
	n. **paru**	**E**
swimming place	*n.* **jarrpa**	**A**
termite;		
termite mound	*n.* **malaja**;	**B**
	n. **manyjurr**;	**B**
	n. **tiipa**	**B**
tree species,		
river gum-	*n.* **walyji**	**E**
vegetation stand	*n.* **purnu**	**E**
water	*n.* **kalyu**;	**A**
	n. **kapi**;	**A**
	n. **kumpuwira**	**A**
water channel	*n.* **karru**	**A**
water channel		
junction	*n.* **karlkajarra**	**A**
water, muddy-	*n.* **luka**	**A**
water, overflowing-	*n.* **jilyin**	**A**
water, potable-	*n.* **pakurri**	**A**
water source,		
permanent-	*n.* **yinta**	**A**
windbreak; shelter	*n.* **wuungku**	**F**

Manyjilyjarra Finder List

Group

janpi	**n.** spinifex plant	E
japiya	**n.** sacred place	**F**
jarri	**n.** cave; rock shelter	C
jarrpa	**n.** swimming place	**A**
jijimarra	**n.** overflow area, water-	**A**
jilyin	**n.** water, overflowing-	**A**
jiraly	**n.** smooth; slippery	**F**
jiwalykarra	**n.** cliff; rock face	**B**
jurnti (see jarri)	**n.** cave; rock shelter	**C**
jurnu	**n.** soak	**A**
juurl	**n.** mound	B
kalaru	**n.** grass species, samphire-	**E**
kalyjil	**n.** salt; salt water	**A**
kalyu	**n.** water	**A**
kapi (see kalyu)	**n.** water	**A**
karawangaly	**n.** algae; algae water	**A**
karlkajarra	**n.** water channel junction	**A**
karnta	**n.** gap; a pass	**C**
karru	**n.** water channel	**A**
karru-karru	**n.** path; track	**F**
kartarl	**n.** hole	**C**
-kurru	*morph.* place characteriser	**F**
lawu	**n.** lower area	**C**
kirtil	**n. grass species**	**E**
kukulyuru	**n.** grass species, samphire-	**E**
kumpuwira	**n.** water	**A**
langa	**n.** sand; sand area	**D**
larri	**n.** gravel, fine-	**D**
larrku	**n.** slope	**B**
limpi-limpi	**n.** rock, flat-	**D**
linyji	**n.** claypan	**A**
luka	**n.** water, muddy-	**A**
-lyukurru (see kurru)		
	morph. place characteriser	**F**
malaja	**n.** termite; termite mound	**B**
manyjurr (see malaja)		
	n. termite; termite mound	**B**
marnkal (see janpi)		
	n. spinifex plant	**E**
marntu	**n.** clay/mud, dry-	**D**
-marri	*morph.* place characteriser	**F**
marrka-marrka	**n.** heat-haze	**F**
mulya	**n.** edge; end	**F**
ngurlu	**n.** sacred/taboo place; fear	**F**
ngurra	**n.** place; country; home	**F**
nyurnma	**n.** burnt country, fresh-	**E**
pakurri	**n.** water, potable-	**A**
pararra	**n.** flat country; sand plain	**D**
parlkarra	**n.** barren (flat) area	**D**
parlkurta	**n.** flood water; flood plain	**A**
parna	**n.** ground; earth	**D**
parnka	**n.** ground, hard-	**D**
paru (see janpi)	**n.** spinifex plant	**E**
pirnki	**n.** cave; rock shelter	**C**
pirti	**n.** hole	**C**
piti, yintiri-	**n.** sandridge, -inter-area	**C**

pulpurr	**n.** calcrete (rock; ground)	**D**
puri	**n.** shade; shadow	**F**
purli	**n.** rock; -outcrop, -hill	**B**
purl	**n.** cave; rock shelter	**C**
purnu	**n.** vegetation stand	**E**
rirra	**n.** gravel; gravel area	**D**
takurru	**n.** depression	**C**
tali (see yintiri)	**n.** sandridge	**B**
talypurr	**n.** bog	**A**
tiipa (see malaja)	**n.** termite; termite mound	**B**
tumun	**n.** mound	**B**
turntururru	**n.** hilly area	**B**
tuwa (see yintiri)	**n.** sandridge	**B**
walyji	**n.** tree species, river gum-	**E**
warla	**n.** lake, salt-	**A**
warli	**n.** gully	**A**
warrarta	**n.** high, ground-	**B**
waru-waru	**n.** burnt country, regrown-	**E**
wayirni	**v.** flow; crawl	**A**
wira	**n.** clay; mud	**D**
wirrkuja	**n.** rockhole	**A**
wuungku	**n.** windbreak; shelter	**F**
yamarla	**n.** clay/mud, wet-	**D**
yapu	**n.** rock; -outcrop, -hill	**B**
yarlawara	**n.** boulder	**B**
yinta	**n.** water source, permanent-	**A**
yintiri	**n.** sandridge	**B**
yirriti	**n.** side	**F**
yiwarra	**n.** path; track	**F**

Appendix 10: Review of Potential New Methods in light of Manyjilyjarra Case Study

A10.1 Introduction

This appendix is part of the examination in Chapter 8, Section 8.6.3 regarding application of phenomenological methods and techniques to the Manyjilyjarra case study data. This approach can assist in implementing a trans-disciplinary methodology based on phenomenology. It is based on potential extra methodological steps summarised in Chapter 7 and Appendix 8, Table A8.2, which lists the references relevant to each method or technique. The rows in that table summarise phenomenological methods and techniques identified by multiple authors.

A10.2 Revised Table

Table A10.1 produces an amended form of Table A8.2, with additions regarding potential ethnoecological and phenomenological additions to the ethnophysiography case study methodology. The revised table was constructed by substituting a new second-most right-hand column, summarising applicability to investigation of the Manyjilyjarra study data, for the previous column listing references for the aspect discussed in each row. The right-hand-most column lists the relevant sub-section in Chapter 8, Section 8.6.3, where the applicability of new potential methods is discussed. Some descriptions of activities associated with proposed additional methods and techniques, in the middle column of the table, have been revised and/or extended, as appropriate.

Table A10.1: Revised version of Table A8.2: Ethnoecological and Phenomenological Additions to Ethnophysiography Methodology

Extra Method	*Activity reference*	*Description of activities for steps or techniques in the additional method*	*Applicability of potential methods and techniques to the Manyjilyjarra case study.*	*Relevant part of Section 8.6.3*
Ex-ECO		**Methods from ethnoecology and ecologically-embedded linguistics - Chapter 7, Section 7.2.2.**		**8.6.3.1**
	Ex-ECO-a	A 'free-listing' protocol to establish habitat categories; structured interviews with local speakers to elicit landscape terms and toponyms; informative graphs and diagrams	This was carried out via review of documents and general interview protocols, for instance, to establish terms for burnt areas and recovery phases. Graphs and diagrams were	

		generated from quantitative analysis data sets of plant types.	not used in data collection, although they do figure in the landscape language dictionary and final report.	
	Ex-ECO-b	Participatory mapping exercises conducted with local speakers to elicit toponyms.	This was not attempted as the research agreement restricted toponym collection. It could be used in future studies.	
	Ex-ECO-c	Using an elicitation framework with local speakers to identify landscape and ecotope terms and follow-up questions to elicit toponyms.	A general framework of landscape feature types was used to structure elicitation of terms and their groupings in the landscape dictionary.	
	Ex-ECO-d	Elicitation of toponyms and associated information via interviews with local speakers and access to a database assembled for an oral history project.	Databases and GIS of Manyjilyjarra toponyms were identified and reviewed. However, at KJ's request, this topic was not pursued.	
	Ex-ECO-e	Adopting a culturally appropriate experiential learning process, including: elicitation of landscape and ecotope terms and toponyms via interviews with elders and other community members; use of audio-visual and visual documentation; listening to narratives about speaker's lifeworld; participation in activities in communities and on the land related to their relationship with the topographic environment; analysis via understanding their holistic socio-cultural-spiritual framework.	Each of these approaches was used, although there was little participation in activities in communities. To the extent possible, all interpretations were made in the context of the researchers' understanding of *Jukurrpa*, as a holistic system, linked to landscape.	
	Ex-ECO-f	Field research conducted in collaboration with a community researcher, elders and local government personnel, involving targeted conversations with elders during visits to key sites and travel routes.	Each of these aspects occurred within the framework of a research agreement and ethics approvals.	
	Ex-ECO-g	An ecologically-embedded linguistic approach (ecolinguistics) provides a basis for analysis of a cross-disciplinary mix of	An ecolinguistics approach was implicitly, rather than explicitly, adopted.	

		linguistic and environmental relationships.		
	Ex-ECO-h	Combining place names and scientific knowledge on soil resources through an integrated ethnopedological approach.	An ethnopedological approach was used, including with respect to ground in lakes and salt pans.	
Ex-CG		**Methods recommended by cultural geography authors.**		**8.6.3.2**
	Ex-CG-a	Pay attention to 'minute particulars' via fine-tooth-comb searches of information about people's life-world.	A fine-tooth-comb approach was used to elicit detailed semantics for some terms (e.g. water sources).	
	Ex-CG-b	Develop descriptions of 'knowing-by-doing' and practical forms of intelligence relating to routine 'taskscape' activities.	There was no attempt to list detailed 'taskscape' activities, however, such knowledge was used to understand semantics of some landscape terms.	
	Ex-CG-c	Investigating gender differences in terms of activities, beliefs and knowledge sets.	Consideration of traditional Martu gender differences were very important regarding 'taskscape' activities and especially aspects of spirituality and taboos. These are changing; e.g. 'mixed' gender Ranger teams.	
	Ex-CG-d	Investigation of the role of affect (at individual and community levels), including 'the politics of affect'.	Affect was important with respect to general affection and responsibility for 'country', heightened regarding sacred sites.	
Ex-E&U		**Methods related to traditional phenomenological search for essences and universals – Chapter 7, Section 7.3.2.**		**8.6.3.3**
	Ex-E&U-a	Traditional phenomenological methods seeking 'essences' seem inappropriate for landscape features, however, evidence should be collected regarding the potential future use of this approach.	The key contributions regarding potential 'essences' related to use of 'shape' and/or 'material' as a potential basis for landscape ontology.	
	Ex-E&U-b	Develop a strong understanding of the socio-cultural-spiritual framework which applies to	This was greatly informed by the researchers' prior understanding of The	

		the language community studied.	'Dreaming' for this and other language groups.	
	Ex-E&U-c	Identify any aspects of universality, which apply to study data, especially at higher levels of abstraction.	Universality was difficult to confirm, except perhaps with respect to terms regarding water availability.	
	Ex-E&U-d	Identify any phenomenological insights and understandings which flow from the study data, analysis and results.	Some resulting phenomenological insights are reflected in comments about methods in Chapters 8 and 9. A key aspect is need to consider applicable topo-socio-cultural-spiritual framework (i.e. *Jukurrpa*).	
Ex-EM		**Ethnomethodology (EM), including conversation analysis (CA) - Chapter 7, Section 7.4.1**		**8.6.3.4**
	Ex-EM-a	Ethnomethodology provides ways for integrating phenomenology and social science approaches in a manner tailored to any specific research domain, including ethnophysiography.	The methodology used incorporated a mix of approaches, based on the researchers' experience and assessment of the life-world situation, with assistance from elders and KJ staff.	
	Ex-EM-b	Participant observation, involving the researcher immersing him or herself in the daily lives and routines of those being studied and adopting a phenomenological stance.	Due to restricted time in communities, there was limited immersion in the daily lives of participants. This could be increased in future studies, provided there is adequate funding.	
	Ex-EM-c	Interviewing participants about particular aspect of social life for their particular social group.	Social aspects of *Jukurrpa* are very important and still mostly adhered to. Detailed understanding of this by the researchers was aided by trusting relationships with some elders.	
	Ex-EM-d	Examination of artifacts and texts used by the community to regulate or explain their common practices and protocols, such as written descriptions of common practices, commentaries, educational handouts, etc.	There was considerable reference to past documents and audio and video materials, aided greatly by assistance from KJ staff and other researchers and government officers.	
	Ex-EM-e	Possible use of small experiments designed to reveal participants' taken-	The only experiment-like activity used was 'Director / Matcher' sessions using sets of	

		for-granted assumptions regarding social life.	photographs to elicit semantics of landscape terms. Reviewing assumptions about social life did not figure strongly in research priorities or permissions granted by KJ.	
	Ex-EM-f	Record instances of every-day use of language regarding life-work activities (utilitarian, social, cultural and spiritual) and social processes, which include landscape terms and/or toponyms - 'talk-in-interaction' data.	Some instances of this approach occurred, especially during 'field walks' and more extended travel 'on country'. More detailed and explicit 'talk-in-interaction' protocols could be used in future studies.	
	Ex-EM-g	Record relevant examples of social interaction, embracing both verbal and non-verbal communication in the context of regular tasks and social processes. Researcher needs to immerse him or herself in daily lives and activities of people being studied.	Only a limited amount of non-verbal communication was noted, as the research agreement and time/money constraints did not permit extended immersion in the daily lives and activities of Manyjilyjarra speakers.	
	Ex-EM-h	Use conversational analysis (CA) techniques with records of conversations regarding every-day activities and social / cultural processes of community members, and also for recorded conversations during 'Director/Matcher' sessions.	There has been no use of formal conversational analysis (CA) techniques to interpret Manyjilyjarra case study data. However, this technique could be useful for future landscape language case studies.	
	Ex-EM-I	Interpret social interactions between community members in the context of their social and cultural milieu, including communicative acts and their intended purposes.	Such social interpretations are part of the application of researchers' understanding of *Jukurrpa*, which was used in interpretation of language data in this study.	
	Ex-EM-j	Examine 'social fact' data that people construct/produce/interpret regarding every-day activities Collection of artifacts, including texts that are used to teach and regulate social/cultural practices, such as written descriptions of common	Collection of 'social fact' data, especially information about social, cultural and spiritual aspects of life-world was carried out in this study, especially in the initial phase of the investigation. The landscape dictionary produced in this project	

		practices, commentaries, educational handouts.	will assist others (e.g. Ranger staff) to produced enhanced documents, as well as assisting in language teaching at schools.	
	Ex-EM-k	Conduct small experiments designed to reveal participants' taken-for-granted assumptions regarding social life.	The 'Director / Matcher' sessions partly fulfilled this purpose, although they mainly concentrated on landscape terms, rather than social, cultural and spiritual aspects of life-world.	
	Ex-EM-l	Retain a focus on 'radical reflexivity'; i.e. recursive comprehensive consideration of the 'accomplished' character of *all* social activity, free from bias.	The researchers always do their best to practice 'radical reflexivity' within their case study activities. This includes frequent discussions concerning these issues, especially regarding data interpretation and strict adherence to conditions of the research agreement and ethics approvals.	
	Ex-EM-m	Avoid too rigid use of formalisms which might limit the diversity of interpretations of data. So need a contingent flexible methodology.	This is especially important when investigating landscape ontologies. Very close working relationships with participants is vital.	
	Ex-EM-n	Comparisons should be made between data and results from different language groups – e.g. via EDM.	Such comparisons are undertaken during international, interdisciplinary research meetings, conferences and publications. Enhanced versions of the EDM developed in this dissertation will assist this process.	
Ex-PP		**Methods from Ihde's Post-Phenomenology, in the contest of 'New Phenomenology' and human geography – Chapter 7, Section 7.4.2.**		**8.6.3.5**
	Ex-PP-a	Use of 'multistabilities' approach to investigating landscape terms that are use for different types of landscape features and (potentially) for things in non-landscape domains.	This approach can be useful, particularly for analysis of words with multiple meaning, such as *puli* in Manyjilyjarra.	

	Ex-PP-b	Investigate 'intersubjective' daily activities in terms of their 'intercorporeal' aspects.	The strongest example of 'intercorporeal' aspects for Manyjilyjarra is possibly group behaviour at sacred sites such as *Yimiri,* discussed in Chapter 6, Section 6.2.4, Figure 6.4.	
	Ex-PP-c	Investigate role of 'affect' and its links with processes of 'mimesis' that embed societal and cultural notions within the minds of members of the dwelling group, as an expression of 'alterity' (encounters with 'other' humans).	Affect and mimesis are both crucial to the memory and intergenerational transfer of indigenous knowledge. For Manyjilyjarra, such knowledge is structured by the framework of *Jukurrpa* and linked to specific landscape places.	
	Ex-PP-d	In analysis of data consider 'intentionality' as an emergent relation with the world, rather than an a priori condition of experience.	Landscape language represents a shared understanding of meaning, embedded in context, which usually includes the communal intersubjectivity which links landscape objects to 'taskscape' activities and rituals. Such intentionality is continuously emergent, especially liable to change during upheavals in the peoples' life-world, such as the initial and ongoing impacts of colonisation.	
	Ex-PP-e	Rather than concentrating on individual mental and physical activities, focus more on the life-world of groups, 'communalized intentionality', social relations and shared structures of meaning, such as the applicable overarching 'topo-socio-cultural-spiritual framework'.	The communal focus for Manyjilyjarra speakers is primarily through the *Jukurrpa* framework, which links utilitarian, social, cultural and spiritual aspects of life-world to places in their 'country'.	
	Ex-PP-f	Need an academic openness to alternative conceptions of place and place experience; i.e. a "critical pluralist" framework to provide an overarching coherence (e.g. via phenomenology as a transdisciplinary paradigm,	A "critical pluralist" framework was applied by the researchers in all phases of the Manyjilyjarra case study. This was aided by the researchers' understanding of *Jukurrpa,* and the life-world and history of the	

		providing foundational structures of coherence and continuity to manage richness and 'chaos' of human experiences of place). This provides expanded placed-based approaches beyond Ihde's original version of Post-Phenomenology.	people, prior to, and after, colonisation.	
	Ex-PP-g	Investigate and document landscape-related action routines, scripts and protocols, to emphasise importance of routine sets of actions, often performed with others and subject to processes of 'mimesis'; embedding in communal memory to produce standard (perhaps automatic) ways of doing and thinking about activities, within a socio-cultural framework.	Some relevant landscape-related action routines, scripts and protocols were discussed in a general way during the Manyjilyjarra case study (e.g. rituals at *yinta*). However, this could be carried out in a more formal, detailed, coherent and comprehensive manner in future landscape language case studies.	
	Ex-PP-h	Gendered aspects of interactions with landscape need to be surfaced and considered, in terms of utilitarian tasks and potentially social/cultural/spiritual roles and beliefs.	Gender aspects are often crucial in terms of traditional activities, especially in terms of social, cultural and spiritual aspects. Gender relations also needed to be considered; between the researchers themselves and with Martu participants.	
Ex-SM		**Methods from David Seamon (2018) – Chapter 7, Section 7.4.3.**		**8.6.3.6**
	Ex-SM-a	A phenomenological approach to landscape language studies can be very effective. Seamon advances a systems theory based method of multiple stages and rejects integration with social science methods. Seamon's (2018) method seems not to adequately address social and cultural aspects.	It is at least in theory possible, ignoring socio-cultural-spiritual aspects of place, to develop a limited but potentially useful analysis of Manyjilyjarra landscape language data via the Seamon (2018) method.	
	Ex-SM-b	If the Seamon (2018) method is used, there is a need to also include deep data collection and analysis of social and cultural	The 'exterophenomenological' approach would be suitable for landscape language case studies, like	

		aspects of dwelling and landscape language. As discussed in Chapter 7, Section 7.3.1, an option is to reinforce Seamon's method by adopting an an 'exterophenomenological' approach (Olivier, 2017, p. 10), which emphasises the role of place as a 'grounding structure' for experience by examining the socio/cultural structure of the language group and using this in data analysis.	the Manyjilyjarra project. *Jukurrpa* can be considered the desired 'grounding structure', linking landscape as place with social, cultural and spiritual aspects of life-world. Further potential ways of discussing the option will be discussed in Chapter 9.	
	Ex-SM-c	Seamon's method starts from the need to consider dwelling in place, as a 'monad', i.e. a complex holistic system.	Such an approach is always useful. *Jukurrpa* can be considered the holistic framework for examination of Manyjilyjarra dwelling on 'country'.	
	Ex-SM-d	The next step is to consider complementary or opposing pairs of aspects of place as 'dyads'. Lots of different types of dyads can be usefully examined (with the nature of the investigation determining which issues to pursue), such as: *Seamon's set:* (movement vs rest; insideness vs outsideness; the ordinary vs extra-ordinary; homeworld vs alienworld). It is possible to set up dyads in terms of other historical, social, cultural and spiritual aspects of life-world.	Example Manyjilyjarra versions of Seamon's dyads include: • Traditional continuously nomadic lifestyle vs current community-based activities (e.g. re patterns of movement between sacred sites); • 'Taskscape' activities within vs outside of communities; • Activites during most of the year vs 'law-time' cultural activities, such as initiation of young men (e.g. re use of 'respect' language); • Being on Manyjilyjarra 'country' vs be outside of it (e.g. with respect to a *yinta*). Other dyad options include: • historical (e.g. whether colonised people or not); • utilitarian (e.g. predominating form of work: hunter/gatherer and agricultural vs manufacturing and utilities);	

			• social (e.g. dominant vs marginalised people); • political (e.g. democratic vs totalitarian); • cultural (e.g. indigenous vs multicultural customs and languages); or • spiritual (e.g. sacred vs secular places) aspects.	
	Ex-SM-e	The third step in Seamon's method starts with identification of three place impulses: 'people-in-place', 'environmental ensemble' and 'common presence', which are fundamental aspects of dwelling. Seamon's consideration of the three impulses leads him to develop different combinations of them, producing six 'triads'. The analysis of at least some triads could be effective.	As discussed in Chapter 7, Section 7.4.3, Seamon's 'people-in-place' and 'common presence' place impulses can be expanded to incorporate more social/cultural/spiritual aspects, enlarging the scope of Seamon's six triads. Examples of how some of these can be applied to the Manyjilyjarra case study include: • The 'triad of place interaction' involves a wide range of interactions between the environment and those who dwell there. Traditionally, Manyjilyjarra interactions were of a nomadic hunter/gatherer type. • The 'triad of place identity' "involves ways that place becomes an extended, taken-for-granted part of how an individual or group suppose themselves to be personally and communally" (Seamon, 2018, p. 105). *Jukurrpa* is involved in such processes, especially in terms of caring for 'country'. • The 'triad of place release' involves environmental serendipity of unexpected encounters	

			and events. In traditional times significant rain events could prompt positive outcomes in terms of additional flora and fauna resources. • 'First contact' with Europeans could relate to the 'triad of place realisation' defined by Seamon as relating to some breakdown of the 'ordered wholeness' of place, causing a deterioration in the mode of dwelling in place, through displacement of Manyjilyjarra from their country.	
	Ex-SM-f	Seek examples of phenomenological experiences in aspects of dwelling such as: sensation, perception, thought, memory, imagination, emotion, desire, … volition, … bodily awareness, embodied action, and social activity, including linguistic activity.	Examples of each of these aspects were involved in the Manyjilyjarra landscape data collection and analysis.	
	Ex-SM-g	Examine people's relationship with landscape 'objects', in terms of what they mean to us, and what impressions, beliefs, perspectives, images, ideas, thoughts, or uses we have with different types of landscape 'objects'. This can related to them as Heideggerian 'equipment' ('tools'), in the broadest sense of those terms, for individuals or groups.	The project took into account that Manyjilyjarra people have very deep cultural and spiritual relationships with specific landscape features, as well as their 'country' in general. Some landscape features (e.g. a yinta) could be considered, from a utilitarian perspective as a 'equipment' or a 'tool', as well as a sacred site.	
Ex-PG		**Methods from Phenomenography - Chapter 7, Section 7.4.4.**		**8.6.3.7**
	Ex-PG-a	A key phenomenographic method of data collection is semi-structured, open-ended interviews, where informants are encouraged to speak freely about their experiences, giving	A phenomenographic approach with respect to relations between researchers and participants was adopted in the Manyjilyjarra case study. This also involved	

		concrete examples to avoid superficial descriptions about how things should be or ought to be. This assists in revealing their beliefs, values, interpretations of reality, feelings and experience of aspects of dwelling. Interviews can involve a mixture of etic (researcher) and emic (interviewee) categories. The in-depth interviews are tape recorded and transcribed verbatim. Data from 20 informants is usually sufficient.	collection and analysis of interview data which involved emic as well as etic structuring of questions. Ten main Manyjilyjarra speakers (informants) provided language data, via interviews and other methods.	
	Ex-PG-b	Phenomenographic analysis of interview data can be carried out by two or more researchers, acting independently, and maintaining an unbiased, open mind regarding integration of etic and emic categories. Suggested steps are: 1. Read the whole transcribed text for each interview. 2. Read it again and mark where the interviewee gave answers to each of the main interview questions. 3. In these passages look for what the focus of the interviewee's attention is and how she/he describes her/his way of experiencing this aspect of dwelling. 4. Make a preliminary description of each interviewee's predominant way of understanding their relationship with that aspect of landscape as place. 5. Group the descriptions from various interviewees into categories, based on similarities and differences.	The approach to analysis of language data in the Manyjilyjarra case study was more organic, involving the two researchers and other advisors. It was iterative and informed by many rounds of data collection using different methods and techniques.	

		6. Formulate appropriate integrative categories of description. 7. Look for non-dominant or unorthodox ways of understanding the interview data. 8. Find a structure in the outcome space, i.e. the sets of emic categories that have been uncovered. 9. Assign a metaphor to each major category of description (in terms of the role of people dwelling in landscape that it represents). 10. Compare the analysis results achieved by each researcher and develop an integrated and/or contradictory set of conclusions.		
	Ex-PG-c	In addition to interviews, researchers can interpret people's conceptions of landscape by studying their behaviour while completing specific tasks under controlled situations. Tasks could potentially relate to different aspects of dwelling, from the following general categories: physical, utilitarian, social, cultural and spiritual. However, this approach should only be used when participants have explicitly agreed that they are happy to undertake such tasks while being observed.	There was little opportunity to undertake such observations of specific tasks. Also, this was beyond the scope of permitted techniques under the research contract and ethics approvals. Such techniques could be very useful in future studies.	
Ex-HP		**Methods from hermeneutic phenomenology - Chapter 7, Section 7.4.4.**		**8.6.3.8**
	Ex-HP-a	Hermeneutic phenomenology methods can be used for initial descriptions of key activities carried out by members of a speech community. These descriptions are produced,	Although formal hermeneutic phenomenology techniques were not utilised in the Manyjilyjarra case study, the approach adopted was based on a similar	

		very deliberately, to include as little as possible (perhaps no) interpretation, just 'pure' observations. This allows for later interpretation of 'clean' data. Since hermeneutic phenomenology seeks to ensure the absence of the investigator's influence or bias, it requires 'self-reflection' by researchers.	perspective of open inquiry. A more formal use of hermeneutic phenomenology methods could be useful in later case studies.	
	Ex-HP-b	Hermeneutic phenomenology involves examination of texts, to reflect on the content, to discover something 'telling', something 'meaningful', something 'thematic'. Hence, it can aid in understand the role of topo-socio-cultural-spiritual mode of dwelling, including understanding links between culture and spirituality, especially for indigenous peoples.	Many texts were examined as part of this study, including those summarising key aspects of *Jukurrpa*. This understanding was then utilised in analysis of other texts, including narratives of travels through 'country'.	
	Ex-HP-c	Adopting 'interpretive phenomenological methodologies' involves skilful reading of texts, such as transcripts of personal experiences, and isolating their key 'themes', as interpretations of lived experience. These can be called 'phenomenological vignettes'.	The method of 'phenomenological vignettes' was not used in the Manyjilyjarra case study but may be useful for future studies.	
	Ex-HP-d	Time/history is a key factor in interpretation of the lifeworld of people being observed and/or interviewed. This information can be encapsulated in short 'thematic statements', depicting key relevant aspect of every-day practices.	The researchers sought to understand as deeply and comprehensively as possible the life-world of Manyjilyjarra people and the ways it is changing. This informed their analysis of language data.	
	Ex-HP-e	Interpretative Phenomenological Analysis (IPA) is an approach to qualitative analysis with a particularly psychological interest in how people make sense of their	The Interpretative Phenomenological Analysis (IPA) method was not used in the Manyjilyjarra case study but may be useful for future studies. However,	

		experiences. It can 'give voice' to participant's thoughts and feelings and 'make sense' of oral or written accounts of experiences. However, IPA is also criticised as being too psychological. IPA does not aim for transcendent knowledge.	many aspects of the approach adopted were based on similar perspectives.	
	Ex-HP-f	IPA is used most often to analyse verbatim transcripts of a first-person accounts, generated by research participants in semi-structured, one-to-one interviews. It can also be used with transcripts of focus group discussions.	Such language data was analysed by both standard linguistic methods and more phenomenological approaches.	

Appendix 11: Review of Tables from Chapter 6 for Manyjilyjarra Study

A11.1 Introduction

This appendix is discussed in Chapter 8, Section 8.5.2. It provides revised versions of phenomenographic tables from Chapter 6 and Appendix 7, listed below in Table A11.1. The revised tables have a new right-hand column summarising applicability of each concept (row) to the Manyjilyjarra landscape language case study, substituting this column for the previous column listing references for the aspect discussed in each row.

In Chapter 6, the key concepts of place relevant to landscape discussed by 28 authors were summarised in Tables 6.1 to 6.18. These tables were concatenated (except for Tables 6.7 and 6.17), reworded and reordered as appropriate to group similar concepts, to produce the combined Table A7.1 in Appendix 7. Table A11.2 is a reformatted version of Table A7.1. This table is discussed in Chapter 8, Section 8.5.3.

Table A11.3 (revised Table 6.17) uses the model of 14 factors from Mihaylov and Perkins (2014) concerning changes in the nature of dwelling. The applicability of these factors, and the differences between the situations for different language groups, is illustrated for Yindjibarndi and Manyjilyjarra peoples, based on the two landscape language case studies reported in Chapters 2 and 8. This table is discussed in Chapter 8, Section 8.5.4.

A11.2 Revised Tables

Table A11.1: Tables from Appendix 6 and Chapter 6 to be reviewed in this appendix (copy of Table 8.2)

Description of table.	Chapter reference	Table No. in Appendix 11
Table A7.1 in Appendix 7 provides a review of the nature of place from the perspective of various disciplines. This is an aggregation of Tables 6.1 to 6.18, except for Tables 6.7 and 6.17, in Chapter 6. This table has multiple concepts from 28 authors gathered into relevant topic groups.	Chapter 6, Section 6.5	A11.2
Table 6.17 lists 14 factors relevant to place attachment from Mihaylov and Perkins (2014)	Chapter 6, Section 6.4.3	A11.3

Table A11.2: Review of nature of place from the perspective of various disciplines (revised Table A7.1 in Appendix 7)

Code	Landscape Concept	Applicability
1.	**Theory and Methods**	
1.1	There is no ontological separation between nature and culture. The aspects of landscape (physical and cultural) exist in interrelation, constituting a reality as a whole which is not expressed by a consideration of the constituent parts separately, but by considering their structure, and function and hence position in a system, that is subject to development, change, and completion. Reductive and objectivist approaches do not do justice to the wholeness of the diverse real-world relationships between people and places. Place scholars should embrace theoretic and methodological diversity and focus on social theory and human-environment relations.	Lack of separation between nature and culture is confirmed This is certainly the case for Manyjilyjarra, where *Jukurrpa* is the unifying topo-socio-cultural framework. A holistic approach to understanding relationships with landscape is necessary. An integrated methods approach to landscape language studies is supported.
1.2	Understanding landscape requires an epistemological openness and flexibility, rather than adopting a formalized single, totalizing, way of knowing. It also requires interrogation of ambiguity, fragmentation, multiplicity, and difference in social realities. Ontological approaches and subjective methodologies need to incorporate spiritual aspects of concepts of place.	Understanding Australian indigenous cultures and knowledge systems is not possible from a realist/positivist approach because spiritual aspects are central to them. This confirms difference in social realities. Ambiguity in meaning of place terms needs to be investigated using a phenomenological approach.
1.3	Identity with respect to landscape may not necessarily align with linguistic reference or social conceptual shortcuts (such as social /financial circumstances or race or class).	Social structures are a part of *Jukurrpa*, including rights and responsibilities for particular places and gendered concepts of place
1.4	Role of international conventions regarding landscape definition and management, especially influencing collaborative transfrontier landscape projects.	International conventions need to accommodate differences in relationships with landscape and hence structure of languages.
1.5	The effectiveness of the role of GIS and associated technologies in representing landscape, depends at least in part on the conceptual tools, critical frameworks, and linguistic codes we choose to mobilize.	Culturally-appropriate GIS need to be developed for indigenous language communities. Multimedia approaches may well be required to represent concepts.

1.6	In building GIS of landscape, there should be use of the 'mental maps' of local people as part of the participatory social process leading to local empowerment, rather than adopting merely a top-down elitist process.	Indigenous cultural knowledge must be utilised within a negotiated comprehensive mode of collaboration. Innovative techniques are needed to understand mental constructs. Secret/sacred knowledge must be respected.
2.	**Nature of Place**	
2.1	People have feelings for landscape, which may be only obliquely expressed in language, or may be incapable of expression or suppressed due to cultural/spiritual considerations. Authenticity' of dwelling is about "…the capacity to achieve a spiritual unity between humans and things" (quoting Heidegger). Landscape is sentient and imbued with spirit, capable of responding to human action. Relationships with European landscape include remnants of pre-modern cosmography and sacred geography.	*Jukurrpa* entails an authentic holistic framework of physical, utilitarian, social, cultural, spiritual and ethical relationships with landscape. *Jukurrpa* links all aspects of Martu life to their country, with its many sacred places (*japiya*); and 'Dreaming tracks' / 'songlines'. The term *ngurlu* is used for a taboo place, such as a ceremonial ground where not all people may visit. In all societies there is a functional equivalent of *Jukurrpa*, which must be surfaced, understood and utilised in analysis of landscape language study data. Heideggerian 'instrumentality' is useful for understanding aspects of people's relationships with 'task-scape'.
2.2	The most relevant physical qualities of landscape are those that have habitat value, present or potential.	Landscape affords dwelling in multiple ways, including physical and utilitarian aspects.
2.3	The aesthetic qualities of landscape, are important and need to be investigated via a subjective approach.	People see parts of landscape as beautiful or inspiring, in the context of spirituality.
2.4	Landscape forms impact on ontology and epistemology and hence conceptualisations of landscape and language terms.	The structure of the terrain and potentials/constraints of ecological environments help configure the mode of dwelling and hence landscape language. In Manyjilyjarra country, landscape is mostly long parallel sandridges (*tali; tuwa; yintiri*)[1], with sand plains (*langa; pararra*) between, large and small saltlakes (*warla*) and some stony hills (*yapu; purli*) [see Chapter 8, Section 8.2 for photos]. Terms in the ontology are not based on the size of the landscape feature, but rather, by materials and shape. A key distinction is stony vs sandy hills, possibly related to whether water runs off or goes in.
2.5	Need to consider relationships with landscape not just within a specific place, nor just with respect to that of immediate neighbors, but also	All places exist within a wider framework; hence all aspects of life may be influenced by outside laws, customs,

	with respect to increasingly globalized economies and cultures.	exchanges of goods, technologies, languages, etc.
2.6	Each place is a special ensemble, with a history and meaning, incarnating the experiences and aspirations of a people. The relationship between people and environment is transactional: people take ⸮something (positive or negative) from and give or do things to the environment; ⸮these acts may alter the environment's influence on the people.	Histories are critically important in understanding place relationships, especially for colonised indigenous peoples. Physical ecological environments configure peoples' lifestyle. Keeping places 'healthy' is a practical and ethical responsibility.
2.7	Narratives (stories) are a key way of building attachments to landscape, and for representing those relationships. Narratives provide specific details, clues to authenticity and the provenance of particular aspects of attachment to place for an individual and/or community. Narratives connect spaces and are spoken about in terms of the past/present/future. Narratives (e.g. of the Dreaming for Aboriginal Australians) give a context of multiple times, connecting human history and geomorphological history through talking about particular events. The messages in the storytelling (e.g. for a river) demonstrate ontological connections between biophysical and cultural landscapes.	*Jukurrpa* (an instance of The Dreaming) is a strong example of a framework for linking knowledge and narrative to parts of landscape. Narratives are a rich source of understanding of peoples' relationships with landscape and for identifying the meaning of specific landscape terms and toponyms. Water may not be visible on the surface of the ground but may be beneath the surface. It may be permanent (above and/or below the surface) in a *yinta* (sacred place), but is most likely to be ephemeral, lying temporarily, after rain, in a water channel (*karru*), gully (*warli*), saltlake (*warla*), or a boggy place (*talypurr*) in a depression (*takarru*). In the rainy times (summer and sometimes winter) water will again be available in these places. In traditional times Martu travelled in extended family groups continuously between known water sources, according to the season. Important law ceremonies (involving many people) were held at large waterholes in the season of most reliable rain (summer). Narratives discuss relatively recent water-based movements and ceremonies at sacred sites, in the context of the ageless *Jukurrpa* stories from the creation times.
3.	**Embodiment and Movement Through Landscape**	
3.1	Embodiment is an important part of the way landscape influences conceptualisations and terms. In terms of bodily awareness, one can experience places as enfolding (being within them) or external, even distant (such as a mountain on the horizon).	Physical affordance of landscape features is intricately linked to patterns of bodily movement. For Manyjilyjarra speakers, a key embodiment concept, related to affordance, is whether, when travelling across country, one is going up or down; i.e. climbing a (generic) rise (*tumun*) or descending into a (generic) depression

		(*takurru*). A slope may be difficult to climb because it is slippery (***jiraly***). Feelings about landscape features can involve spirituality, whether standing beside a *yinta* (sacred place with permanent water) or viewing a distant hill where an ancestral being became part of the landscape in The Dreaming time.
3.2	Mobility around the landscape in which you dwell is important for building affective relationships; e.g. in terms of embodiment and different visual perspectives. Movement (and being stationary), at differing spatial-temporal scales, is part of the dialectic between bodies and landscape. Movement through landscape occurs between places of pause/activity. Interaction with landscape involves sets of regular paths of movement (*place ballet*) to accomplish every-day tasks as part of a person's (group's) 'lifeworld' activities.	The structure of landscape features (e.g. parallel sandridges) can configure patterns of movement, especially for traditionally nomadic peoples, which can still be present in landscape terminology. Physical aspects of environment (together with social and cultural characteristics) can contribute to regular patterns of movement in the context of utilitarian tasks and cultural/spiritual performances or protocols.
4.	**Sense of Place and Place Attachment**	
4.1	Landscape places range from the small, confined, nurturing and cozy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.	*Jukurrpa* is a strong example of a system that enfolds people within a spatial range of places, which are linked by networks of meanings associated with pathways between significant places.
4.2	Environmental settings obviously have an impact on people, both short-term and long-term, and there are some patterns to this impact. Places are constituted, sustained or undermined by: '*place interaction*' (typical every-day activities in a place) whether by individuals or formal or informal groups. Concept of place is psychological or interactional, not just physical. The environment is made up of a combination of physical and social features; the sense of place is an experience created by the setting combined with what a person brings to it. In other words, to some degree we create our own place, they do not exist independent of us.	Indigenous peoples may no longer live in a hunter/gatherer or slash and agricultural way of life, although tat may still be partially practiced and reflected in landscape terms and toponomys. This an relate to 'ecotopes' and other spatially organised links between people, places and tasks, especially those with a utilitarian role in supplying food and shelter. Social structures, cultures and patterns of behaviour may reflect these ecological life-world potentialities and constraints. As with other Aboriginal languages, Manajilyjarra incorporates a 'respect' language (*yapura-yapura*) to be used when within earshot of 'taboo' kin or when at some ceremonial sacred places. Water (of all types) is called *kumpuwira*

		in this 'respect' language, whereas, in usual speech, it is termed *kalyu*. This distinction indicates that social/cultural aspects of dwelling are embedded in language.
4.3	Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places; types of bonds they have with places) and 'community attachment' (depth and types of attachments to one particular place).	*Jukurrpa* is a strong example of social structure with binds people together into community; intersubjectivity is enacted as communised intentionality with respect to utilitarian tasks, spiritual rituals, etc. This is interwoven with being in secular and sacred places.
4.4	Certain settings that have such a strong "spirit of place" that they will tend to have a similar impact on many different people. The Grand Canyon and the left bank of the Seine in Paris are excellent examples. Culture strongly influences human behavior and values regarding landscape.	*Jukurrpa* includes spirituality of places, such as permanent sources (*yinta*), which are linked by 'Dreaming' tracks (Songlines). *Jukurrpa* also designates protocols when visiting sacred places and these are part of the process of 'memesis' (memory).
4.5	Place attachment is constituted by a set of 'place meanings', which can be conceived of as symbolic statements about the essence of a place, which are populated with descriptive content and are created through human activities. Rather than place attachment being a deep-seated, internalized, emotional affinity that individuals experience towards particular places, discursive research regards it as linguistically constructed as individuals, together, formulate the everyday meanings of person-in-place relationships.	The ways that people routinely deal with utilitarian (task-related) and sacred places is embodied in language and narratives, taught to a new generation. Research methodologies need to focus on these communal processes as well of individual conceptualisations of place. Effective collection and analysis of such data relies upon development of a sound understanding of the relevant topo-socio-cultural framework(s) relevant the language community, or potentially cohorts within the general community.
4.6	There are six types of relationships (bonds) to place: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material).	Each of these six types of bonds with place were clearly identified during the multiple phases of the Manyjilyjarra landscape language case study. The methodology has techniques to surface, understand and apply each of these bonds with place.
4.7	Places are constituted, sustained or undermined by: '*place identity*', which refers to how people dwelling in a place can make it a significant part of their personal and/or communal identity.	*Jukurrpa* includes strong elements of place identity, with respect to particular sites and the 'country' (territory) of the language group, leading to the ethical responsibility to keep country 'healthy'.

4.8	Places are constituted, sustained or undermined by: '*place release*', which involves an environmental serendipity of unexpected encounters and events.	Although is for all time, it is capable of morphing to circumstances, such as the colonial processes, arrival of new technologies (e.g. rifles) and social opportunities, such as the Martu Ranger environmental management program, integrating traditional and innovative activities, which keep country 'healthy'.
4.9	Places are constituted, sustained or undermined by: '*place realization*', which refers to what physically exists in a particular landscape, coupled with the effects these constituting features have on actual or potential activities, or affective states, for individuals or groups. Important characteristics of places may not be just about utilitarian activities but may relate to beauty, awe and sacredness.	*Jukurrpa* (or its equivalent) enables all aspects of life-world to be integrated as part of the mode of dwelling that suits the topographic environment. It needs to adapt its mode of implementation (rather than its foundational law/lore) to enable people to optimise their approach to new social, political and economic potentialities and/or constraints on mode of dwelling.
4.10	Places are constituted, sustained or undermined by: '*place creation*', where characteristics (positive and negative) result from human agency/intervention.	Modes of dwelling are not deterministic; rather they result from creative, enfolding and emergent, responses to opportunities and constraints via human agency.
4.11	Places are constituted, sustained or undermined by: '*place intensification*', which refers to mechanisms (for example human agency), which increase (or diminish) the characteristics of a place, making it a more (or less) complex place with additional (or fewer) attributes. Relationships with landscape for an individual develop steadily over the years of their life in that place. There is usually strong attachment to the landscape where you dwell, especially if live there for a long time or during a significant stage in your life.	The ability of Martu people (including Manyjilyjarra speakers) to adapt initially to a harsh physical topography and climate, then to the devastating impacts of colonisation, and now complex political, administrative and economic arrangements, is founded on the unifying nature of traditional *Jukurrpa*. People have strong personal and communal relationships with (attachments to) places where they were born, where they have lived for a significant period, or where key life events have occurred.
4.12	Development and adaption of communal place attachment involves: 'environmental disruption'; 'interpretive processes'; 'place definition' 'place dependence'; 'place identity'; 'place bonding'; 'social capital'; 'collective efficacy'; 'sense of community'; 'neighboring'; 'citizen participation'; 'place-based social interactions'; 'bridging social capital'; 'community response'.	The extent that the influence and effectiveness of *Jukurrpa* breaks down, or fails to adequately adapt, provides a requirement (perhaps opportunity) for alternative approaches to be incorporated or to replace traditional notions of dwelling in their particular place (country). This especially relates to relationships (social, economic, political, etc.) with outside individuals or organisations.
5.	**Aspects of Landscape as Place**	

5.1	Landscape importance transcends nationality, race, religion or culture; despite the progressive loss of landscape character and identity.	Although traditionally Martu people had only occasional contact with neighbouring language groups, they are now interconnected with the whole world in terms of personal relationships, information and education, commerce, government, etc. This impacts on place identity; so that additional attention needs to be placed on ways to sustain culture and spirituality.
5.2	Spatial boundaries (natural and fiat) play a key role in categorization of people's identities.	Boundaries of traditional country' are a mixture of physical aspects of topography and social conventions and networks
5.3	Key role of river systems, including as boundaries (and consequences for river management).	The *Karlamilyi* (Rudall River) system, sending water to the usually dry saltlake (Lake Dora) is very important from utilitarian, cultural and spiritual considerations for Martu people. Most Martu protested when proposals to develop a uranium mine were seen to endanger that very significant river system.
5.4	Lakes and streams connect surface and sub-surface water.	Finding water was the most important consideration for traditional Martu people living in the desert, with permanent sources of water having a spirit and being sacred. No streams or rivers run all year round in this country, only after heavy rain associated with cyclones. At other times of the year water may be found by digging in the sandy bottom of channels (*karru*) or in soaks (*jurnu*), often at the base of a sandridge (*yintiri*).
5.5	Vegetation (at landscape scales) is an important part of the physical aspects of landscape; as identified via ethnoecology studies. 'Ecotopes' designate a 'kind of place' related to flora and fauna.	Manyjilyjarra landscape language has terms for some 'ecotopes'. Large trees do not form forests but *walyji* is a eucalypt tree species. *Purnu* is a stand of vegetation, such as bushes and/or trees, which may be difficult to walk through (affordance). Manyjilyjarra includes terms for different types of common vegetation, occurring in different ecological zones: e.g. spinifex (triodia species) (*janpi; paru; marnkal*) grows on sandy flats and sandridges; types of grass, with edible seeds (*kalaru; kirtil*); and a small type of succulent samphire bush (*kukulyuru*) that grows on a salt lake/pan or salt flats. Martu people light frequent small fires as part of traditional ecological land management. Fires also start due to a lightening strike. Ecotopes terms are

		used for patches of burnt vegetation, at various stages of regrowth: *nyurnma* is freshly burnt country, waiting for new fresh, green vegetation to regenerate, to attract animals (e.g. kangaroo) for hunting; *waru-waru* is burnt country, where there is some regrowth but charcoal is still visible between the plants.
5.6	The role of virtual representation in understanding landscapes.	Visualisations (drawings and photos) has evolved from traditional Martu approaches of non-language-based ways of representing people, places and concepts.
6.	**Australian Aboriginal Concepts of Territory**	
6.1	In the context of Indigenous land claims, having a detailed lexicon of terms that fit the landscapes in a particular region is evidence that those people 'belong' in that landscape.	Such evidence was possibly included in the successful Martu Native Title claim, together with more significant historical, cultural and spiritual evidence linked to place.
6.2	Australian Aboriginal territories include particular areas of landscape defined by issues of inheritance and occupation. Australian Aboriginal individuals may well have rights and responsibilities in overlapping territories (perhaps via marriage).	Martu people have very strict law/lore regarding respect for neighbours and non-violation of their territories. The impact of European colonisation has affected the operation of these territorial constraints, however, most Martu continue to respect them.
6.3	A single Australian Aboriginal clan estate may consist of several sections separated by lands of other land-owning units.	Aboriginal people usually have rights and responsibilities to multiple tracts of land, through traditional birth-right, family relations and modern land management arrangement and Federal and State laws.
6.4	'Transitional zones' exist between Australian Aboriginal territories.	While territories there traditional designated as belonging to specific language groups, the boundaries were (and still are) zones of interaction.
7.	**Toponyms (placenames)**	
7.1	Naming of places is related to habitual spatial practices, representations of the world, and a spatial, imaginary geography (linked to culture and spirituality).	Martu people have a rich and complex system of toponyms, mostly linked to *Jukurrpa* songlines. Toponyms can refer to 'nested' sets, or networks, of aspects of place (features).
7.2	Ecotope terms may influence toponyms.	At the request of KJ (for cultural reasons), the Manyjilyjarra case study did not concentrate on toponyms. No toponyms were recorded that were based on ecotopes, however, they may exist for Martu peoples.

Table A11.3: Mihaylov and Perkins (2014) model of 14 factors with Yindjibarndi and Manyjilyjarra examples (revised Table 6.17)

Mihaylov and Perkins (2014) 14 factors relevant to place attachment	Example application of the 14 factors to Yindjibarndi people	Example application of the 14 factors to Manyjilyjarra people
1. *'environmental disruption'* (any significant environmental change)	Suffering displacement from 1860s because of government land grants to colonisers for sheep and cattle stations, restricting access to country.	Their topo-socio-cultural framework (called *Jukurrpa* law/lore) was developed over probably at least 20,000 years of occupation of this (or similar) country, establishing a very coherent culture with exceptionally strong utilitarian, social, cultural, spiritual and ethical links to many specific sacred places and their landscape in general. They also have deep traditional. Environmental management knowledge. Some disruption of this system of dwelling due to colonisation, however, most Manyjilyjarra were still on country till the mid 20th century. Some had 'first-contact' with Europeans in 1964.
2. *'interpretive processes'* (individual and community responses to change)	Passive resistance to invasion and strong intention to maintain culture.	Not significant change before 1960s, except for some speakers moved to cattle stations and missions.
3. *'place definition'* (the socially-constructed boundary and the features and characteristics of its identity)	Retention of definition of Yindjibarndi country within defined boundaries and group identity.	Retention of definition of Manyjilyjarra country within defined boundaries and group identity through continuation of adherence to *Jukurrpa* law/lore.
4. *'place dependence'* (how well the place fulfills the needs of the group)	Replacement of hunter/gatherer lifestyle; initially by dependence on government rations.	Continuation of hunter/gatherer lifestyle, with some speakers relying on non-traditional food at missions or cattle stations at the edge of the Western Desert.
5. *'place identity'* (how individuals and groups define themselves in terms of salient aspects of the place)	Continuation of their particular law/lore practices directly related to place and spirituality.	Continuation of their particular *Jukurrpa* law/lore practices directly related to place, culture and spirituality.
6. *'place bonding'* (emotional ties to the place where they dwell)	Refusal to forfeit rights to, and responsibilities for, Yindjibarndi country.	Refusal to forfeit rights to, and responsibilities for, Manyjilyjarra country.
7. *'social capital'* (the social dimensions of community, with respect to others; the perceived 'worth' of their place);	On-going belief in importance of traditional *Birdarra* law, representing culture of place.	On-going belief in importance of traditional *Jukurrpa* law/lore, representing culture of place.

8. *'collective efficacy'* (empowerment of individuals and the community provided by that place)	Continuation of ceremonies at sacred places (to extent permitted by colonisers).	Virtually uninterrupted continuation of ceremonies at sacred places for those not removed to missions or cattle stations.
9. *'sense of community'* (the social bonding produced via dwelling in that place)	Being a cohesive group speaking their traditional language (as well as English)	Being a cohesive group speaking their traditional language (as well as some people speaking basic English and Martu Wangka creole for those in Jigalong Mission)
10. *'neighboring'* (assistance that group members provide to each other)	Retention of language group identity and practices despite being forced to live in adjacent Ngulama 'country'.	Retention of language group identity and practices, except for limitations imposed on those living in missions or cattle stations.
11. *'citizen participation'* (the way individuals contribute to group processes)	Participation in annual 'law business' ceremonies, in collaboration with members of neighbouring language groups.	Participation in annual 'law business' ceremonies, in collaboration with members of neighbouring language groups.
12. *'place-based social interactions'* (activities that build or sustain networking and social cohesion)	On-going adherence to, and teaching of, law/lore (including to non-indigenous people) and ceremonies on-country.	On-going adherence to, and teaching of, law/lore (including to non-indigenous people) and ceremonies on-country.
13. *'bridging social capital'* (ways of interacting with others within the group and neighbouring groups)	Positive collaborations with neighbouring language groups suffering similar challenges.	Positive collaborations with neighbouring language groups suffering similar challenges, especially within the regional Martu group of 11 languages.
14. *'community response'* (various potential responses to place disruptions)	Continuation of traditional social, cultural and spiritual system and constant fight for land rights and cultural recognition/respect.	Continuation of traditional social, cultural and spiritual system and constant fight for land rights and cultural recognition/respect. Strong adherence to *Jukurrpa* law/lore, including complex relationships with landscape.

Appendix 12: EDM v7 for Manyjilyjarra Landscape Language Case Study

A12.1 Introduction

This appendix provides, in Section A12.2, the revised version 7 of the EDM, using information from the Manyjilyjarra landscape language case study. Section A12.3 lists the draft Classification of Australian Topography, which is based on a similar table in Palmer, Pascoe and Hoffmann (2018). Section A12.4 provides the draft classification options for 'absolute' spatial frames of reference in Australian indigenous languages (Bill Palmer, 2018 (personal communication) and Palmer et al., 2018, following Hoffmann (2016) and Palmer (2015))

A12.2 EDM (v7) for Manyjilyjarra Case study

This section of the appendix presents a new version 7 of the EDM, a modification of v6, developed in Chapter 6 (by adding, deleting, rewording and rearranging factors). This is discussed in Chapter 8, Section 8.7. The Manyjilyjarra EDM is populated with details relevant to that case study. Some details are copied from the 'General Distribution Version' of the *Final Report for the Martu Ngurra Wangka: Manyjilyjarra Landscape Language Case Study*, carried out with linguist Hill (Hill and Turk, 2017). Further information regarding EDM factors can be found in Chapter 8.

EDM v7 includes seven additional factors inspired by the Manyjilyjarra investigation and other recent research, shown in *italics*, (i.e. Independent Factors: *C* and *E* and Dependent Factors: *1; 2, 6, 7* and *9*). Independent factors A and M of v6 have been integrated into other factors, and factors O and Q transferred to be dependent factors. The order, and hence the identification letter or number for factors, has been revised, so as to accommodate the change to factors and some re-ordering of factors (table rows) to group similar factors more effectively. In addition, the description of some factors listed in the previous version of the EDM, have been revised to provide greater clarity, and, in some cases, brevity.

The Manyjilyjarra EDM is presented in Tables A12.1 and A12.2 below. The final generic version v7 of the EDM resulting from the capstone case study is discussed in Chapter 9 and presented in Appendix 15.

Table A12.1: EDM v7 Independent Factors – Manyjilyjarra study

A	Location and extent of landscape place; the area where most speakers of the language have lived traditionally and currently.	Manyjilyjarra is one of the eleven Martu languages, traditionally spoken in the eastern part of their 'country', in the Western Desert in the East Pilbara region of Western Australia. The area is about 200 km east/west and 300 km north/south. Most speakers currently live in the small desert communities of Parnngurr, Punmu and Kunawarritji Others now live in adjacent communities (e.g. Jigalong) and towns (e.g. Newman.
B	The topography of the region occupied by the language group; whether mountainous, hilly or flat; and the presence or absence of particular landscape features, such as, volcanic cinder cones, sand dunes, coral reefs, etc. The most relevant physical qualities of landscape are those that have habitat value, present or potential.	The traditional inland desert country of the Manyjilyjarra people consists mostly of high, parallel, long ridges of sand (sandridges or, in Manyjilyjarra: *tali, tuwa; or yintiri*) mostly running in a West to East direction (due to the predominating wind). The sand plain inter-dune areas, often about one or two kilometres wide, are covered mostly with spinifex vegetation. There are also many large, medium sized and small saltlakes and some areas of stony hills. There are no permanent (above ground) rivers or streams
C	*Classification of topographic terrain – e.g. (in Australia) as per Palmer et al. (2018) [See section A12.3 below].*	Different parts of Manyjilyjarra country can be classified, in order of spatial significance, as: sandridge country; spinifex plains; saltlakes; hill country; small water courses (seasonal).
D	Whether the case study area is classified as urban, rural and/or natural (wild) type of landscape and which type(s) dominate the case study area.	The area is partly rural, but mostly natural (wild) landscape and small settlements.
E	*Number, size and location of communities within case study area.*	There are only three very small communities in traditional Manyjilyjarra country.
F	Any aesthetic qualities of landscape, which need to be investigated via a subjective approach.	There are many beautiful and striking aspects of the landscape, including wide saltlakes and some prominent isolated hills.
G	The vegetation (at landscape scales) in the region; its density and variability in space and time. 'Ecotopes' designate a 'kind of place' related to flora and fauna.	Most vegetation is low scrub and spinifex between sandridges, and some eucalyptus trees on sandridges and hills. Saltlakes are bare and some small (usually dry) lakes have very low vegetation. Words for ecotopes exist, e.g. with resect to burnt areas. See also place

		suffix discussed below re Dependent Factor 3.
H	The climate of the region; the strength of seasons (e.g. does it snow in winter); its variability (e.g. does rainfall come only from seasonal cyclones / hurricanes); etc.	The area has a harsh desert climate. Winters are usually dry with warm days and very cold nights. There is some rainfall in summer, occasionally very heavy when associated with a cyclone coming in from the coast to the north-west, or more often, a rain depression as the remnant of a cyclone. Temperatures are very high in summer, sometimes exceeding 40C.
I	The nature of spatial boundaries (natural and fiat) that play a key role in characteristics and categorization of people's identities. Boundaries of indigenous language group territories may be considered to have been conferred by Ancestral Beings at the beginning of time, which may well conflict with current national, state or local boundaries, due to historical factors.	Boundaries of the language group area are really agreed border zones between adjacent groups, established by the indigenous traditional culture over tens of thousands of years.
J	The lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc.; including significance of landscape as a source of food (for consumption and/or sale).	Speakers traditionally pursued a nomadic hunter/gather lifestyle, with some elements of plant and animal husbandry, such as the use of fire. All speakers now live in communities on country or in surrounding communities and towns, mostly supported by government welfare payments. They do some hunting and gathering and continue to care for country, especially via the Martu Ranger program.
K	Historical factors such as: movement of the people into their current region; colonization of the people by outsiders with a significantly different culture/language; major changes in lifestyle and economy; etc.	Aboriginal (First Nations) people have occupied and managed Australian landscape for about 60,000 years[67]. Following coastal visits from neighbouring Asian peoples and about two centuries of European coastal exploration, British colonisation commenced in Australia in 1788. However, there were only a few infrequent contacts with Manyjilyjarra speakers (e.g. by exploration expeditions) before the 1950s. Some Manyjilyjarra speakers had not encountered

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[67] A recent extensive DNA study of Aboriginal Australians, carried out by the University of Cambridge, working in close collaboration with indigenous Australian elders and leaders, found that Aboriginal Australians separated from other groups about 58,000 years ago. https://www.history.com/news/dna-study-finds-aboriginal-australians-worlds-oldest-civilization [Accessed 15 Dec. 2018]

		people from other places (except their immediate neighbouring language groups) before 1964. Speakers today live a partly 'western' lifestyle in communities, while retaining most aspects of culture and spirituality and continuing to engage in traditional hunting, gathering and ceremonial activities.
L	Role of conventions, laws, agreements, guidelines, etc. regarding landscape (local, regional, national or international). These can affect landscape definitions and management, especially regarding collaboration across frontiers.	Manyjilyjarra people are subject to Australian law and government regulations at the Federal, State (Western Australia) and local government levels. They continue to collaborate with other Martu people in traditional ways, under the guidance of *Jukurrpa* and through organisatons such as the Western Desert Lands Aboriginal Corporation, which manages their Native Title rights and any indigenous land use agreements negotiated with companies (e.g. for mining) and governments. Their cultural and land management activities are assisted by organisations such as Kanyirninpa Jukurrpa and Martumili (art organisation), both located in Newman.
M	What particular topo-socio-cultural-spiritual framework(s) govern the relationship of speakers' lifeworld to landscape. The particular culture-based structure (ontology, epistemology, natural order, law, lore, ethics, philosophy, metaphysics, and cosmology) providing a total system for all aspects of relationships with place, including the social order and culture, such that it provides modes of interpretation, assignments of cause and effect, terms of explanation, and forms of art. For instance, *Jukurrpa* (The Dreaming) for Australian indigenous Yarnangu peoples; a framework for all time, past, present and future.	The applicable topo-socio-cultural-spiritual framework is *Jukurrpa*, which is their version of The Dreaming (described in Chapters 6, 8 and 9 and Appendix 13). It covers all social, cultural, spiritual and ethical aspects of their life. However, academic understanding of such a system is necessarily limited because of rules about secrecy and 'need-to-know', and the way such systems operate is very complex. Adherence to *Jukurrpa* is still strong among Manyjilyjarra speakers, especially elders, although almost all speakers are increasingly influenced by 'western' culture and lifeworld practicalities, such as government regulations, media, schooling, and food supply.
N	Religious beliefs and spiritual concerns linked to landscape; e.g. creation beliefs, presence of spirits in landscape features,	Spiritual and ethical considerations are at the heart of *Jukurrpa*. This is intimately linked with landscape,

	and cultural practices (e.g. ceremonies; taboos) which accompany such beliefs.	especially via sacred sites and 'songlines', recording journeys of ancestral beings in the Dreamtime. Some Manyjilyjarra speakers have been somewhat influenced by Christianity, via the past activities of missionaries. The general materialism of western culture also impacts on the spirituality and ethics of many people.
O	Ways that increasingly globalized economies and cultures might impact on the life-world of these people.	Like all Australians, Manyjillyjarra speakers are influenced by globalisation, especially regarding politics, trade and media. However, they are mostly isolated from these influences because of remoteness and lifestyle, except for younger people who live in, or frequently visit, towns.
P	Impact of new technologies (including social media) on individual or group relationships with landscape and language used.	Social media has been adopted by many young people,and some older ones who are involved in employment or artistic activities. This impacts on their daily lives, culture, belief systems and language.

Table A12.2: EDM v7 Dependent Factors – Manyjilyjarra study

1	*General description of the language, including language group membership etc..*	Manyjilyjarra is one of the eleven Martu languages, which belong to the Western Desert language group, or Wati; a dialect cluster of Australian Aboriginal languages in the Pama-Nyungan family. It is highly endangered with, at most, a couple of hundred speakers, many of them elderly.
2	*Previous dictionaries, word lists etc. that were used in the landscape language case study.*	Previous dictionaries, word lists and collections of narratives consulted during the study included: Burgman, A. (2008) *Manyjilyjarra Sketch Grammar - An introduction to the structure and use of Manyjilyjarra*. Port Hedland: Wangka Maya Pilbara Aboriginal Language Centre. Burgman, A. (compiler of material by S. Hansen, P. McConvell, and J. Marsh). (2009) *Manyjilyjarra Dictionary*. Port Hedland: Wangka Maya Pilbara Aboriginal Language Centre. Clendon, M. (1988) Some Features of Manjiljarra Nominalized Relative

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Marsh, J. (1976) *The grammar of Mantjiltjara*. Unpublished MA Thesis, Arizona State University.

McConvell, P. (1980) *Manjiljarra wangka: Manjiljarra-English dictionary draft*. Darwin: Darwin Community College, School of Australian Linguistics.

Sharp, J., and N. Thieberger. (2002) *Aboriginal languages of the Pilbara region: Manyjilyjarra*. Port Hedland: Wangka Maya Pilbara Aboriginal Language Centre.

| 3 | Relevant aspects of the structure/grammar/syntax of the language, such as the roles played by nouns, verbs, prepositions, adjectives, noun-phrases, suffixes, etc. For example, use of compound words and phrases instead of (or as well as) simple generic landscape terms. Linguistic forms may be processual, 'eventing'-based (producing a predominance of verbs) [e.g. Hopi] versus 'entity'-based European languages (with their dominance of nouns). | In Manyjilyjarra, there is considerable use of compound words and suffixes. Hill and Turk (2016, p. 39) discuss a suffix to designate places of different types: *-kurru* is the place characteriser suffix used to indicate a place with a particular characteristic, such as *paru-kurru* for 'spiniﬁex country'. It is also able to be employed with animal words (e.g. *puupuka-kurru* 'frog country' and landscape feature terms (e.g. *yintiri-kurru* 'sandridge country'. The dictionary also discuss the role of reduplication and positional or posture verbs. |
| 4 | Set of landscape terms for different landscape feature types. | There are 82 landscape terms listed in the Manyjilyjarra – English Pictorial Dictionary of Landscape Terms (Hill and Turk, 2016) published by Kayirninpa Jukurrpa. Terms are grouped into 6 categories:
 A Rivers, creeks, lakes and other water-based features [e.g. *jurnu* (soak)];
 B Hills, rocks, sandridges and other convex (i.e. protruding) landscape features [e.g. *purli* (rock outcrop, |

		hill or mountain]; C. Valleys, hollows, caves and other concave (i.e. dish-like) landscape features [e.g. *takurru* (depression, gully or valley)]; D. Flat areas and types of ground [e.g. *limpy-limpy* (flat rock area)]; E. Vegetation and burnt areas [e.g. *purnu* (stand of vegetation)]; F. Other landscape-related terms [e.g. *karru-karru* (small track)]. There are also 22 words listed for describing aspects of landscape features such as *jarlu* and *juma* (big), *maru* (black), *mulyju* (deep), *wanka* (fresh vegetation). The condition/state of water and its movement are designated by 11 terms, such as *lukarrini* (muddy) and *wayirni* (flowing).
5	Whether landscape terms include vegetation assemblages (at landscape scale) and/or vegetation types used as resource (e.g. medicine; food; wood), its affordance re travel, blocking long views, etc.	There were six terms identified for types of vegetation (e.g. *janpi or paru* for spinifex), with can be combined with the place characteriser suffix used to indicate a place with a particular characteristic, such as *paru-kurru* for 'spinifiex country'.
6	*Terms for 'ecotopes' designating a 'kind of place' related to flora and fauna.*	As in *paru-kurru* for 'spinifiex country', the place characteriser suffix can refer to 'ecotopes'. There are also terms for burnt country (*nyurnma*) and various stages of re-growth (e.g. *waru-waru* for an area with some new vegetation).
7	*Directional terms and 'absolute' spatial frames of reference (AFOR) – e.g. as per Hoffmann (2015, 2016), Palmer (2015; 2018) and Palmer et al. (2018) [See section A12.4 below].*	A phenomenological approach is adopted regarding 'intentionality' of utterances as the driving force in what influences AFOR, within the spatial parameters of the terrain and the linguistic resources. Hence, Manyjilyjarra directional terms and AFOR are expected (although not confirmed) to include: • Up or down Karlimilly River (in Wanman country) or many smaller channels, or gullies; • Towards or away from or across a salt lake (e.g. Lake Dora); • Along or across dominant sandridge direction (E/W); • Towards or away from a sacred site (e.g. Yimiri); • Along a dreaming track;

		• Along (up/north or down/south), or towards, or away from, the Canning Stock Route;
		• Towards, or away from, a settlement/mission (e.g. Jigalong) or a town (e.g. Newman).
8	Relative significance of key factors (size, shape, salience, etc.) that motivate categorization of landscape features.	Shape seems more relevant than scale in landscape categorisation (Hill et al., 2016):
		• For landscape language in Manyjilyjarra the size of a landscape feature is not relevant in the semantic categorization.
		• In these language systems a divot in a road is not linguistically distinguished from a vast valley or a pile of rock moveable by human hand is not linguistically distinguished from a large rocky mountain formation; e.g. in Manyjilyjarra: *yapu* is used for a mountain, hill, stone and a pebble; *tumun* for a low rounded hill and a very small pile of sand made by an ant; *yintiri* for a sandridge (perhaps 10 metres high) and for a small low sandbank in a watercourse; *warli* for a gully in a hillside and for a small place where water trickled through sand; *warla* for a huge salt lake (e.g. Lake Dora, 40 km long) and a salty depression (a few metres across) on a samphire flat; *takurru* for a valley between hills or sandridges and for depressions between corrugations on a sandy road; and *langa* for a sand plain (perhaps stretching several kilometers) and sand in the palm of a hand.
		• Size indicators can be used to disambiguate use of size-independent terms for large scale landscape features from smaller configurations, but are rarely observed to be used in either natural or task-based settings. The size lexicon includes: *japu*, *juku* or *juli* for small; *kuta* for short; *takarnpa* for thin; *juma, jarlu* or *maju* for big; *lipi* for wide; and *mulyju* for deep.
9	*The role of landscape terms in narratives and description of every-day interactions, including 'taskscape' activities and protocols.*	A phenomenological review of the Managilyjarra landscape language indicates (Turk, 2016):

| | | | It is important to include consideration of physical, utilitarian, cultural and spiritual relationships with landscape; This is assisted by adopting a transdisciplinary examination of actions performed on/with/by/for/about landscape; practices relating to 'lifeworld' domains such as subsistence, habitation, mobility, navigation, identity, ownership, emotion, preference, and ritual. This needs to consider Manyjilyjarra 'lifeworld' and landscape as 'taskscape'; embodiment and affordance; intersubjectivity, individual and communalised intentionality; 'gathering of places'; and topophilia and other affective relationships with landscape. Relevant Manyjilyjarra terms include: *Jukurrpa* as life-world framework; ways of being in landscape, e.g. *ngurlu* means sacred or taboo and could be applied to relevant places; communalised intentionality e.g. *japiya* refers to a site having sacred significance and a 'songline' linking places in a *Jukurrpa* dreaming story is another example of places linked in communalised intentionality (a 'songline' gathers places). |
| | | | See also: |

Davenport, S., Johnson, P. and Yuwali (2005) *Cleared Out: First Contact in the Western Desert*. Aboriginal Studies Press.

Tonkinson, R. (1974) *The Jigalong mob: Aboriginal victors of the desert crusade*. Menlo Park: The Cummings Publishing Company.

Tonkinson, R. (1991) *The Mardu Aborigines: living the dream in Australia's desert*. New York: Holt, Rinehart & Winston.

Walsh, F. (2008) *To hunt and to hold: Martu Aboriginal people's uses and knowledge of their country, with implications for co-management in Karlamilyi (Rudall River) National Park and the Great Sandy Desert, Western Australia*, Unpublished

		PhD dissertation, Australian National University.
10	Whether relationship with landscape aligns with language or social conceptual shortcuts (such as social /financial circumstances or class).	Manyjilyjarra relationships with landscape are typical of Australian Aboriginal peoples (especially Yarnangu from the Central and Western Deserts). These have similarities with indigenous people from other countries (e.g. USA and Canada). Some lifeworld aspects are representative of many types of marginalised people with very low income and sometimes considered of low social class by certain parts of society. However, as First Nations Australians, with a history of an estimated 60,000 years sovereignty over their territory, they also have very high social standing among many Australians.
11	Role of non-verbal language and/or graphics/art in communication about, and representation of, landscape.	As discussed in Chapter 8, Manyjilyjarra speakers, like other Martu, use hand and body gestures to communicate. They also use informal drawings in sand, as well as complex artwork, to communicate about landscape and its relationship to every-day matters, and cultural and spiritual traditions.
12	Whether different landscape terms are used by speakers of different gender and/or during different seasons and/or in different social settings (e.g. during ceremonies), etc.	As part of *Jukurrpa*, males and females have different rights and responsibilities, some of which involve different ceremonies and associated language. Traditional hunting and gathering activities were significantly gendered, and this can be expected to be reflected in some 'taskscape' related words.
13	Role of loan-words from neighbouring language groups (and/or colonisers) in landscape terms and toponyms.	Because traditionally, Manyjilyjarra speakers would have known several adjacent languages, there is considerable use of loan-words, such as *yali* (Wanman term) for stony hill (y*apu*). There is also some use of English words, especially in the context of land management or Native Title activities.
14	Role of potential six types of relationships (bonds) to place (Cross 2001, p. 3): Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material). How are these conceptualized and discussed in language?	Each of the potential six types of relationships with place apply to Manyjilyjarra speakers, especially spiritual, cultural, ethical and material (physical and utilitarian). They are linked via the holistic worldview of *Jukurrpa*.

15	Role of frames e.g. semplates (Levinson and Burenhult, 2009) or metaphor for structuring sets of landscape terms (e.g. family relations as metaphor for hydrology).	So far, no explicit use of semplates has been identified in Manyjilyjarra landscape language. A cultural toponym may be used for an assemblage of landscape features.
16	Whether any landscape terms relate to religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features. For instance, water places are often meaningful through multi-layered attachments relating to utilitarian issues (ultimately survival), but also sets of cultural and spiritual concepts. Apache toponyms represent an instructive story (or stories) about that place (Basso, 1996).	For Manyjilyjarra speakers spiritual concerns are very strongly linked to landscape, via *Jukurrpa*. There are many associations with specific types of features, such as the presence of an ancestral being (*jila*) in a permanent source of water (*yinta*). Dreaming tracks (songlines) link sacred places.
17	Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places) and 'community attachment' (depth and types of attachments to any particular place). Each language group territory has a complex set of shared rights and obligations (and hence of affective and cognitive properties), arising from that group's unique attachment to that place. Within a 'language group' individuals will have different sorts of rights and responsibilities to different places (within the general area) because of family, personal history and other factors, hence, kinship systems and land-use roles are important.	All Manyjilyjarra people have strong individual relationships (rights and responsibilities) with landscape places (e.g. where they were born). Similar relationships exist at a communal level, including 'caring for country'. Both sorts of relationships are reflected in the semantics of landscape language. For instance the term *ngurlu* is used to designate a sacred (or taboo) place, about which one should be respectful, perhaps fearful.
18	Type(s) of toponyms; e.g. whether related to habitual spatial practices, representations of the world, and a spatial, imaginary geography. They can be linked to culture and spirituality, so that placename networks are sometimes 'owned' by a group or extended family, which have exclusive rights to information about particular places, including their names. Some placenames may be considered 'powerful' and be sacred or secret.	This study was not permitted (by KJ) to collect toponyms, however, most Manyjilyjarra toponyms will be from the earliest times and linked to culture and spirituality via *Jukurrpa*. For instance, in Martu country, there are thousands of recorded toponyms for places of permanent water (*yinta*) [e.g. Yimiri], which are unanalysable.
19	Structure of toponyms; whether they are descriptive; if they include generic landscape terms; and how they arise and are constructed. Whether 'ecotopes' influence toponyms.	Manyjilyjarra toponyms can cover an area and be applied to various nearby landscape features. In this case they may include generic terms.
20	Role of toponyms compared with role of generic landscape terms. There can be a continuing role for placenames, in the memory of language group members, even if they no longer live in their 'country'.	In traditional Manyjilyjarra society there were toponyms for very many landscape feature or places in their country. The use of these may well have reduced the need for and/or usage of, generic terms. Having a legitimate connection to country involves knowing the toponyms.

A12.3 (Draft) Classification of Australian Topography

Table A12.3: (Draft) Classification of Australian Topography
         (based on table in Palmer, Pascoe and Hoffmann, 2018)

mountain	river valley
tableland (mesa)	gorge
hill country	large water course (permanent)
jump-up country	large water course (seasonal)
rock country	small water course (permanent)
escarpment	small water course (seasonal)
sandridge country	large water course (tidal)
spinifex plain	small water course (tidal)
saltlake	billabong/lake (permanent)
floodplain	billabong/lake (seasonal)
swamp	dominant wind direction (constant)
scrub	dominant wind direction (seasonal)
forest	urban (high density)
rainforest	urban (medium density)
coastal plain	urban (low density)
coastline	small settlements
island	isolated homesteads

This classification system needs to be trialled and revised. Its use, in the context of the EDM, is in terms of the following two protocols:

A. Approach to classification of topography for a language area:
- The categorisation can be with respect to the whole area/country of that language group;
- Thus, rather than talking about a mountain, hill, valley or river or creek, we need to categorise topography as a mountainous region, hilly country, river valley or valleys; spinifex plains, sandridge country, jump-up country, sandy coastal plain etc;
- Any area the size of a language group's country is likely to be a mixture of landscape types (e.g. Manyjilyjarra topography could be described as sandridge country with salt lakes of different sizes and low rocky outcrops) hence, the classification approach needs to manage such a mixture of classifications;
- The language area can be divided into parts for the purpose of classification, e.g. Yindjibarndi country is mostly tableland, cut by a river valley, ending in an escarpment leading down to the coastal plain (which is Ngulama country).
- A language area which include islands would be a special case, especially inhabited vs uninhabited islands, and whether areas of sea are included;
- Formal systematic use of the classification system should be supported by descriptions and images of each type of topography.

B. Steps for classification of topography for a language area:
- Decide on geographic extent of the language group's country;
- Seek text sources that describe the area (introductions to dictionaries; geography texts; etc.);
- Systematically view satellite imagery and topographic maps for the language group area;

- Travel as much as possible within the language area, preferably in the company of local fluent bi-lingual speakers;
- Review topographic terms in each language to indicate the type of country (being aware this would introduce an element of circularity in the process);
- Decide on appropriate topographic classification for whole area, or for major parts of total language area.

A12.4 (Draft) classification options for 'absolute' spatial frames of reference in Australian indigenous languages
(Bill Palmer, 2018 (personal communication) and Palmer et al., 2018; following Hoffmann (2015, 2016) and Palmer (2015))

- Compass points: north-west-south-east - does not need to include all four basic directions and may extend to more than four - may or may not correspond to magnetic poles;
- Direction of the setting and rising sun: sometimes also the direction where the sun is at high noon - aka north);
- Wind directions: often trade winds, seasonal winds (e.g. NW or SE winds are prevalent). Some may be used year-round and thus fixed. Others may be used seasonally as in upwind/downwind depending on where the wind is blowing from;
- Coast line: including up/down the coast and towards or away from the coast (inland);
- River drainage: upstream/downstream, upriver/downriver; may also include sides of the river, such as far-side/this side of the river;
- Vertical direction: up/down, as pertaining to slopes - upwards/downwards a mountain slope, often correlates with inland/towards the coast on the east coast of Australia;
- With respect to tides: only attested in one language Bardi - changes every 6 hours as with/against the tide;
- With respect to spiritual /cultural places of significance: e.g. where spirits come from/go to; where the dead go to rest;
- No absolute frames of reference: Murrinh-Patha (Australian Aboriginal language) is the prime example for this.

Appendix 13: Aspects of *Jukurrpa* and Landscape Concepts

A13.1 Introduction

This appendix contains review of aspects of *(T)Jukurrpa* and general Australian indigenous concepts of relationships with landscape, summarised in Chapter 6. Each of these aspects in the two phenomenographic tables (A13.1 and A13.2 in Section A13.2) applies to the version of *Jukurrpa* for Manyjilyjarra people, although in some cases the table entry refers to another Aboriginal Australian language group (e.g. Spinifex People; Cane, 2002).

A13.2 Phenomenographic Tables

Table A13.1: Key Aspects of *(T)Jukurrpa* identified in Cane (2002, pp. 81-85)

Category	*Concept*	*Quote / Summary*
A: Purpose, role and nature of *TJukurrpa*	**1:** Called (in English) "the Law".	Spinifex people … typically interpret *TJukurrpa* as 'the Law', to which they consider themselves beholden.
	2: It is holistic and encompasses all aspects of life.	*TJukurrpa* means more to Spinifex People and affects more of Spinifex life than any one of its elements – business, law or religion – might be expected to do. It is certainly a combination of all three but it also incorporates nature, philosophy and psychology.
	3: Way of thinking / being.	The *TJukurrpa* is a way of thinking or being.
	4: Central concept of life and fulfillment.	It is the conceptual vehicle through which people fulfill themselves, define their position in society and are guided through life.
	5: Is fundamental and must be obeyed.	Spinifex adherence to the *TJukurrpa* is both fundamental and mandatory.
	6: Universal and metaphysical.	The Spinifex perception of law incorporates elements of fear, power, complexity, reason and authority but also conveys something universal and metaphysical.
	7: Powerful way to communicate about and control land.	Their comprehensive knowledge of, and consequent ability to communicate with and control, the spiritual aspect of their country (and through it, their lives) provides a communal foundation quite different from and arguably more secure than that found in western societies.
B: *TJukurrpa* as law, knowledge and ceremonies	**1:** Term often used (in English) is "law business".	Spinifex People say they are in 'business' when they prepare for, participate in, or conduct the ceremonies associated with *TJukurrpa.*
	2: About utilitarian personal and social processes.	The use of the term 'business' is instructive as it takes the term *TJukurrpa* from the domain of law into a utilitarian framework that has both a personal and social dimension.

	3: Serious, necessary hard work.	Business' conveys a sense of seriousness, necessity, hard work, commitment and consequence to the Spinifex People – elements they see, and we would recognise, as characteristic of non-Aboriginal business activity.
C: *TJukurrpa* as religion and/or philosophy	**1:** Essentially spiritual.	It is, in both practice and content, more spiritual than judicial.
	2: Links spiritual beings and land.	Spiritual beings are described as belonging to 'the Law' and country is seen as part of 'the Law'.
	3: Could also be termed a religion.	The encapsulation would almost be complete if the Spinifex People also equated the *TJukurrpa* with the European concept of religion.
D: *TJukurrpa* as social structure	**1:** Provides rules for individual behavior and society.	It provides an explanation of nature, establishes a social code, creates a basis for prestige and political status within the community, acts as a religious philosophy and forms a psychological basis (if not psychological controls) for life.
	2: *TJukurrpa* knowledge instills power / prestige.	Knowledge of *TJukurrpa* creates a basis for power and prestige within Spinifex society.
E: *TJukurrpa* and landscape	**1:** Landscape features represent aspects of the law.	When travelling through country people will often point to physical features and describe it as 'Law' or they might not speak at all, whispering, 'big Law'.
	2: All of nature created by *TJukurrpa.*	*TJukurrpa* explains the nature and creation of landforms and natural phenomena such as fire, wind, and water.
	3: Landscape must be respected.	Such explanations carry with them a sense of greatness and mystique which instills respect and establishes protective mechanisms for particular geographic locations.
	4: Sites and tracks have social, political and spiritual values.	Thus when Western Desert people talk about *TJukurrpa* in relation to sites and tracks, they are talking about all the social and political values and relationships of their society that those sites articulate as much as about the spiritual values of those locations.

Table A13.2: Key Australian Aboriginal Landscape Concepts (copy of Table A7.5 in Appendix 7)

Code	Landscape Concept	Reference
Mu-1	What maintains the relationships between places is the maintenance of kinship, the interconnected web of kin and country and the roles of custodianship (kirda [owner] and kurdungurlu [manager]).	Muecke (2004)
Mu-2	Aboriginal 'country' comes with a complex set of shared rights and obligations, arising from that group's unique attachment to that place.	Muecke (2004)
D&P-1	The acts of ancestral beings in conferring territories and giving birth to each group established for all time the identity of those groups and the boundaries of the territories with which they are identified.	Davis & Prescott (1992)
D&P-2	Within a 'language group' individuals will have different sorts of rights to different places (within the general area) because of factors such as: the special country of their father and that of their mother; the place where they were born; and places where they have spent large periods of their life.	Davis & Prescott (1992)
Su-1	Relationship to 'country' for a language group constitutes a complex web of affective and cognitive properties, in the context of social and spiritual obligations, which may influence differently for each individual the meanings associated with landscape.	Sutton (1995)
Yu-1	For almost all Australian Aboriginal people water is a scarce resource, which explains its central importance to their sense of landscape; their knowledge of its location and degree of permanence constitutes a key aspect of their lifeworld.	Yu (2003)
Yu-2	Most 'living water' are believed to be inhabited by *pulany/jila*, metaphysical water snakes or serpents which made and reside in the permanent water sources.	Yu (2003)
Yu-3	People's relationship with water in the landscape is not only about survival, or even sets of cultural and spiritual ideas, but also about peoples' behavior in landscape.	Yu (2003)
To-1	Places are meaningful through multi-layered attachments to water, in different ways by different peoples.	Toussaint (2008)
Ca-1	*TJukur*rpa is the foundation of law, religion, philosophy and social structure for Central and Western Desert Aboriginal people and is connected to landscape in intricate, intimate and holistic ways.	Cane (2002
Gr-1	*(T)Jukurrpa* is a complex mixture of law, lore, spirituality, social structuring and (perhaps) philosophy.	Grieves (2007)
Gr-2	Academic understanding of *(T)Jukurrpa* is (necessarily) limited as it is the core of Aboriginal philosophy and religious practice and, hence, subject to secrecy and knowledge on a "need-to-know" basis.	Grieves (2007)
My-1	*(T)Jukurrpa* is for all time: it represents all that exists as deriving from a single, unchanging, timeless source. … human life and being are as permanent, enduring, and unchanging as the land itself.	Myers (1986)

Code	Landscape Concept	Reference
Ri-1	The Yindjibarndi form of *Jukurrpa*,"Bidarra Law is an infinitely rich, veiled, subtly mutable, mercurial, carnival, intimate skein of elements and influences that derive from, and speak of, the Yindjibarndi conception of creation, their country and the life within it, including living landforms and water, and which embodies and gives carriage to the relationships between the people, creatures, spirits and things that share existence in the creation"	Rijavec (2008)
HH&S-1	Toponyms carry information about specific ways of dwelling in landscape.	Hercus, Hodges and Simpson (2002)
HH&S-2	Ways of forming Australian Indigenous placenames, their meanings, the features that they refer to, the networks that they form, and the rights to bestowal of names differ greatly from European toponymic practices.	Hercus, Hodges and Simpson (2002)
Ko&He-1	Strong contrast between the traditional systems of toponymy of Indigenous societies and the Anglo-Australian nomenclature that has been overlaid on the Australian landscape.	Koch and Hercus (2009)
H&S-1	All placenames are shorthand labels given to significant geographic features for the purposes of finding them again, referring to them, and passing on the knowledge of the place to other people.	Hercus and Simpson (2002)
H&S-2	What count as significant features depends on what impression the feature makes on a person seeing it, or in the case of some water features, on the person hearing it.	Hercus and Simpson (2002)
H&S-3	Indigenous placename networks are very often owned. One extended family may have the exclusive right to impart information about particular places, including their names.	Hercus and Simpson (2002)
H&S-4	Some placenames may be powerful and may be secret or sacred (not for public distribution).	Hercus and Simpson (2002)
Ta-1	Toponyms includes associations with the language group's specific cosmogonic beliefs, including the movements of Ancestral Beings who gave shape to the land, brought everything into existence at particular places, and bestowed territories (and all phenomena within that place) upon specific groups of people.	Tamisari (2002)
Ko&He-2	Attempts, in several Australian jurisdictions, to discover and/or re-instate Indigenous names for geographic features, including newly formed entities such as national parks.	Koch and Hercus (2009)
Ko&He-3	Interpretations and evaluations of older documentary sources on Indigenous placenames in the light of modern methods and insights.	Koch and Hercus (2009)
Ko&He-4	Continuing role of placenames in the memory of Indigenous social groups, even if no longer living there.	Koch and Hercus (2009)

Appendix 14: Review of Questions from Seamon (2014)

A14.1 Introduction

This appendix reviews the set of 37 questions concerning place and phenomenology raised in Seamon (2014, p. 8), as listed in Table A6.1 in Appendix 6.   They are arranged in four sets, with a response for each question (row) in light of the Manyjilyjarra landscape language case study and previous dissertation chapters.

Table A14.1: Responses to Seamon (2014) Questions

Code	*Questions from Seamon (2014)*	*Response in context of Manyjilyjarra Landscape language case study (Chapter 8) and earlier dissertation chapters*
1.	**Questions relating to phenomenology and related interpretive approaches and methods:**	
1.a	What is phenomenology and what does it offer to whom?	This question is answered in Chapters 4, 5 and 6, indicating that there are numerous approaches to phenomenology, each offering different sorts of explanations for different types of situations and objectives of investigations. Chapters 7 and 8 provide an indication of the role that phenomenology can play in landscape language case studies. It assists the researchers to provide a more comprehensive and effective set of project outcomes and products. Related products include pictorial landscape dictionaries with authentic, multi-faceted explanations of the semantics of landscape terms. Such dictionaries are very useful for language preservation activities in communities.
1.b	What is the state of phenomenological research today? What are your hopes and concerns regarding phenomenology?	The many recent references provided in Chapters 4 to 8 indicate that the application of phenomenology to aspects of place is currently a very active field. Phenomenology is being applied in an increasing number of disciplines, however, a transdisciplinary approach is rare. This indicates that this dissertation addresses important current issues, especially regarding transdisciplinary methods. Unfortunately, some phenomenologist are not so keen on interdisciplinary approaches and are yet to sufficiently accept contributions from non-European or 'western' sources of knowledge.
1.c	Does phenomenology continue to have relevance in examining human experience in relation to world?	This dissertation provides a positive example of the ongoing relevance of phenomenology, both within philosophy and working with other disciplines. It shows that a systematic, methodological approach can help extend the relevance of phenomenology.
1.d	Are there various conceptual and methodological modes of phenomenology and, if so,	Chapters4 to 8 provide descriptions of many of the the various modes of phenomenology and how choices can be made regarding which approaches are most applicable to any particular real-world investigation.

	how can they be categorized and described?	
1.e	Has phenomenological research been superseded by other conceptual approaches; e.g., post-structuralism, social-constructionism, relationalist and non-representational perspectives, the various conceptual "turns," and so forth?	Phenomenology has definitely been influenced by the various conceptual "turns," making it more diverse and richer. It has helped it move away from some of its past errors or restrictions, such as Eurocentrism. The different approaches have also facilitated use of aspects of phenomenology within interdisciplinary and transdiscipliny investigations. Perhaps the biggest challenge is to overcome continuing resistance to what is termed 'social-constructionism' by finding better ways to accommodate this approach. Hopefully, this dissertation assists in this process.
1.f	Can phenomenology contribute to making a better world? If so, what are the most crucial phenomena and topics to be explored phenomenologically?	This dissertation provides an example of the use of phenomenology to assist in the understanding and preservation of endangered languages. It also shows how phenomenology can help in understanding and making practical use of traditional indigenous knowledges, such as in the Martu Ranger program discussed in Chapter 8. It is important that phenomenologists work with other disciplines to demonstrate ways to make the world a better place, including with respect to social, cultural, spiritual and ethical concerns.
1.g	Can phenomenological research offer practical results in terms of design, planning, policy, and advocacy?	Phenomenology can help provide practical results in terms of design, planning, policy, and advocacy, but only if it embraces theories, methods and techniques associated with social, cultural, spiritual and ethical concerns and accommodates non-European (non-Western) ways of thinking and dwelling.
1.h	How might phenomenological insights be broadcast in non-typical academic ways; e.g., through artistic expression, theatrical presentation, digital evocation, virtual realities, and so forth?	A possible extra way might be via presentations of a multimedia GIS, constructed to represent the 'country' of a language group using their own ontology of terms, etc. This might be specially effective for indigenous languages.
1.i	What are the most important aims for future phenomenological research?	From this author's perspective, the most important aspect for future phenomenology research is more examples of adoption of a transdisciplinary approach, especially regarding non-European (Western) cultures.
1.j	Do the various post-structural and social-constructionist criticisms of phenomenology - that it is essentialist, masculinist, authoritative, voluntarist, ignorant of power structures, and so forth - point toward its demise?	Rather than pointing to the demise of phenomenology, these criticisms point to ways to critically review and reform the basis of phenomenology; i.e. theories, explanations and methods.
2.	**Questions relating to the natural world and environmental and ecological concerns:**	

2.a	Can there be a phenomenology of nature and the natural world?	Yes this is possible, provided that it includes people and the topo-social-cultural-spiritual frameworks that condition their synergistic relationships with natural topographies and ecologies.
2.b	What can phenomenology offer the intensifying environmental and ecological crises we face today?	By providing a improved understanding of the conditions of dwelling, phenomenology can help in more authentic, efficient, effective, equitable and ethical investigations of key questions relating to the environmental and ecological crises we face today. Hopefully this dissertation makes some contribution to this cause.
2.c	Can phenomenology contribute to more sustainable actions and worlds?	Yes, for example, as evidenced by this dissertation's contribution to understanding the Manyjilyjarra landscape language project. This work helps unite scientific ecological knowledge with traditional indigenous knowledge to better facilitate the Martu Ranger program, which is working on improving ecological outcomes in Australia's Western Desert.
2.d	Can one speak of a sustainable lifeworld?	Given issues such as global warming, it is hard to claim that any lifeworld is ultimately sustainable. It is probably better, in any case, to speak of a sustainably adaptable lifeworld. This issue is specifically addressed in this dissertation in Chapters 8 and 9.
2.e	What is a phenomenology of a lived environmental ethic and who are the key contributors?	Key contributors are researchers and their collaborators and clients, who together need to agree on key ethical issues and constraints in the environmental context. Academic researchers from relevant disciplines (especially philosophy ethics) who are specialising in this issue can then use input from such sources to upgrade their models of environmental ethics. It helps, from a transdisciplinary perspective, if such ethics interface with phenomenological theories and methods.
2.f	Do the "sacred" and the "holy" have a role in caring for the natural world? For places? For life-worlds broadly?	Yes sacred aspects of dwelling (e.g. *Jukurrpa*, discussed in this dissertation) are crucial for understanding dwelling in place. This is well demonstrated by the Yindjibarndi and Manyjilyjarra case studies discussed in Chapters 2 and 8 of this dissertation. There are ethical and moral issues at stake in dealing appropriately with indigenous peoples in this context. However, they may be less visible in current Western societies and be more difficult to navigate and integrate in multicultural situations.
2.g	Can phenomenology contribute to environmental education? If so, in what ways?	As discussed in the answers above, there is a strong role for phenomenology to facilitate integration of environmental understandings across a wide range of disciplines. As demonstrated by this dissertation, there is a strong role for phenomenology to assist in identifying and explaining aspects of complex environmental / landscape / dwelling constructs. Contingent, integrated methodologies can be constructed to make such processes effective, provided methods from different approaches are applied authentically.
2.h	Can there be a phenomenology of the two laws of thermodynamics,	This is really beyond this author's area of expertise. However, phenomenology can assist in developing understanding of lifeworlds to help to reduce the

	especially the second law claiming that all activities, left to their own devices, tend toward greater disorder and fewer possibilities? Are there ways whereby phenomenological understanding of lifeworld might help to reduce the accelerating disordering of natural and human worlds?	accelerating disordering of natural and human worlds, using the theories and methods discussed in this dissertation.
3.	**Questions relating to place, place experience, and place meaning:**	
3.a	Why has the topic of place become an important phenomenological topic?	This is because phenomenology has increasingly been recognised as a useful approach to multidisciplinary, interdisciplinary and transdisciplinary investigations of aspects of place. Key recent edited collections on this topic (referenced and discussed in this dissertation) have contributed significantly to this development.
3.b	Can a phenomenological understanding of place contribute to better place making?	Yes, as demonstrated by this dissertation, provided that an approach is used which incorporates social, cultural, spiritual and ethical relationships with landscape as part of the understanding of the nature of place. It is also important to understand that there is not just one place at any location, but perhaps a host of co-existing, co-located places for each group of people associated with that area, perhaps for each individual person.
3.c	Can phenomenology contribute to a generative understanding of place and place making?	Yes it can, provided this is approached in the manner discussed in the responses to other questions in this table.
3.d	What roles do bodily regularity and habitual inertia play in the constitution of place and place experience?	All physical aspects are important, however, they need to be studied as part of a holistic approach, including the role of memesis in maintenance and renewal of patterns of behaviours relating to all sorts of 'taskscape' (Ingold) activities; utilitarian, social, cultural and spiritual.
3.e	What are the lived relationships between place, sustainability, and a responsive environmental ethic?	Manyjilyjarra people, via *Jukurrpa*, have a pervasive environmental ethic. They believe that they have responsibilities to carry out utilitarian and cultural/spiritual activities on-country to keep it healthy. This is a strong example which can assist in identifying similar lifeworld frameworks for other dwelling groups
3.f	How are phenomenological accounts to respond to post-structural interpretations of space and place as rhizomic and a "meshwork of paths" (Ingold)?	Casey (2002) suggests that understanding of place requires merging of pre-modern, modern and postmodern concepts. Manyjilyjarra relationships with 'country' include a rhizomic-like networks of spiritual paths, called 'dreaming tracks' or 'songlines' in English. All aspects of place potentially interact, both internally and externally.
3.g	Can phenomenological accounts incorporate a "progressive sense of	The approaches to place proposed by Doreen Massey and other 'human', 'cultural' and 'critical' geographers have been included in the proposed transdisciplinary

	place" argued for by critical theorists like Doreen Massey?	methodology, using phenomenology as an overarching paradigm.
3.h	Can phenomenological explications of space and place account for human differences; gender, sexuality, less-abled-ness, social class, cultural back-ground, and so forth?	This entire dissertation aims to answer this question in a positive manner. This can potentially be accomplished via place-based philosophies or local interpretations of universal philosophies. The methodology advanced in this dissertation has, for instance, demonstrated gender differences in landscape practices, and hence language, for Manyjilyjarra speakers.
3.i	Can phenomenology contribute to the politics and ideology of place?	Understanding and navigating the politics and ideology of place requires understanding of the complex relationship that people have with places and the consequences for different groups of people of historical events. Chapter 8 explored this for Australian indigenous people, especially as regards consequences of removal from country.
3.j	Can a phenomenological understanding of lived embodiment and habitual inertia be drawn upon to facilitate robust places and to generate mutual support and understanding among places, especially places that are considerably different (e.g., different ethnic neighborhoods or regions)?	Understanding and support of others requires engagement with the different ways that each group inhabits an area. Rather than considering dwelling (and/or visiting) as interaction with a single place, it can be more useful to think of the situation as consisting of interaction with multiple (approximately) co-located places, each existing primarily for a specific group of people. This can facilitate improved understanding of ways of dwelling together with 'care'.
3.k	Can phenomenology contribute to mobility, the nature of "flows," rhizomic spaces, the places of mobility, non-spaces and their relationship to mobility and movement?	Mobility can be considered with respect to different geographic ranges; for instance, as part of a small scale 'body ballets' (regular routine activity patterns) and 'time-space routines' (Seamon, 1979; Seamon and Nordin, 1980), a larger scale traditional nomadic movement, or a forced displacement from 'country' due to colonisation. Similarly, 'flows' can relate to different time scales, from seconds to months, to decades.
4.	**Other potential questions:**	
4.a	What is the lived relationship between people and the worlds in which they find themselves?	Taking a transdisciplinary, phenomenology inspired perspective: The creation of landscape, as place, commences with integration of the physical attributes of an area of topographic environment (terrain and ecosystem) with the socio-cultural characteristics of a group of people (including linguistic, spiritual and ethical aspects), to produce a particular topo-socio-cultural-spiritual mode of dwelling in place. This synergistic merging responds to the particular potentialities, affordances and constraints for dwelling in that topography. In a non-deterministic and emergent manner, enabled by landscape language, it facilitates development of lifeworld tasks, procedures, protocols, attitudes and affects. The Australian Central and Western Deserts' Aboriginal law/lore system *Jukurrpa* is a very long-

		standing, strong example of a specific framework for authentic dwelling. It is a holistic, interconnected system, including kinship and ethical responsibilities for ecosystems.
4.b	Can lifeworlds be made to happen self-consciously? If so, how? Through what individual efforts? Through what group efforts?	The synergistic, non-deterministic merging of people and topography to produce place is both an individual and group process. It is achieved via self-conscious and unconscious thought. For all these processes landscape language plays a crucial role. Group processes are highly influenced by the prevailing topo-socio-cultural-spiritual framework in operation for any group of people dwelling in that place.
4.c	Can a phenomenological education in lifeworld, place, and environmental embodiment assist citizens and professionals to better understand the workings and needs of real-world places and thereby contribute to their envisioning and making?	In some ways such an educational project might be useful for the general population, although it may result in some cognitive circularity. The main purpose would be to assist community leaders and planners to be more effective. It is also crucial for academic analysis, especially via interdisciplinary and, if possible, transdisciplinary collaborations. Thus phenomenology needs to be made as tractable as possible for use by non-philosophers. This dissertation aims to highlight this need.
4.d	Is it possible to speak of human-rights- in-place or place justice? If so, would such a possibility move attention and supportive efforts toward improving the places in which people and other living beings find themselves, rather than focusing only on the rights and needs of individuals and groups without consideration of their place context?	This is absolutely correct. For instance the High Court of Australia in March 2019 found that Ngaliwurru and Nungali Aboriginal native title holders had been denied their rights of occupation of their territory by the government. Hence, they will receive a very substantial payment, which includes recompensation for the 'spiritual harm' done to them by being denied the right to carry out cultural/spiritual ceremonies that they believe are necessary to keep their 'country' healthy. Transdisciplinary phenomenological investigations, such as this dissertation, assist in understanding the role of rights and responsibilities for any dwelling group. This is important so that community organisations, different levels of government and commercial interests better understand their roles in improving social justice, especially for marginalized people, and environmental sustainability.

Appendix 15: Final Versions of EDM and PTM-ECS

A15.1 Final Version of EDM
A15.1.1 Introduction to EDM tables

This appendixprovides the final version 7 of the Ethnophysiography Descriptive Model (EDM). As discussed in Chapter 2, it is very deliberately 'descriptive', rather than being 'predictive', in that it illustrates potential (single or multiple) correlations between independent and dependent factors, but does not infer causal relationships.

The first purpose of the EDM is to assist researchers to understand which factors (of various types) may be relevant for investigation of landscape language in a particular case study, and its context with respect to previous case studies. It is, in a sense, contingent, in that not all factors may be explicitly relevant to the study of any particular language or community, in the topographic and ecological context where it is spoken.

A key second objective of the EDM is to provide a structure for the comparison of results from case studies of different languages. This is still a work in progress. There has been considerable careful development of the EDM through the chapters of this dissertation so that it addresses, in an efficient and effective way, a more comprehensive range of relevant issues. However, it is not claimed to be fully developed and can continue to be improved, especially via input from other researchers, which is the purpose of publishing this version as part of this dissertation.

In addition, it is recognised that there are a host of other ways, formal and informal, to compare the results of landscape language case studies, available from relevant disciplines. Such comparisons between languages may facilitate identification of landscape 'universals', although the investigation reported in this dissertation cautions against attempting this in superficial ways. This EDM is offered here as just one way to advance investigation of these interesting and important aspects of language that facilitate dwelling in landscape, as place.

The process of developing the various versions of the EDM are summarised in Tables A15.1 and A15.2 below.

Table A15.1: Initial Versions of the EDM (copied from Chapter 2, Table 2.2)

Version 1	Published after main fieldwork for Yindjibarndi, and initial phase of Navajo, ethnophysiography case studies (Turk, 2007).
Version 2	Revised after review of the Burenhult (2008a) *Language Sciences* Special Issue, discussing nine case studies.
Version 3	Revised after review of case studies presented at the International Transdisciplinary Workshop on Landscape Language (2008) and published in chapter in the subsequent book (Turk et al., 2011).

Table A15.2: Versions of the EDM developed during the dissertation

Version 4	EDM v4 was revised after further review of Burenhult (2008a) articles and results of the ESF 2012 workshop. Presented in Chapter 2, Section 2.8.3, Tables 2.4 and 2.5.
Version 5	Revised after review of literature about landscape as place in Chapter 6, Section 6.6. EDM v5 is shown in Tables A7.2 and A7.3 in Appendix 7.
Version 6	Revised after review of key aspects of relationships with landscape for indigenous language communities discussed in Chapter 6 (shown in Table A7.6: Concatenated Summary of Indigenous Landscape Concepts). EDM v6 is shown in Tables A7.7 and A7.8 in Appendix 7.
Version 7 FINAL	Revised after review of the Manyjilyjarra landscape language case study, in Chapter 8. EDM v7 is shown in Tables A12.1 and A12.2 in Appendix 12, with information (relating to each factor) from the Manyjilyjarra landscape language case study. The generic form of EDM v7 is reproduced as Tables A15.3 and A15.4 in Appendix 15 as the final version for this dissertation.

A15.1.2 Version 7 of EDM

Version 7 of the EDM is provided here as Tables A15.3 and A15.4. Some aspects of these tables are copied from Sections A12.2 and A12.4 in Appendix 12, where more explanation is provided. The information concerning the Manyjilyjarra landscape language case study has been removed. The Final EDM thus displays the lists of potential independent and dependent factors, which can be addressed for any particular language and dwelling environment and community.

Table A15.3: Final v7 version of EDM – Independent Factors

A	Location and extent of landscape place; the area where most speakers of the language have lived traditionally and currently.
B	The topography of the region occupied by the language group; whether mountainous, hilly or flat; and the presence or absence of particular landscape features, such as, volcanic cinder cones, sand dunes, coral reefs, etc. The most relevant physical qualities of landscape are those that have habitat value, present or potential.
C	Classification of topographic terrain - e.g. (in Australia) as per Palmer et al. (2018) [See section A15.1.3 below].
D	Whether the case study area is classified as urban, rural and/or natural (wild) type of landscape and which type(s) dominate the case study area.
E	Number, size and location of communities within case study area.
F	Any aesthetic qualities of landscape, which need to be investigated via a subjective approach.
G	The vegetation (at landscape scales) in the region; its density and variability in space and time. 'Ecotopes' designate a 'kind of place' related to flora and fauna.
H	The climate of the region; the strength of seasons (e.g. does it snow in winter); its variability (e.g. does rainfall come only from seasonal cyclones / hurricanes); etc.
I	The nature of spatial boundaries (natural and fiat) that play a key role in characteristics and categorization of people's identities. Boundaries of indigenous language group territories may be considered to have been conferred by Ancestral Beings at the beginning of time, which may well conflict with current national, state or local boundaries, due to historical factors.
J	The lifestyle and activities related to the economy of the people; whether they pursue hunter/gatherer activities, are cultivators, etc.; including significance of landscape as a source of food (for consumption and/or sale).
K	Historical factors such as: movement of the people into their current region; colonization of the people by outsiders with a significantly different culture/language; major changes in lifestyle and economy; etc.
L	Role of conventions, laws, agreements, guidelines, etc. regarding landscape (local, regional, national or international). These can affect landscape definitions and management, especially regarding collaboration across frontiers.
M	What particular topo-socio-cultural-spiritual framework(s) govern the relationship of speakers' lifeworld to landscape. The particular culture-based structure (ontology, epistemology, natural order, law, lore, ethics, philosophy, metaphysics, and cosmology) providing a total system for all aspects of relationships with place, including the social order and culture, such that it provides modes of interpretation, assignments of cause and effect, terms of explanation, and forms of art. For instance, *Jukurrpa* for Australian indigenous Yarnangu peoples; a framework for all time, past, present and future.
N	Religious beliefs and spiritual concerns linked to landscape; e.g. creation beliefs, presence of spirits in landscape features, and cultural practices (e.g. ceremonies; taboos) which accompany such beliefs.
O	Ways that increasingly globalized economies and cultures might impact on the life-world of these people.
P	Impact of new technologies (including social media) on individual or group relationships with landscape and language used.

Table A15.4: Final v7 version of EDM – Dependent Factors

1	General description of language being studied, including language group membership, etc..
2	Previous dictionaries, word lists etc. that were used in the landscape language case study.
3	Relevant aspects of the structure/grammar/syntax of the language, such as the roles played by nouns, verbs, prepositions, adjectives, noun-phrases, suffixes, etc. For example, use of compound words and phrases instead of (or as well as) simple generic landscape terms. Linguistic forms may be processual, 'eventing'-based (producing a predominance of verbs) [e.g. Hopi] versus 'entity'-based European languages (with their dominance of nouns).
4	Set of landscape terms for different landscape feature types.
5	Whether landscape terms include vegetation assemblages (at landscape scale) and/or vegetation types used as resource (e.g. medicine; food; wood), its affordance re travel, blocking long views, etc.
6	Terms for 'ecotopes' designating a 'kind of place' related to flora and fauna.
7	Directional terms and 'absolute' spatial frames of reference (AFOR) – e.g. as per Hoffmann (2015; 2016), Palmer (2015; 2018) and Palmer et al. (2018) [See section A15.1.4 below].
8	Relative significance of key factors (size, shape, salience, etc.) that motivate categorization of landscape features.
9	The role of landscape terms in narratives and description of every-day interactions, including 'taskscape' activities and protocols.
10	Whether relationship with landscape aligns with language or social conceptual shortcuts (such as social /financial circumstances or class).
11	Role of non-verbal language and/or graphics/art in communication about, and representation of, landscape.
12	Whether different landscape terms are used by speakers of different gender and/or during different seasons and/or in different social settings (e.g. during ceremonies), etc.
13	Role of loan-words from neighbouring language groups (and/or colonisers) in landscape terms and toponyms.
14	Role of potential six types of relationships (bonds) to place (Cross 2001, p. 3): Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material). How are these conceptualized and discussed in language?
15	Role of frames e.g. semplates (Levinson and Burenhult, 2009) or metaphor for structuring sets of landscape terms (e.g. family relations as metaphor for hydrology).
16	Whether any landscape terms relate to religious beliefs or spiritual concerns linked to landscape; e.g. presence of spirits in landscape features. For instance, water places are often meaningful through multi-layered attachments relating to utilitarian issues (ultimately survival), but also sets of cultural and spiritual concepts. Apache toponyms represent an instructive story (or stories) about that place (Basso, 1996).
17	Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places) and 'community attachment' (depth and types of attachments to any particular place). Each language group territory has a complex set of shared rights and obligations (and hence of affective and cognitive properties), arising from that group's unique attachment to that place. Within a 'language group' individuals will have different sorts of rights and responsibilities to different places (within the general area) because of family, personal history and other factors, hence, kinship systems and land-use roles are important.

18	Type(s) of toponyms; e.g. whether related to habitual spatial practices, representations of the world, and a spatial, imaginary geography. They can be linked to culture and spirituality, so that placename networks are sometimes 'owned' by a group or extended family, which have exclusive rights to information about particular places, including their names. Some placenames may be considered 'powerful' and be sacred or secret.
19	Structure of toponyms; whether they are descriptive; if they include generic landscape terms; and how they arise and are constructed. Whether 'ecotopes' influence toponyms.
20	Role of toponyms compared with role of generic landscape terms. There can be a continuing role for placenames, in the memory of language group members, even if they no longer live in their 'country'.

(Draft) Classification of Australian Topography
(based on table in Palmer, Pascoe and Hoffmann, 2018)

mountain	river valley
tableland (mesa)	gorge
hill country	large water course (permanent)
jump-up country	large water course (seasonal)
rock country	small water course (permanent)
escarpment	small water course (seasonal)
sandridge country	large water course (tidal)
spinifex plain	small water course (tidal)
saltlake	billabong/lake (permanent)
floodplain	billabong/lake (seasonal)
swamp	dominant wind direction (constant)
scrub	dominant wind direction (seasonal)
forest	urban (high density)
rainforest	urban (medium density)
coastal plain	urban (low density)
coastline	small settlements
island	isolated homesteads

This classification system needs to be trialled and revised. Its use, in the context of the EDM, is in terms of the following two protocols:

B. Approach to classification of topography for a language area:
- The categorisation can be with respect to the whole area/country of that language group;
- Thus, rather than talking about a mountain, hill, valley or river or creek, we need to categorise topography as a mountainous region, hilly country, river valley or valleys; spinifex plains, sandridge country, jump-up country, sandy coastal plain etc;
- Any area the size of a language group's country is likely to be a mixture of landscape types (e.g. Manyjiltjarra topography could be described as sandridge country with salt lakes of different sizes and low rocky outcrops) hence, the classification approach needs to manage such a mixture of classifications;
- The language area can be divided into parts for the purpose of classification, e.g. Yindjibarndi country is mostly tableland, cut by a river valley, ending in an escarpment leading down to the coastal plain (which is Ngulama country).
- A language area which include islands would be a special case, especially inhabited vs uninhabited islands, and whether areas of sea are included;
- Formal systematic use of the classification system should be supported by descriptions and images of each type of topography.

C. Steps for classification of topography for a language area:
- Decide on geographic extent of the language group's country;
- Seek text sources which describe the area (introductions to dictionaries; geography texts; etc.);
- Systematically view satellite imagery and topographic maps for the language group area;
- Travel as much as possible within the language area, preferably in the company of local fluent bi-lingual speakers;
- Review topographic terms in each language to indicate the type of country (being aware this would introduce an element of circularity in the process);
- Decide on appropriate topographic classification for whole area, or for major parts of total language area.

(Draft) classification options for 'absolute' spatial frames of reference in Australian indigenous languages
(Bill Palmer, 2018 (personal communication) and Palmer et al., 2018; following Hoffmann (2015; 2016) and Palmer (2015))

- Compass points: north-west-south-east - does not need to include all four basic directions and may extend to more than four - may or may not correspond to magnetic poles;
- Direction of the setting and rising sun: sometimes also the direction where the sun is at high noon - aka north);
- Wind directions: often trade winds, seasonal winds (e.g. NW or SE winds are prevalent). Some may be used year-round and thus fixed. Others may be used seasonally as in upwind/downwind depending on where the wind is blowing from;
- Coast line: including up/down the coast and towards or away from the coast (inland);
- River drainage: upstream/downstream, upriver/downriver; may also include sides of the river, such as far-side/this side of the river;
- Vertical direction: up/down, as pertaining to slopes - upwards/downwards a mountain slope, often correlates with inland/towards the coast on the east coast of Australia;
- With respect to tides: only attested in one language Bardi - changes every 6 hours as with/against the tide;
- With respect to spiritual /cultural places of significance: e.g. where spirits come from/go to; where the dead go to rest;
- No absolute frames of reference: Murrinh-Patha (Australian Aboriginal language) is the prime example for this.

A15.2 Final Version of the Transdisciplinary Methodology (PTM-ECS)

A15.2.1 Introduction to PTM-ECS

This appendix provides detailed information about the PTM-ECS. This represents the final step in the process of operationalization of the very detailed and comprehensive investigation undertaken during this PhD research project. An extensive range of concepts relevant to dwelling in landscape as place was identified via literature reviews across a range of disciplines. Each concept was made explicit in a phenomenographic summary (table), referenced to the source document(s) to ensure clearly stated provenance. Sets of concepts were aggregated and concatenated into tables of different types for different purposes within the overall system of developing the most effective contingent transdisciplinary method. A partial trial of this approach, using data and outputs from the Manyjilyjarra landscape language Case Study (Chapter 8), resulted in some adjustments to the approach. That complex process culminates in this appendix.

As discussed in Chapter 7, Section 7.2, this methodology is based on that developed by this author and his collaborations (Turk, Mark, O'Meara and Stea, 2012) as detailed in Appendix 8. Table A8.1 is reproduced here as Table A15.5, with the right-hand-most column listing extra references removed and a column "Application to proposed project" substitutes for it. Some minor revisions have also been made. Table A15.5 is initially used in Step 3, in Section A15.2.4 below. Further information about landscape language (ethnophysiography) case studies is provided in Chapter 2 and the references provided there, including Burenhult (2008a), Mark, Turk, Burenhult and Stea (2011), and in Chapter 8 and its appendices.

The transdisciplinary methodology is intended to be used via a contingent approach, designing the particular methodology to be used in any specific case study based on the objectives of that study, the collaborating disciplines, the characteristics of the topographic and ecological environment and the lifestyle and worldview of the language community being studied. As discussed in Chapters 7 and 8, this basic ethnophysiography methodology (Table A15.5) can be enhanced by the addition of selected ethnoecological and phenomenological methods, as detailed in Appendix 10, Table A10.1. The potential use of these additional methods was partially trialled in Chapter 8, via application of each to data gathered during the Manyjilyjarra landscape language case study.

Sections A15.2.2 to A15.2.9 detail the Steps 1 to 8 in the process of constructing an appropriate transdisciplinary methodology for any particular case study. These steps commence with Table A15.5, discussed above, then use a series of modified tables from previous appendices. This results in a set of additional theories, methods and techniques being potentially added to the previous methodology listed in Table A8.1.

A15.2.2 Step 1: Defining project and establishing collaborations

The first step in any landscape language (ethnophysiography) project is to define what the project is about and its objectives and likely resource requirements. This includes which language will be studied and the aspects that will be concentrated on. The project definition should also include potential research outputs and outcomes and initial understandings of ethical and other constraints.

The lead researchers can then identify potential collaborators and their expected role. The collaborators are then contacted and their involvement and role negotiated and confirmed. This step may also include obtaining formal project approval or permissions from different levels of government and/or international or national organisations and/or funding bodies (Raven, 2014). This step may be iterative with steps 2 and 3.

A15.2.3 Step 2: Developing an overview project plan

Once the project objectives and collaborators have, at least initially, been identified, and discussions held, it is possible to start establishing a project plan. This should identify the principal stages in the project, the activities, personnel involved and resource requirements (finance, equipment, data, etc.). These stages may need to be iteratively defined via consideration of the results of Steps 3 to 6.

A15.2.4 Step 3. Establishing basic landscape language (ethnophysiography) methodology activities

Step 3 involves establishing the detailed basic landscape language investigation activities of the research project, within the framework of the language aspects and collaborators established in Step 1 and the project stages defined in Step 2. To facilitate this process, Table A8.1 from Appendix 8 is adapted to produce Table A15.5 (below), by changing the nature of the right-hand-most column, from listing extra references, to instead being used for comments regarding the use of each potential activity (row in the table) within the specific project being

planned. It may be necessary to iterate this step with Steps 1 and 2, in order to achieve the optimum definition of project activities.

Table A15.5: Ethnophysiography Methodology (based on Turk et al., 2012)

Stage	Activity reference	Description of activities for each step in each stage	Application to proposed project
1		**Study preparation; scoping the domain; dictionary work; photo collection; and preparing 'instruments'.**	
	1.a	Finalise and document case study objectives and obtain funding and other resources, such as software (e.g. ELAN) and equipment.	
	1.b	Review potential languages, possible participants and community organisations, then choose language for case study and potential communities.	
	1.c	Design project filing systems (digital and physical), including suitable security and back-up.	
	1.d	Obtain copies, then study, information regarding the history, lifestyle, culture and spirituality of the target language group communities and ecology, flora and fauna, weather and travel conditions for group's area.	
	1.e	Prepare initial case study plan of field trips, procedures and timetable.	
	1.f	Discuss potential plan with representatives of communities and linguists and others knowledgeable about the language and people.	
	1.g	Seek approvals to undertake case study; obtain formal permissions, including ethics clearance(s).	
	1.h	Obtain copy of existing dictionary(ies) and tabulate potential landscape terms.	
	1.i	Obtain copies, then study, recordings and transcripts of interviews, stories, songs, etc. in the target language and mine for sentences mentioning landscape features and/or utilitarian, social, cultural or spiritual associations with landscape and the lifeworld of speakers.	
	1.j	Collect digital and hard copies of photographs of as wide a range as possible of landscape features in case study area and take new photographs, if necessary.	
	1.k	Review planned methods, procedures, techniques and equipment and revise plans as necessary.	
	1.l	Prepare sets of landscape photographs and other data collection instruments, such as lists of terms ordered by landscape types.	
	1.m	Confirm permissions to visit communities; arrange for recruitment of participants and agree on suitable payment amounts and mechanisms; and schedule initial visits to cultural organisations and communities.	
	1.n	Collect together all information in project files (digital and physical) and prepare the Stage 1 Report, summarising activities and results.	
2		**Carry out field interviews, identifying the set of landscape terms and the distinctions, associations and**	

		usage for each term. Some activities may be integrated with, or iterate with, some of those in Stages 3 and 4.	
	2.a	Ensure all data collection activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	
	2.b	Discuss known landscape terms with individuals or small groups of speakers to identify their usage (potentially for different sizes or types of landform) and any relevant cultural or spiritual constraints on use or 'lifeworld' associations; including checking spelling of terms and whether other terms are used for similar landscape features, perhaps of different sizes or shape or material (e.g. sand or rock), or in different physical or 'lifeworld' circumstances. Terms for landscape scale assemblages of vegetation types should be included, and openings within, say, a forest or other dense vegetation.	
	2.c	Some terms (and/or their associations) may be gender related, so, if this is suspected, the interviewer should be the same gender as the informant. Hence, having both male and female researchers in the team is important.	
	2.d	Terms may be written on large sheets of paper or a whiteboard, or projected onto a screen, to facilitate discussions with groups; sessions can be audio or video taped as well as notes taken by the researchers.	
	2.e	Researchers need to be careful not to stress participants, particularly very elderly people, most likely to be the best speakers of the language. Having a younger family member assist with the session (e.g. with translation) can be very useful.	
	2.f	Initial sessions might concentrate on what are the general objectives of the researchers (in simple terms), general features of the language, and history of contact with linguists or other ethnographers.	
	2.g	Photographs of landscape features can be used to assist in discussion of known landscape terms or to elicit new terms and to clarify the physical extent of application of the term and/or other characteristics of the term's use. See details in Stage 3 activities list.	
	2.h	If at all possible, discussions about landscape terms and their context of use should be held in the landscape (familiar to the participants), where explanations can be more effective. This might involve audio or video recording and/or taking of photographs. Elderly participants may need to be driven to locations and may need wheelchair assistance to move about.	
	2.i	Discussions should be exploratory, with researchers avoiding directing the discussion to too great an extent. They should include, if possible, links between landscape terms and community 'lifeworld' activities; utilitarian, social, cultural and spiritual. This may involve the trips replicating the route of regular community activities, such as food gathering. This can	

		facilitate speakers describing the activities and route (in their language), facilitating 'natural' use of the terms and clarifying forms and circumstances of usage. Recording conversations about activities can assist.	
	2.j	Conversations about every-day activities might lead to informants providing personal narratives, including examples of landscape terms used in context. Such sentences can be used as examples in dictionaries or other publications.	
	2.k	Toponyms and their meanings and cultural/spiritual associations can be collected, especially during field-walks, provided that informants are not encouraged to provide secret or sacred information, which should not be recorded. GPS may be used to record locations, provided this is approved.	
	2.l	Transcripts and digital records of the terms and their associations should be prepared as soon as possible after sessions with informants in the community or during field-walks. New material can be compared with dictionary entries and other information. Notes on follow-up questions can be made and the possibility for using other ways to elicit specific information in future sessions can be noted.	
	2.m	Asking participants to draw diagrams or maps or sketches may assist in eliciting landscape terms and their context of use and cultural associations. This can be done in the community or in the field. The informant can possibly label parts of their drawing with landscape terms, then discuss their usage.	
	2.n	More formal methods may be used to elicit relationships between terms, e.g. in terms of taxonomical (kind-of) and meronymical (part-of) relations. Use of metaphors (e.g. family relations or body parts for hydrological systems) can be identified through careful (un-guided) questioning.	
	2.o	Collect together all information in project files (digital and physical) and prepare the Stage 2 Report, summarising activities and results.	
3		**Photo interpretation sessions - clarifying existing terms and collecting new ones. Some activities may be integrated with, or iterate with, some of those in Stages 2 and 4.**	
	3.a	Ensure all activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	
	3.b	Sets of images of different examples of one particular type of landscape feature (e.g. hills) can be used as hard copy photographs. or projected onto a screen. Landscape terms can be confirmed or new ones elicited. This can be used to focus attention on sets of terms, especially regarding what changes in size, shape or material of a feature mean a different term is used, or perhaps an adjatitive is added. However, it must not be assumed that terms will follow patterns observed in other	

		languages. Photo interpretation sessions may be audio or video taped.	
	3.c	Informants can be asked to discuss a landscape scene potentially containing several or many landscape features. This is most useful if it displays landscape that informants are familiar with, indeed, some participants may refuse to discuss scenes from locations outside their 'country'. Participants may make hand, head or body movements, or facial expressions, as part of their explanation of activities in landscape.	
	3.d	Photo interpretation sessions are best held in locations where participants feel relaxed and may be accompanied with food and drinks, if considered appropriate.	
	3.e	Another technique is to request participants to sort photographs of landscape features into groups. Researchers can then ask participants to explain the basis of their chosen grouping.	
	3.f	Collect together all information in project files (digital and physical) and prepare the Stage 3 Report, summarising activities and results.	
4		**Semi-structured follow-up clarifying confusions, probing for extra meanings, evaluating quality of interpretations. Some activities may be integrated with, or iterate with, some of those in Stages 2 and 3.**	
	4.a	Ensure all activities are approved by participants and their representative organisations and conduct all activities in accordance with ethics constraints. All audio or video recording or taking of photographs must occur only after clear, freely-given, consent.	
	4.b	This stage involves follow-up interviews, field-walks or photo interpretation sessions to clarify any issues identified in summarising the results of Stages 2 and 3. This may involve iterating techniques used in those stages.	
	4.c	Activities might involve clarifying confusions, probing for extra meanings, and/or evaluating the quality of interpretations of definitions of terms and their 'lifeworld' associations.	
	4.d	Where terms have cultural or spiritual associations, and current data is only from informants of one gender, it can be useful to check this information with informants of the other gender, using a researcher of that gender.	
	4.e	Other less frequently used methods might be used to provide additional data, specifically aimed at addressing key issues. These could include: • More extensive photo sorting protocols; • Use of questionnaires for eliciting landscape terms, where participants have sufficiently high levels of literacy (however, this is likely to provide data according to an etic, rather than an emic structure[1]); • Having children take photos of landscape and record discussions about them with parents and/or grandparents (much more possible now that many more children have mobile phones);	

		• So called 'Director/Matcher' photo sessions (discussed in Chapter's 7 and 8); • Various types of drawing exercises, role-playing scenarios, 'knowledge-trees', memory exercises, genealogical charts and nomenclature exercises; • Researchers could produce a video of a person (or animal) real or animated, travelling through landscape and ask language speakers to provide a narration in language, for later translation. This is an example of using narration of a journey to better understand context of use of landscape terms; • There may be potential for use of three-dimensional relief models, especially if participants could change their shape; • Virtual reality rendering of landscape my also be useful, but probably only in a laboratory setting, unless funding enabled use of mobile equipment.	
	4.f	Sometimes this phase might involve returning to the language community on an extra fieldtrip, once the researchers have had time to fully digest the data from previous trips. It may also be facilitated by identifying additional participants, who may provide data leading to a new interpretation on the meaning of terms, or provide the researchers with confirmation of previous interpretations.	
	4.g	A review of adherence to ethics approvals could also be useful at this stage to, for instance, identify whether any permissions that are needed can be collected during what might be the last fieldtrip for this project with the possibility of visiting all participants.	
	4.h	It may well be useful to conclude this stage with a visit to the cultural organisation that approved the researcher's interaction with community members. This will ensure that they are happy with the work the researchers have undertaken, including issues such as appropriate payments to participants and steps taken to address any issues. The researcher's plans for stage 5 can also be discussed, especially proposed community feedback arrangements, the types of products to be produced, any confidentiality issues (e.g. concerning cultural or spiritual information), who will have copyright for, for instance, a pictorial dictionary of landscape terms and who has the right to hold detailed linguistic information. Such discussions might include what practical benefits the researchers can provide to the cultural organisation, and/or communities, in recompense and thanks for their participation in the research, beyond their 'contribution to the advancement of science', which some participants may not value, or even understand. This is likely to include providing multiple copies of any proposed landscape dictionary to each school in the language group area. It is much better to consult too frequently than not frequently enough.	

	4.i	Collect together all information in project files (digital and physical) and prepare the Stage 4 Report, summarising activities and results.	
5		**Reporting the initial results back to community members and getting their feedback; producing publications and reports.**	
	5.a	The researchers should provide feedback about their research results and its practical benefits, if possible, to all participants, or at least to their representatives. This should explicitly include seeking their feedback, to the researchers about the research processes and results.	
	5.b	A pictorial dictionary of landscape terms is likely to be among the physical products of the research project. Obtaining feedback about a draft or 'mock-up' version could be very useful, if only to demonstrate the researcher's desire to include participants in this process. Other products, such as a 'children's language workbook' may be useful, especially if the target language is endangered.	
	5.c	Linguistic products are likely to need to be distributed to relevant government and cultural organisations, in line with the project agreement and in accordance with relevant regulations of conventions.	
	5.d	If the researchers are collaborating with others in this type of research, it needs to be decided what results (and perhaps data) should be shared with them, in accordance with the research agreement. This may include papers or presentations to group research meetings.	
	5.e	Especially if the researchers are members of university communities it will be desirable to publish articling high status journals as soon as practicable. It is important to adopt a well-considered publication strategy that treats all stakeholders fairly. Details of collaborating cultural organisations and informant's names should be included in publications unless there is some specific reason not to do this.	
	5.f	Discuss all proposed publications with stakeholders and obtain appropriate permissions.	
	5.g	Confirm ethics information matches approval conditions and submit ethics report.	
	5.h	Prepare Pictorial Dictionary of Landscape Terms, including appropriate photographs, sketches of landform scenes with labels, definitions of terms, examples and constraints of usage of terms, example sentences, and discussion of 'lifeworld' associations; show stakeholders; revise as necessary; print copies for distribution to participants and other stakeholders.	
	5.i	Prepare articles and other publications and presentations, after consultation with stakeholders.	
	5.j	Collect together all information in project files (digital and physical) and archive; and prepare and distribute Final Project Report.	

A15.2.5 Step 4: Review of relevant ethnoecological and phenomenological methods to add

In Step 4, additional activities are added to the basic landscape language (ethnophysiography) methodology by adding specific project activities to incorporate the ethnoecological and phenomenological theories and methods that are most appropriate to the particular proposed project, as detailed in Table A15.6 (revised version of Table A10.1, which was produced from Table A8.2). References relating to particular activities are listed in previous versions of this table. An example of the use of this table (for the Manyjilyjarra case study) is provided in Appendix 10. The activities chosen for the proposed case study are integrated with, or added to, those already chosen in Step 3, to produce a revised proposed methodology.

Table A15.6: Ethnoecological and Phenomenological Additions to Methodology

Extra Method	*Activity reference*	*Description of activities for steps or techniques in the additional method*	*Application to proposed research project*
Ex-ECO		**Methods from ethnoecology and ecologically-embedded linguistics - and Chapter 7, Section 7.2.2.**	
	Ex-ECO-a	A 'free-listing' protocol to establish habitat categories; structured interviews with local speakers to elicit landscape terms and toponyms associated with ecology; informative graphs and diagrams generated from quantitative analysis data sets of plant types.	
	Ex-ECO-b	Participatory mapping exercises conducted with local speakers to elicit toponyms.	
	Ex-ECO-c	Using an elicitation framework with local speakers to identify landscape and ecotope terms and follow-up questions to elicit toponyms.	
	Ex-ECO-d	Elicitation of toponyms and associated information via interviews with local speakers and possible use of a database assembled for an oral history project.	
	Ex-ECO-e	Adopting a culturally appropriate experiential learning process, including: elicitation of landscape and ecotope terms and toponyms via interviews with elders and other community members; use of audio-visual and visual documentation; listening to narratives about speaker's lifeworld; participation in activities in communities and on the land related to their relationship with the topographic environment; analysis via understanding their holistic socio-cultural-spiritual framework.	
	Ex-ECO-f	Field research conducted in collaboration with a community researcher, elders and/or local	

		government personnel, involving targeted conversations with elders during visits to key sites and travel routes.	
	Ex-ECO-g	An ecologically-embedded linguistic approach (ecolinguistics) provides a basis for analysis of a cross-disciplinary mix of linguistic and environmental relationships.	
	Ex-ECO-h	Combining place names and scientific knowledge on soil resources through an integrated ethnopedological approach.	
Ex-CG		**Methods recommended by cultural geography authors.**	
	Ex-CG-a	Pay attention to 'minute particulars' via fine-tooth-comb searches of information about people's lifeworld.	
	Ex-CG-b	Develop descriptions of 'knowing-by-doing' and practical forms of intelligence relating to routine 'taskscape' activities.	
	Ex-CG-c	Investigating gender differences in terms of activities, beliefs and knowledge sets.	
	Ex-CG-d	Investigation of the role of affect (at individual and community levels), including 'the politics of affect'.	
Ex-E&U		**Methods related to traditional phenomenological search for essences and universals – Chapter 7, Section 7.3.2.**	
	Ex-E&U-a	Traditional phenomenological methods seeking 'essences' seem inappropriate for landscape features, however, evidence should be collected regarding the potential future use of this approach.	
	Ex-E&U-b	Develop a strong understanding of the socio-cultural-spiritual framework that applies to the language community studied.	
	Ex-E&U-c	Identify any aspects of universality, which apply to study data, especially at higher levels of abstraction.	
	Ex-E&U-d	Identify any phenomenological insights and understandings that flow from the study data, analysis and results.	
Ex-EM		**Ethnomethodology (EM), including conversation analysis (CA) - Chapter 7, Section 7.4.1.**	
	Ex-EM-a	Ethnomethodology provides ways for integrating phenomenology and social science approaches in a manner tailored to any specific research domain, including ethnophysiography.	
	Ex-EM-b	Participant observation, involving the researcher immersing him or herself in the daily lives and routines of those being studied and adopting a phenomenological stance.	
	Ex-EM-c	Interviewing participants about particular aspect of social life for their particular social group.	
	Ex-EM-d	Examination of artifacts and texts ('social fact' data) used by the community to regulate or explain their common practices and protocols, such as written descriptions of common practices, commentaries, educational handouts, etc.	

	Ex-EM-e	Possible use of small experiments designed to reveal participants' taken-for-granted assumptions regarding social life.	
	Ex-EM-f	Record instances of every-day use of language regarding life-work activities (utilitarian, social, cultural and spiritual) and social processes, which include landscape terms and/or toponyms - 'talk-in-interaction' data.	
	Ex-EM-g	Record relevant examples of social interaction, embracing both verbal and non-verbal communication in the context of regular tasks and social processes. Researcher needs to immerse him or herself in daily lives and activities of people being studied.	
	Ex-EM-h	Use conversational analysis (CA) techniques with records of conversations regarding every-day activities and social / cultural processes of community members, and also for recorded conversations during 'Director/Matcher' sessions.	
	Ex-EM-i	Interpret social interactions between community members in the context of their social and cultural milieu, including communicative acts and their intended purposes.	
	Ex-EM-j	Examine 'social fact' data that people construct/produce/interpret regarding every-day activities Collection of artefacts, including texts that are used to teach and regulate social/cultural practices, such as written descriptions of common practices, commentaries, educational handouts.	
	Ex-EM-k	Conduct small experiments designed to reveal participants' taken-for-granted assumptions regarding social life.	
	Ex-EM-l	Retain a focus on 'radical reflexivity'; i.e. recursive comprehensive consideration of the 'accomplished' character of *all* social activity, free from bias.	
	Ex-EM-m	Avoid too rigid use of formalisms that might limit the diversity of interpretations of data. So need a contingent flexible methodology.	
	Ex-EM-n	Comparisons should be made between data and results from different language groups – e.g. via EDM.	
Ex-PP		**Methods from Ihde's Post-Phenomenology, in the contest of 'New Phenomenology' and human geography – Chapter 7, Section 7.4.2.**	
	Ex-PP-a	Use of 'multistabilities' approach to investigating landscape terms that are used for different types of landscape features and (potentially) for things in non-landscape domains.	
	Ex-PP-b	Investigate 'intersubjective' daily activities in terms of their 'intercorporeal' aspects.	
	Ex-PP-c	Investigate role of 'affect' and its links with processes of 'mimesis' that embed societal and cultural notions within the minds of members of the	

		dwelling group, as an expression of 'alterity' (encounters with 'other' humans).	
	Ex-PP-d	In analysis of data consider 'intentionality' as an emergent relation with the world, rather than an a priori condition of experience.	
	Ex-PP-e	Rather than concentrating on individual mental and physical activities, focus more on the lifeworld of groups, 'communalized intentionality', social relations and shared structures of meaning, such as the applicable overarching 'topo-socio-cultural-spiritual framework'.	
	Ex-PP-f	Need an academic openness to alternative conceptions of place and place experience; i.e. a "critical pluralist" framework to provide an overarching coherence (e.g. via phenomenology as a transdisciplinary paradigm), providing foundational structures of coherence and continuity to manage richness and 'chaos' of human experiences of place. This provides expanded placed-based approaches beyond Ihde's original version of Post-Phenomenology.	
	Ex-PP-g	Investigate and document landscape-related action routines, scripts and protocols, to emphasise importance of routine sets of actions, often performed with others and subject to processes of 'mimesis'; embedding in communal memory to produce standard (perhaps automatic) ways of doing and thinking about activities, within a socio-cultural framework.	
	Ex-PP-h	Gendered aspects of interactions with landscape need to be surfaced and considered, in terms of utilitarian tasks and potentially social/cultural/spiritual roles and beliefs.	
Ex-SM		**Methods from David Seamon (2018) – Chapter 7, Section 7.4.3.**	
	Ex-SM-a	A phenomenological approach to landscape language studies can be very effective. Seamon advances a systems theory based method of multiple stages and rejects integration with social science methods. Seamon's (2018) method seems not to adequately address social and cultural aspects.	
	Ex-SM-b	If the Seamon (2018) method is used, there is a need to also include deep data collection and analysis of social and cultural aspects of dwelling and landscape language. As discussed in Chapter 7, Section 7.3.1, an option is to reinforce Seamon's method by adopting an an 'exterophenomenological' approach (Olivier, 2017, p. 10), which emphasises the role of place as a 'grounding structure' for experience by examining the socio/cultural structure of the language group and using this in data analysis.	
	Ex-SM-c	Seamon's method starts from the need to consider dwelling in place, as a 'monad', i.e. a complex holistic system.	
	Ex-SM-d	The next step is to consider complementary or opposing pairs of aspects of place as 'dyads'. Lots	

		of different types of dyads can be usefully examined (with the nature of the investigation determining which issues to pursue), such as: *Seamon's set:* (movement vs rest; insideness vs outsideness; the ordinary vs extra-ordinary; homeworld vs alienworld). It is also possible to set up dyads in terms of other historical, social, cultural and spiritual aspects of lifeworld.	
	Ex-SM-e	The third step in Seamon's method starts with identification of three place impulses: 'people-in-place', 'environmental ensemble' and 'common presence', which are fundamental aspects of dwelling. Seamon's consideration of the three impulses leads him to develop different combinations of them, producing six 'triads'. The analysis of at least some triads could be effective.	
	Ex-SM-f	Seek examples of phenomenological experiences in aspects of dwelling such as: sensation, perception, thought, memory, imagination, emotion, desire, … volition, … bodily awareness, embodied action, and social activity, including linguistic activity.	
	Ex-SM-g	Examine people's relationship with landscape 'objects', in terms of what they mean to us, and what impressions, beliefs, perspectives, images, ideas, thoughts, or uses we have with different types of landscape 'objects'. This can related to them as Heideggerian 'equipment' ('tools'), in the broadest sense of those terms, for individuals or groups.	
Ex-PG		**Methods from Phenomenography - Chapter 7, Section 7.4.4.**	
	Ex-PG-a	A key phenomenographic method of data collection is semi-structured, open-ended interviews, where informants are encouraged to speak freely about their experiences, giving concrete examples to avoid superficial descriptions about how things should be or ought to be. This assists in revealing their beliefs, values, interpretations of reality, feelings and experience of aspects of dwelling. Interviews can involve a mixture of etic (researcher) and emic (interviewee) categories. The in-depth interviews are tape recorded (if permission is given) and transcribed verbatim. Data from 20 informants is usually sufficient.	
	Ex-PG-b	Phenomenographic analysis of interview data can be carried out by two or more researchers, acting independently, and maintaining an unbiased, open mind regarding integration of etic and emic categories. Suggested steps are: 1. Read the whole transcribed text for each interview. 2. Read it again and mark where the interviewee gave answers to each of the main interview questions. 3. In these passages look for what the focus of the interviewee's attention is and how she/he	

		describes her/his way of experiencing this aspect of dwelling.
		4. Make a preliminary description of each interviewee's predominant way of understanding their relationship with that aspect of landscape as place.
		5. Group the descriptions from various interviewees into categories, based on similarities and differences.
		6. Formulate appropriate integrative categories of description.
		7. Look for non-dominant or unorthodox ways of understanding the interview data.
		8. Find a structure in the outcome space, i.e. the sets of emic categories that have been uncovered.
		9. Assign a metaphor to each major category of description (in terms of the role of people dwelling in landscape that it represents). If possible, discuss these metaphors with participants and other researchers.
		10. Compare the analysis results achieved by each researcher and develop an integrated and/or contradictory set of conclusions.
	Ex-PG-c	In addition to interviews, researchers can interpret people's conceptions of landscape by studying their behaviour while completing specific tasks under controlled situations. Tasks could potentially relate to different aspects of dwelling, from the following general categories: physical, utilitarian, social, cultural and spiritual. However, this approach should only be used when participants have explicitly agreed that they are happy to undertake such tasks while being observed.
Ex-HP		**Methods from hermeneutic phenomenology - Chapter 7, Section 7.4.4.**
	Ex-HP-a	Hermeneutic phenomenology methods can be used for initial descriptions of key activities carried out by members of a speech community. These descriptions are produced, very deliberately, to include as little as possible (perhaps no) interpretation, just 'pure' observations. This allows for later interpretation of 'clean' data. Since hermeneutic phenomenology seeks to ensure the absence of the investigator's influence or bias, it requires 'self-reflection' by researchers.
	Ex-HP-b	Hermeneutic phenomenology involves examination of texts, to reflect on the content, to discover something 'telling', something 'meaningful', something 'thematic'. Hence, it can aid in understanding of the role of topo-socio-cultural-spiritual mode of dwelling, including understanding links between culture and spirituality, especially for indigenous peoples.
	Ex-HP-c	Adopting 'interpretive phenomenological methodologies' involves skilful reading of texts, such as transcripts of personal experiences, and

		isolating their key 'themes', as interpretations of lived experience. These can be called 'phenomenological vignettes'.	
	Ex-HP-d	Time/history is a key factor in interpretation of the lifeworld of people being observed and/or interviewed. This information can be encapsulated in short 'thematic statements', depicting key relevant aspect of every-day practices.	
	Ex-HP-e	Interpretative Phenomenological Analysis (IPA) is an approach to qualitative analysis with a particularly psychological interest in how people make sense of their experiences. It can 'give voice' to participant's thoughts and feelings and 'make sense' of oral or written accounts of experiences. However, IPA is also criticised as being too psychological. IPA does not aim for transcendental knowledge.	
	Ex-HP-f	IPA is used most often to analyse verbatim transcripts of a first-person accounts, generated by research participants in semi-structured, one-to-one interviews. It can also be used with transcripts of focus group discussions.	

A15.2.6 Step 5: Review of EDM (v7) to determine relevant factors for the study

Step 5 involves the next process in optimisation of the methodology for the proposed landscape language (ethnophysiography) case study. It utilises the final version of the EDM (v. 7) to review the activities assembled in the proposed methodology for the case study resulting from the processes in Steps 3 and 4. The objective is to determine whether the current version of the project methodology address all of the factors (independent and dependent) in the EDM that apply specifically to the proposed case study. Activities that do not address an EDM factor would not be removed as they may produce data relevant to other aspects of the proposed study. However, if this review of the proposed methodology from Steps 3 and 4 indicated that there are not activities that address any particular relevant EDM factor, then the methodology could be amended to add appropriate activities, yielding a revised (Step 5) version of the methodology. The final (v. 7) EDM table is not repeated here, as it is already in Section A15.1 as Tables A15.3 and A15.4.

A15.2.7 Step 6: Decide which phenomenological theories to use via additional activities

This step in the contingency process involves the use of phenomenographic tables assembled from Chapters 5 and 6, reviewed in Chapters 7 and 8. These tables summarise key aspects of phenomenology of place and relationships involved in dwelling in landscape as place. This includes a set of aspects especially relevant to case studies with indigenous peoples, such as those dwelling in Australia or SW of USA. Additional tables may be developed in future

research to facilitate design of methodologies for case studies with indigenous peoples in other parts of the world.

This step involves reviewing the list of landscape concepts listed in Table A15.7 to determine whether all concepts relevant to the proposed case study are already covered by the methodological activities already identified in Steps 3, 4 and 5. If a concept is not already covered then new activities would be added to the project methodology to generate data relevant to that concept.

Table A15.7 is a copy of Table A 11.2, listing the concatenated set of landscape concepts (copied from Table 7.1 in Appendix 7), with the right-hand-most column (commenting on applicability to the Manyjilyjarra case study) removed. A new right-hand-most column is added, listing "Application to proposed case study" for each row.

This table can be used to review the aspects of landscape that could be investigated in any new case study, to ensure that the particular methodology assembled for that study includes objectives and methods that will collect that information. Part 6 is relevant to an indigenous language in Australia. If the language being studied is an indigenous Australian language, the more detailed Table A7.5 (Section A7.5 in Appendix 7), listing Key Australian Indigenous Landscape Concepts, could be consulted, together with Table A13.1 (Section A13.2 in Appendix 13) regarding aspects of *TJukurrpa*.

Consulting these additional phenomenographic tables will enable the researchers to check whether the proposed methodology has adequate methods and techniques to collect relevant indigenous social, cultural, spiritual and ethical information (to the extent permissible). If not, additional methods and protocols may need to be added. It will be important to include close collaboration with potential informants, and any cultural organisation representing their interests, to ensure an appropriate research agreement is prepared covering all relevant ethical aspects. If this process is to be undertaken consciously, with proper regard to cultural protocols and sensitivities, it can take considerable time. As discussed in Chapter 8, Section 8.3 and Appendix 9, Section A9.2.4, for the Manyjilyjarra landscape language case study, the period of negotiation was 32 months, despite this author having worked on projects with people from this language group, and KJ (the cultural and land management organisation) for the previous four years.

Table A15.7: Landscape concepts

Code	Landscape Concept	Application to proposed case study
1.	**Theory and Methods**	
1.1	There is no ontological separation between nature and culture. The aspects of landscape (physical and cultural) exist in interrelation, constituting a reality as a whole which is not expressed by a consideration of the constituent parts separately, but by considering their structure, and function and hence position in a system, that is subject to development, change, and completion. Reductive and objectivist approaches do not do justice to the wholeness of the diverse real-world relationships between people and places. Place scholars should embrace theoretic and methodological diversity and focus on social theory and human-environment relations.	
1.2	Understanding landscape requires an epistemological openness and flexibility, rather than adopting a formalized single, totalizing, way of knowing. It also requires interrogation of ambiguity, fragmentation, multiplicity, and difference in social realities. Ontological approaches and subjective methodologies need to incorporate spiritual aspects of concepts of place.	
1.3	Identity with respect to landscape may not necessarily align with linguistic reference or social conceptual shortcuts (such as social /financial circumstances or race or class).	
1.4	Role of international conventions regarding landscape definition and management, especially influencing collaborative transfrontier landscape projects.	
1.5	The effectiveness of the role of GIS and associated technologies in representing landscape, depends at least in part on the conceptual tools, critical frameworks, and linguistic codes we choose to mobilize.	
1.6	In building GIS of landscape, there should be use of the 'mental maps' of local people as part of the participatory social process leading to local empowerment, rather than adopting merely a top-down elitist process.	
2.	**Nature of Place**	
2.1	People have feelings for landscape, which may be only obliquely expressed in language, or may be incapable of expression or suppressed due to cultural/spiritual considerations. Authenticity' of dwelling is about "…the capacity to achieve a spiritual unity between humans and things" (quoting Heidegger). Landscape is sentient and imbued with spirit, capable of responding to human action. Relationships with European landscape include remnants of pre-modern cosmography and sacred geography.	

2.2	The most relevant physical qualities of landscape are those that have habitat value, present or potential.	
2.3	The aesthetic qualities of landscape, are important and need to be investigated via a subjective approach.	
2.4	Landscape forms impact on ontology and epistemology and hence conceptualisations of landscape and language terms.	
2.5	Need to consider relationships with landscape not just within a specific place, nor just with respect to that of immediate neighbors, but also with respect to increasingly globalized economies and cultures.	
2.6	Each place is a special ensemble, with a history and meaning, incarnating the experiences and aspirations of a people. The relationship between people and environment is transactional: people take something (positive or negative) from, and give or do things to, the environment; these acts may alter the environment's influence on the people.	
2.7	Narratives (stories) are a key way of building attachments to landscape, and for representing those relationships. Narratives provide specific details, clues to authenticity and the provenance of particular aspects of attachment to place for an individual and/or community. Narratives connect spaces and are spoken about in terms of the past/present/future. Narratives (e.g. of the Dreaming for Aboriginal Australians) give a context of multiple times, connecting human history and geomorphological history through talking about particular events. The messages in the storytelling (e.g. for a river) demonstrate ontological connections between biophysical and cultural landscapes.	
3.	**Embodiment and Movement Through Landscape**	
3.1	Embodiment is an important part of the way landscape influences conceptualisations and terms. In terms of bodily awareness, one can experience places as enfolding (being within them) or external, even distant (such as a mountain on the horizon).	
3.2	Mobility around the landscape in which you dwell is important for building affective relationships; e.g. in terms of embodiment and different visual perspectives. Movement (and being stationary), at differing spatial-temporal scales, is part of the dialectic between bodies and landscape. Movement through landscape occurs between places of pause/activity. Interaction with landscape involves sets of regular paths of movement (*place ballet*) to accomplish every-day tasks as part of a person's (group's) 'lifeworld' activities.	
4.	**Sense of Place and Place Attachment**	
4.1	Landscape places range from the small, confined, nurturing and cozy, experienced primarily in a bodily way, to much larger regions, to the cosmos, which is large, abstract, and impersonal, accessible only to mediated mental experience.	
4.2	Environmental settings obviously have an impact on people, both short-term and long-term, and there are some patterns to this impact. Places are constituted, sustained or undermined by: '*place interaction*' (typical every-day activities in a place) whether by individuals or formal or informal groups.	

	Concept of place is psychological or interactional, not just physical. The environment is made up of a combination of physical and social features; the sense of place is an experience created by the setting combined with what a person brings to it. In other words, to some degree we create our own place, they do not exist independent of us.	
4.3	Sense of place in terms of two components: 'individual relationship to place' (generic ways that people relate to places; types of bonds they have with places) and 'community attachment' (depth and types of attachments to one particular place).	
4.4	Certain settings that have such a strong "spirit of place" that they will tend to have a similar impact on many different people. The Grand Canyon and the left bank of the Seine in Paris are excellent examples. Culture strongly influences human behavior and values regarding landscape.	
4.5	Place attachment is constituted by a set of 'place meanings', which can be conceived of as symbolic statements about the essence of a place, which are populated with descriptive content and are created through human activities. Rather than place attachment being a deep-seated, internalized, emotional affinity that individuals experience towards particular places, discursive research regards it as linguistically constructed as individuals, together, formulate the everyday meanings of person-in-place relationships.	
4.6	There are six types of relationships (bonds) to place: Biographical (historical, familial); Spiritual (emotional, intangible); Ideological (moral, ethical); Narrative (mythical); Commodified (cognitive; based on choice and desirability); and Dependent (material).	
4.7	Places are constituted, sustained or undermined by: '*place identity*', which refers to how people dwelling in a place can make it a significant part of their personal and/or communal identity.	
4.8	Places are constituted, sustained or undermined by: '*place release*', which involves an environmental serendipity of unexpected encounters and events.	
4.9	Places are constituted, sustained or undermined by: '*place realization*', which refers to what physically exists in a particular landscape, coupled with the effects these constituting features have on actual or potential activities, or affective states, for individuals or groups. Important characteristics of places may not be just about utilitarian activities but may relate to beauty, awe and sacredness.	
4.10	Places are constituted, sustained or undermined by: '*place creation*', where characteristics (positive and negative) result from human agency/intervention.	
4.11	Places are constituted, sustained or undermined by: '*place intensification*', which refers to mechanisms (for example human agency), which increase (or diminish) the characteristics of a place, making it a more (or less) complex place with additional (or fewer) attributes. Relationships with landscape for an individual develop steadily over the years of their life in that place. There is usually strong attachment to the landscape where you dwell, especially if live there for a long time or during a significant stage in your life.	

4.12	Development and adaption of communal place attachment involves: 'environmental disruption'; 'interpretive processes'; 'place definition' 'place dependence'; 'place identity'; 'place bonding'; 'social capital'; 'collective efficacy'; 'sense of community'; 'neighboring'; 'citizen participation'; 'place-based social interactions'; 'bridging social capital'; 'community response'.	
5.	**Aspects of Landscape as Place**	
5.1	Landscape importance transcends nationality, race, religion or culture; despite the progressive loss of landscape character and identity.	
5.2	Spatial boundaries (natural and fiat) play a key role in categorization of people's identities.	
5.3	Key role of river systems, including as boundaries (and consequences for river management).	
5.4	Lakes and streams connect surface and sub-surface water.	
5.5	Vegetation (at landscape scales) is an important part of the physical aspects of landscape; as identified via ethnoecology studies. 'Ecotopes' designate a 'kind of place' related to flora and fauna.	
5.6	The role of virtual representation in understanding landscapes.	
6.	**Australian Aboriginal Concepts of Territory**	
6.1	In the context of Indigenous land claims, having a detailed lexicon of terms that fit the landscapes in a particular region is evidence that those people 'belong' in that landscape.	
6.2	Australian Aboriginal territories include particular areas of landscape defined by issues of inheritance and occupation. Australian Aboriginal individuals may well have rights and responsibilities in overlapping territories (perhaps via marriage).	
6.3	A single Australian Aboriginal clan estate may consist of several sections separated by lands of other land-owning units.	
6.4	'Transitional zones' exist between Australian Aboriginal territories.	
7.	**Toponyms (placenames)**	
7.1	Naming of places is related to habitual spatial practices, representations of the world, and a spatial, imaginary geography (linked to culture and spirituality).	
7.2	Ecotope terms may influence toponyms.	

A15.2.8 Step 7: Concatenate all methodological elements and iterate steps if needed.

The contingency process described in Steps 3, 4, 5 and 6 is quite complex. Step 7 is designed to review the results of those steps and ensure that the revised case study methodology incorporates all the activities recommended by those steps in a coherent, well ordered and structured manner. This may require some iteration of one or more of Steps 1 to 6. The result of Step 7 is the methodology that will be used in the proposed case study, with the addition of processes of evaluation established in Step 8.

A15.2.9 Step 8: Establish effective methods for project evaluation

Some of the activities already assembled in the draft methodology established via Steps 1 to 7 may already incorporate aspects of evaluation. The purpose of Step 8 is to review this possibility then insert sufficient new activities such that effective evaluation procedures are included in all stages of the methodology. Additional evaluation procedures are likely to be required to evaluate the project as a whole. These may relate to ethical considerations, use of personnel (including payments), interactions with participants and collaborating organisations (including provision of feedback), suitability of project outputs and outcomes, including the Final Report and any recommended follow-up activities, following completion of the project (such as annual reviews of outcomes). It may well be appropriate to involve independent assessments by individuals or organisations not involved in the project. This step should conclude the development of the methodology for the landscape language (ethnophysiography) case study project. It is important to collect and back-up all information relevant to the process of developing the project and include that in the storage arrangements for all project data and results of analysis.

A15.2.10 Conclusion to Section

Section A15.2 has provided a step by step guide to customisation of the generic methodology to suit a particular landscape language (ethnophysiography) case study. The process is iterative to some extent and there is a degree of repetition between some tables. However, it provides a reasonably straight-forward process for researchers to follow to design the optimum methodology for any case study. It is always best to establish a detailed plan well ahead of field activities, while understanding some new ideas or requirements might arise during the study. It is important that researchers are always reflective regarding their activities, being especially conscious of ethical issues and formal requirements.

Appendix 16: Review of Transdisciplinarity of Project

A16.1 Introduction

A wide range of literature regarding transdisciplinarity was reviewed in Chapter 3. This included development of various models concerning attributes of transdisciplinarity, which were summarised as tables in Appendix 4. These were combined to produce, in Section A4.3, the Concatenated Conceptual Model for Transdisciplinarity (CCMT) (being the integration of earlier Models A, B, C, D, and E), as Table A4.6. This model is reproduced as Table A16.1, with the column for *Source Code* removed and a new right-hand-most column added for *Comments re PhD Research and Dissertation.* The model (table) consists of two parts:

- CCMT-1: Key attributes of transdisciplinarity (28 rows)
- CCMT-2: Transdisciplinary methodological considerations (11 rows)

The *Comments re PhD Research and Dissertation* column entries summarise how well the PhD research investigation and dissertation addressed the particular transdisciplinary attribute discussed in that row. They also relate to the principal research outputs and outcomes; especially the final EDM and the PTM-ECS. Hence this table summarises the degree of transdisciplinarity of the PhD investigation directly, in terms of its processes, and indirectly via the attributes of its principal outputs. Both these approaches lead to a comprehensive and effective evaluation of the level of transdisciplinarity demonstrated by this investigation.

Because the particular *'Key attributes of transdisciplinarity'* or *'Transdisciplinary methodological considerations'* provided in each row of the phenomenographic table come from a variety of authors (as detailed in Chapter 3 and Table A4.6), there is some overlap in the issues they discuss. This necessarily leads to some repetition in the *'Comments re PhD Research and Dissertation'* provided (in the right-hand-most column).

Taken as a whole, there is shown to be very strong support in the dissertation for all the 39 attributes of transdisciplinarity listed in Table A16.1. This demonstrates a high level of probability that the PhD investigation, the dissertation, and the project outputs and outcomes, embody and display a valid example of transdisciplinarity. This supports a positive response to the Research Question 9 (Chapter 9, Section 9.4, Table 9.1).

Table A16.1: Concatenated Conceptual Model for Transdisciplinarity – Applied to PhD (based on Table A4.6 in Appendix 4)

Code	Aspects of Transdisciplinarity	Comments re PhD Research and Dissertation
CCMT-1	*Key attributes of transdisciplinarity:*	
CCMT-1.1	*Addresses 'wicked' / 'diabolical' problems via use of modes of inquiry involving individuals, communities, specialist traditions and influential organisations.*	The problem addressed in this PhD was truly 'wicked' and 'diabolical' because there are many disciplines and interacting factors involved in understanding the ways that language groups with vastly differing cultures dwell in various types of topographic and ecological environments. Landscape languages play a key role in that dwelling and past research has revealed that the landscape ontologies involved can be very different, given that there are huge differences in terrain, ecology, lifeworlds and 'taskscape' activities. Peoples relationships with landscape are also influenced by social, cultural, spiritual and ethical considerations. Thus physical systems and socio-cultural systems combine synergistically in non-deterministic and emergent ways. Such systems are investigated via complex case studies involving individuals and communities, carried out by collaborating experts from various disciplines.
CCMT-1.2	*Is inquiry-driven rather than exclusively discipline-driven, while not ignoring disciplinary contributions, which need to be integrated via an appropriate overarching paradigm (meta-methodology).*	The dissertation demonstrates that this research was definitely inquiry-driven, with influences of various disciplines (Chapters 2 to 6) on previous work noted. The approach included a commitment to open inquiry using emic as well as etic frameworks and a complex contingent, integrated, methodology (Chapters 7 and 9), combining aspects from various disciplines under an over-arching phenomenological paradigm. This new type of methodology facilitated the merging of analysis of different types of data, as demonstrated in the review of the capstone Manyjilyjarra case study in Chapter 8.
CCMT-1.3	*Is meta-paradigmatic rather than exclusively intra-paradigmatic; seeking to address important complex questions and is open to a plurality of perspectives and constantly iterative. It should be emergent, innovative and take creative approaches to*	The approach adopted, using the revised EDM and PTM-ECS is deliberately contingent and, reflective and iterative, both within each case study and in comparisons between case studies to address issues such as potential landscape universals. It applies a plurality of perspectives, with the capacity to be emergent and innovative, taking creative approaches to problem formulation and investigation. Indeed all of these attributes were applied within the PhD investigation that produced the recommended transdisciplinary research method. It examined many research theories, methods and techniques from various disciplines to produce new, contingent ways of combining them. Ethical considerations were highlighted, including the need for researchers to

	problem formulation and investigation.	be continually reflective regarding their mode of collaboration with individuals and organisations involved in the research process.
CCMT-1.4	*Explicit accounting for all three knowledge commitments: the ontological, epistemological and ethical; utilized in a manner characterised by 'openness' rather than 'closed' orientations.*	An ontological commitment is central to this field of research, as demonstrated by the search for varied ontologies and semantics of landscape terms. The epistemological commitment of this research relates to the ways existing knowledge is used, both western and traditional indigenous knowledges, and the comprehensive and detailed methodological approach. The open orientation of research methods (e.g. interviews) and 'triangulation' of procedures, seeks for authentic data collection. This data was analyzed via hermeneutic processes that consider the characteristics of the social, cultural and historical circumstances and the prevailing topographic and ecological environment. Ethical considerations are highlighted, including the need for researchers to be continually reflective regarding their mode of collaboration with individuals and organisations involved in the research process.
CCMT-1.5	*Openness relates not only to who is involved and what knowledge is accepted, but also to the provisionality of any findings (i.e. that they are open to revision and improvement after further scrutiny of 'facts' and values).*	This dissertation and the methodology proposed highlights the need to report honestly and comprehensively about the research processes and outputs/outcomes both to project oversight organisations and funders, and to project participants and the organisation that represents them. This is made clear in Chapter 7, where the methodology was developed, and Chapter 8 regarding the Manyjilyjarra case study, which included a partial trial of the methodology. Chapter 9 reviews contributions and limitations of this research project and also discusses proposals for new research on this topic. This dedication to reporting also applies to the dissertation, where the detail and completeness of the document could be described, perhaps, as 'obsesive'. This researcher, and his linguist collaborator on the Manyjilyjarra study, reported in writing and at meetings of the LACOLA research group (Lund University), which partly funded the project (e.g. Hill et al., 2016; Turk, 2016). Presentations were also made at many other university seminars and conferences during the course of the project, culminating by presentations by this author in June 2019 at the Sensus Communis: Exploring the Ontologies of Coexistence conference (Åarhus, Denmark) and the International Human Sciences Research Conference (University College, Molde, Norway). During all of these written reports, meetings and conferences, and in the dissertation, it was emphasized that all findings are provisional (i.e. that they are open to revision and improvement after further scrutiny of 'facts' and values) and

		feedback from other researchers and collaborating organisations was sought and responded to by revisions, as appropriate. Presentation of the Manyjilyjarra landscape language project's key final product (pictorial landscape dictionary) was made to participants and their feedback was requested, discussed and acted upon.
CCMT-1.6	*Includes theory and paradigms from different disciplines but also all validated constructions of knowledge and their worldviews and methods of inquiry; including knowledge held by civil society.*	This dissertation explicitly includes theories from different disciplines, including geography, philosophy, ecology, cultural studies, and linguistics. These are combined in a transdisciplinary manner. They are applied in particular contexts in a contingent manner, via the PTM-ECS. Sub-disciplines such as human geography and cultural geography incorporate knowledge from 'civil society' (sometimes termed 'folk geography'). Both the dissertation and the new transdisciplinary methodology use Indigenous Traditional Knowledge (e.g. *Jukurrpa*), for instance, to help understand a particular topo-socio-cultural-spiritual framework of dwelling in a particular place. The methodology includes engaging with community members to elicit information to help understand their lifeworld, conceptual framework and ontologies.
CCMT-1.7	*Adopting a worldview that is 'open' (recognizing unfolding, dynamic and heterogeneous complexity); that is an expanded view of what is 'real' (including cultural as well as physical matters); and that is a 'realist' view (i.e. that the world exists independently of what I may think about it).*	The dissertation and new transdisciplinary methodology adopt an openness to theories from different disciplines and incorporate ways to seek unfolding, authentic representations of phenomena relating to actions, procedures, protocols, and affects that are physical, utilitarian, social, cultural, spiritual and ethical. The phenomenological approach goes beyond the 'realist' view of the world, however, the methodology interfaces with that perspective. The overall approach is to adopt multiple perspectives to help understand lived experiences and to undertake case studies in reflective ways that maximize engagement with the community through rich, 'open', flexible and ethical methods of information collection and discussion of results with participants. The approach is hermeneutic, consciously adopting multiple methods of analysis, based on theories and methods from multiple disciplines.
CCMT-1.8	*Includes concepts of comprehensiveness, complementarity, participatory research, transcendence and transformation and recognises the role of imagination.*	The dissertation and new transdisciplinary methodology strive for completeness, to the extent that is practical within prevailing constraints. The methodology (which has fed results into the dissertation via case studies) uses multiple methods in a complementary manner. Virtual all aspects are participatory, except perhaps analysis of past texts. The role of imagination is explicitly addressed in Chapters 5 and 6. Issues of transcendence and transformation are considered,

		especially in the context of indigenous peoples' lifeworld, as discussed in Chapters 7, 8 and 9.
CCMT-1.9	*Can utilise either (or possibly both) the Nicolescuian approach (grounded in tenets of metaphysics, quantum physics and complexity science) or the Zurich approach (including integration of imperatives of science, democracy, humanities and economy).*	Both the Nicolescuian and the Zurich approach are used in an implicit rather than explicit manner. This includes consideration within the dissertation of complexity science (e.g. Seamon, 2018), integration of different scientific approaches (with each other and with theories and methods from the humanities), discussion of the role of socio-political systems, including democracy and economics. Some of these matters are not emphasized but included in general consideration of worldviews and lifeworlds.
CCMT-1.10	*Incorporates aspects of liberalism, environmentalism, wholism and metaphysics.*	Aspects of environmentalism are explicitly included via theories and methods from ecology (e.g. ecotopes). Wholism is a central concern of both the dissertation and new methodology, especially in terms of lifeworlds that incorporate cultural and spiritual dimensions. Metaphysics is part of the philosophical issues at the heart of the investigation.
CCMT-1.11	*Requires reflective dialogue about philosophical basis.*	Reflective dialogue about the philosophical basis of ethnophysiography investigations has been a key element from the beginning (Chapter 2). This is achieved in this dissertation by analysis of literature (Chapters 4, 5 and 6) and discussion of resulting ideas with collaborators, so as to reflect on methodological options, which are explored in Chapters 7 and 8.
CCMT-1.12	*Transdisciplinarity can be either: theoretical (well defined methodology from theory); phenomenological (building models of observed data); or experimental (via replicable sets of procedures).*	This dissertation, including the EDM and PTM-ECS, are the result of exploring all three aspects of transdisciplinarity. The thoretic approach commenced with analysis of literature in Chapter 3 then was applied in later chapters. A phenomenological approach is central to the whole dissertation, from analysis of theories in Chapters 4, 5 and 6 to developing practical ways of collecting observed data, and analyzing it in terms of models, such as the EDM. This dissertation and the resulting EDM and new transdisciplinary methodology are very experimental, employing triangulation via an integrated approach. A key objective of this investigation has been the challenge of bringing together the three perspectives of, and approaches to, transdisciplinarity.
CCMT-1.13	*Acceptance that a consequence of the complexity of the world is our*	Understanding and appreciating the complexity of the world is at the heart of this dissertation. Thus the methodology developed needed to employ methods to gather information about that

	inability to include everything in our system of inquiry, leading to: partiality; plurality; and consequential provisonality and openness to revision and improvement.	complexity, such as the various aspects of lifeworld and taskscape. The contingency approach adopted seeks to operationalise the search, within each landscape language case study, for the optimum collection of authentic data. Within that methodology, and the dissertation itself, the issues of partiality, plurality, and consequential provisonality are foregrounded. This led to openness being a feature of the investigation and the search for case study methods which incorporate reflection, constant revision of findings and evaluations which will lead to improvements in the methodology, especially its contingency approach. Analysis of later studies will lead to revisions of the EDM. The partiality of the dissertation is acknowledged explicitly in discussion of its limitations and threats to generalisability in Chapter 9. It also includes specific ongoing and proposed future research to improve the understandings conveyed in the dissertation and, more particularly, the EDM and PTM-ECS . As with all aspects of this investigation, the focus is on collaboration with other researchers and staff from relevant government and community organisations.
CCMT-1.14	*Adopting a self-reflective mode, informed by thinking that is creative, contextualizing, and connective.*	As discussed above, processes incorporating self-reflection, creative thinking, contextualizing, and connectivity were central to the methodology of investigation, the dissertation and the outputs (EDM and PTM-ECS). This is part of the phenomenological and hermeneutic approaches adopted.
CCMT-1.15	*Being reflective concerning the researcher's subjectivity - context, lived experience, values, beliefs and assumptions - ensuring they are surfaced and debated. It harnesses researcher's passion, creativity, context and connection.*	The detailed approach outlined in the dissertation demonstrates that the attitudes and procedures used incorporated reflections regarding the researcher's subjectivity, context, lived experience, values, beliefs and assumptions. This ensured that they are surfaced and discussed in Chapter 9. The researchers passions and creativity were evidenced throughout the PhD project, especially as part of a collaborative approach to investigation of this complex topic. They also were prepared to undertake field research in desert communities. The duration of the project has required perseverance.
CCMT-1.16	*Is a creative process that combines rigor and imagination; seeking not just academic justification and*	The dissertation concentrates on surfacing, analyzing and incorporating in a meaningful manner a wide range of ways of knowing. The challenge has been to explain premodern, modern and postmodern perspectives and draw from them in an authentic manner. Operationalisation of such processes via the EDM and PTM-ECS,

	accepting that multiple ways of knowing can co-exist. To avoid a relativist position, sources of knowledge are extended to include the wider scholarly community and the broader community.	permits reflective innovation, while ensuring an appropriate level of rigor. This has extended well beyond the positivist traditions of some of the disciplines involved in this investigation. Before, during and after preparation of the dissertation, collaborations have been extended to include presentations to the wider academic community. Through collaborations with community organisations (such as Kanyirninpa Jukurrpa, during the Manyjilyjarra case study, discussed in Chapter 8) this research project has engaged with the wider community, informing them about progress and requesting feedback. Community needs have been considered and addressed, not just within the processes of the investigations (e.g. provision of pictorial landscape dictionaries to assist in language preservation) but also in other community projects of direct, immediate benefit, carried out by this researcher as part of his engagement with the people.
CCMT-1.17	*Recognition that knowledge generation is embedded in social contexts. Social processes and critical deliberation are necessary to evaluate reliability of evidence and propositions; requiring explicit declaration of underlying values, assumptions and interests.*	The foundational approach of this dissertation, and the EDM and PTM-ECS, is the recognition that knowledge generation is embedded in social contexts. That is why the investigation was carried out, in a effort to develop theories, models and methods of investigation of relevant social, cultural and spiritual processes, that are part of peoples' holistic relationships with landscape as place. The hermeneutic methods of analysis take account of the multiple perspectives possible and the way knowledge is configured by the characteristics of language communities and the topographic and ecological environment they live in. The PTM-ECS facilitates explicit declaration of underlying values, assumptions and interests and operationalises methods and techniques to address these issues during study design, triangulation between methods, hermeneutic analysis of data and other linguistic information. This enables researchers to reach conclusions that include an honest descriptions of the perspectives adopted and limitations of the study.
CCMT-1.18	*Knowledge about the physical (instrumental rationality) and social worlds (practical rationality) can only be legitimized through inter-subjective critical reflection/rationality (incorporating understanding of relevant purposes,*	The combined approach of considering instrumental rationality and the practical reality of social worlds is integral to this PhD investigation, indeed it is its key purpose. This is achieved through critical reflection/rationality within the dissertation and operationalised through the EDM and PTM-ECS. This includes consideration of all relevant aspects of the lifeworld of the language community being studied and the way their worldview and lifestyle is embedded in the landscape as 'taskscape'. Aspects of this analysis include agendas, values and 'boundary judgements', as discussed in the review of the Manyjiyjarra case study in Chapter 8, and also in

	agendas, values, 'boundary judgements' etc. that have influenced knowledge production).	the review of the overall PhD investigation in Chapter 9 and its appendices. The dissertation includes considerable discussion about the range of factors which can influence knowledge production and ways to facilitate surfacing of these issues and seeking ways to integrate different forms of knowledge, rather than labeling some as 'legitimate' or 'truth' and others as suitable for rejection or even denigration, as has historically been the case for many forms of Indigenous Traditional Knowledge (Chapters 6, 8 and 9). This topic also relates to the discussion of placed-based philosophies (ethnphilosophies) in Chapter 4, 5 and 9.
CCMT-1.19	*Critical and ethical inquiry guided by concerns for ecological realities and sustainability, in the context of cosmic/planetary realities; designed for improvement in environmental sustainability values (leading to change in government policies).*	Within this dissertation, there is explicit discussion of issues of ecology and environmental sustainability with respect to lifeworlds, taskscapes and ethical aspects of dwelling in landscape as place. For instance, these are values that are central to *Jukurrpa*, the Manyjilyjarra topo-socio-cultural-spiritual mode of dwelling (discussed in Chapter 8). While the dissertation includes some discussion about how developments in understanding of a holistic approach to landscape as place relate to governmental policies (e.g. discussion of relevant European Union policy meetings), there are no explicit recommendations regarding how these matters can be translated into political discussions or changes in government policies, laws or regulations. These matters are relevant to this author's presentation at the Sensus Communis conference at Aarhus in June 2019. This topic could feature in subsequent research, including with potential collaborators identified at that conference.
CCMT-1.20	*Guided by concerns for social, political and economic realities, in the context of historical situation. Hence, designed for improvement in social justice values (leading to change in government policies).*	As discussed regarding CCMT-1-19 (above), there are no explicit recommendations in the dissertation regarding how matters raised by the investigation in relation to social, political and economic realities, in the context of the historical situation can be translated into political discussion or governmental policy changes. However, this type of research generates an improved understanding of the holistic nature of dwelling in landscape as place, which can influence political debate and policy revision. Other activities by this author with Aboriginal communities involved in this research have been directly relevant to proposals for changes in governmental policies. This is part of the ethical approach to research which requires tangible, immediate benefits to collaborating communities generated from the research project and/or through other activities with communities, which should never just be viewed as 'objects', or even 'subjects' of research

		processes, but as evolving communities. In the case of marginalised communities, they are especially deserving of understanding and assistance by governments and the wider community.
CCMT-1.21	*Research is embodied; involving physical activity of researchers.*	The landscape language (ethnophysiography) case studies discussed in this dissertation most definitely involve the researcher in physical engagements with the environment, as discussed in Chapters 2, 7 and 8. It is important to recognize this as a strength, but also sometimes a limitation on the range of activities that can be undertaken (such as accompanying participants on activities in difficult terrain or climatic conditions). For this author, his engagements with physical environments throughout Australia (including its Antarctic territory) have been virtualy continuous for more than fifty years. This has very significantly informed his investigation of dwelling in particular topographic and ecological environments.
CCMT-1.22	*Studies mind, thoughts, consciousness, values, feelings, emotions, actions and purposes via investigation of individual realities, including: culture, religion and spirituality, language, beliefs, arts and institutions.*	This dissertation explicitly explores the issue of affect and emotions in Chapters 5, 6 and 8. A central consideration is the role of culture, religion and spirituality, language, beliefs, arts and institutions. The PhD investigation and the EDM and PTM-ECS concentrate on ways to understand these factors and to build their role into holistic theories, models and methods. The investigation of feeling and emotion presents both theoretic and practical challenges for researchers, especially being able to undertake potentially intrusive investigations in an ethical manner. Examples of how to manage these challenges, especially with marginalised indigenous peoples, are included in Chapters 2, 7 and 8.
CCMT-1.23	*For research with indigenous peoples there is a broader range of data sources and methods which need to be developed 'from the ground up' and should result in real changes to people's lives.*	Ways of conducting effective and ethical research with indigenous peoples is a major topic of the dissertation. This involves establishing agreements to conduct research, payments for participants, data collection and analysis, feedback to participants and ways to ensure there are tangible benefits to participants, beyond payment for their time. It also potentially involves different types of data collection methods to match indigenous lifeworlds and knowledge systems. Understanding Australian Aboriginal relationships with landscape is a principal theme of the research (Chapters 2, 6 and 8). The EDM and PTM-ECS are both designed to match the needs of research with indigenous peoples.
CCMT-1.24	*Complexity Theory can be used to integrate and explain elements of*	Complexity Theory is discussed as a potentially powerful unifying construct for understanding the nature of complex, dynamic systems in the publication by Albrecht, Freeman and Higginbotham and in the context of Nicolescu's

	a transdisciplinary framework.	conceptualization of transdisciplinarity (Chapter 3). The theme of complexity is also addressed by discussion of publications by Bruce Janz in Chapter 5, in the context of universalism, and by analysis of Seamon (2018).
CCMT-1.25	*Can be linked to aspects of Feminist Theory and aspects of gender examined in research methods.*	Gender issues are a large and important field of study. Some of these issues are addressed in the dissertation, principally as concerns the need to understand the different roles and practices of women and men in lifeworlds and taskscapes. There are also important ethical issues regarding gender aspects of data collection, including with respect to indigenous knowledge systems and spirituality (e.g. 'women's business' and 'men's business' in Australian Aboriginal social systems and spirituality).
CCMT-1.26	*Explicit definition of terms is critical (including differences between their use in different disciplines).*	Definition of terms is handled explicitly and in detail throughout the dissertation. This especially relates to definitions of landscape, place, ethnophysiography, transdisciplinary, etc.
CCMT-1.27	*Focused on theory development, training of researchers, team building, finding common aims and rewarding good practice.*	This dissertation focuses on relevant theory. The research is highly collaborative, via meetings, joint research projects, joint papers etc. It strongly supports the development of research teams, including mentoring and training of younger researchers. Having clear research project reports, book chapters, journal articles and a PhD dissertation regarding this area of research aids considerably in developing sound research practice.
CCMT-1.28	*Involved in reform of teaching and research practices at universities.*	This author has been strongly involved in reform of teaching and research practices at universities. This type of interdisciplinary or transdisciplinary research has been a cornerstone of that activity. This is especially important in an era of reduced resourcing of universities, sometimes triggering retreat from inter-disciplinary activities.
CCMT-2	***Transdisciplinary methodological considerations:***	
CCMT-2.1	*Transdisciplinary research must use a methodology, which can be 'weak' or 'strong', depending on the scope of inquiry, range of disciplines and methods used.*	The proposed new PTM-ECS could be considered reasonably strong, given the wide range of issues potentially covered and disciplines involved. The contingency approach provides scope for the range of issues to be narrowed and the theories, methods and techniques chosen to suit the circumstances.
CCMT-2.2	*Can utilise ethnography and case studies; which are very useful for*	The PTM-ECS is based on ethnographic methods, especially case studies, with the results of these compared via the EDM. The detailed and comprehensive approach provides for detailed

	explaining practical approaches to transdisciplinary research, including in teaching situations.	reporting. As with previous research practice in this field, the future approach will be collaborative, with results discussed at research team meetings and conferences. Various collaborators will be able to incorporate different aspects of the studies and results in their teaching activities, as this researcher has done throughout his academic career. Findings will also be shared with community and organizational colaborators.
CCMT-2.3	*Both 'etic' (researcher imposed) and 'emic' (subject generated) perspectives to data should be generated and integrated.*	As with previous research on this topic, both 'etic' and 'emic' approaches to problem formation and question design are used, together with hermeneutic analysis and integration of data. The PTM-ECS facilitates researchers adopting a reflective and iterative approach to case study design, implementation, analysis and reporting. Ethical issues and threats to validity of results are highlighted and ways to address them are discussed.
CCMT-2.4	*Knowledge should be produced in the same context where it will be applied.*	When using the PTM-ECS, production of knowledge will occur in collaboration with the participant organisations and individuals. The initial analysis will be done at the field sites, where practicable, however, most analysis will occur at the universities and research groups of the collaborating researchers. Iterative interactions with participants will ensure that they remain informed and that their feedback is sought and acted upon. Research products (e.g. a pictorial dictionary of landscape terms) facilitate application of research findings within the community context (e.g. facilitating integration of scientific methods and ITK in caring for country).
CCMT-2.5	*Uses a framework that evolves in the context of application, via creatively and iteratively seeking theoretic consensus.*	The main framework involved is the EDM, progressively developed via literature reviews and interaction with collaborators. Ongoing review of the EDM by collaborators will lead to enhanced theoretic consensus. When interpreting modes of dwelling, use will be made of the relevant topo-socio-cultural-spiritual framework for the language community. Development, revision and monitoring of ethical use of the PTM-ECS will be achieved via collaboration with relevant researchers and organisations.
CCMT-2.6	*It integrates findings from natural sciences, engineering, social sciences, humanities and arts and can utilise methods developed for bridging differences within disciplines.*	As discussed in Chapters 7, 8 and 9, the PTM-ECS is designed to facilitate integration of project design, inmplementation and analysis of findings between the natural sciences, engineering, social sciences, humanities and arts. It incorporates a wide range of theories, methods and techniques from various disciplines. The methodology is designed to be applied via a contingency approach so as to match as closely as possible the needs and constraints of the collaborating researchers and participating organisations and individuals. Comparison and integration of results between

		studies is achieved via the EDM, which has been constructed to reflect theories from various disciplines.
CCMT-2.7	*Solves problems in ways that extend beyond particular disciplinary processes. It is always dynamic, reflective and open to new transdisciplinary approaches, viewpoints, methods of data collection and analysis techniques in an innovative and cumulative way (to meet evolving requirements and relevant combinations of researchers); using continuous communication about methods and results among research groups, in ways that extend networks of collaboration.*	The new PTM-ECS is emergent, open to constant revision in response to feedback from collaborators from various disciplines. The process of keeping collaborators informed, at least in general terms, has continued during the preparation of the dissertation. New techniques are always developing and have been included during the lengthy period of preparation of the dissertation. This applies to the EDM as well as the PTM-ECS. As discussed in Chapter 9 Section 9.8, interaction with collaborators is ongoing (e.g. meetings in 2016), together with processes to find new collaborators (including presentations at two international conferences in June 2019). Such face-to-face consultations are of course augmented by email exchanges.
CCMT-2.8	*Uses strongly reflective modes of research to ensure it is socially relevant, accountable and ethical and does not privilege the worldview, values or perspective of some researchers over those of others.*	These aspects of transdisciplinary research are very well addressed in the dissertation, as well as the approach of using the EDM and PTM-ECS, as indicated by the comments regarding earlier aspects of transdisciplinarity, in rows above. Acceptance, and where appropriate, integration of different worldviews and perspectives, in a respectful and authentic manner, is central to this investigation and dissertation.
CCMT-2.9	*Involves evaluation of research processes (external as well as internal) and resulting knowledge to ensure concentration on the usefulness and social acceptability of results, not just*	Evaluation of this transdisciplinary research, in terms of rigor, usefulness of results and social acceptability of research process, outputs and outcomes, has been constant from the beginning, as discussed throughout the dissertation. This has involved feedback from within the research groups involved and from external sources. In particular, it has included review at all major phases of the Manyjilyjarra landscape language case study by the collaborating researchers and the organisation representing the participants

	traditional scientific measures of experimental rigor.	(Kanyirninpa Jukurrpa (KJ)). This has included requesting KJ to review the draft of Chapter 8, concerning the Manyjilyjarra case study, to ensure that no secret or sacred information is included and that their role is properly described. This review has also been carried out by the collaborating linguist Hill. All these process of evaluation of the dissertation (prior to its examination) are reflected in the procedures for evaluation incorporated in the PTM-ECS.
CCMT-2.10	*Effective evaluation design is difficult because crosses discipline boundaries and also because of differences (between participants) re factors such as: expectations; values; culture; language; and reward structures. Hence, a broad composition of review teams is needed.*	These matter have already been adequately addressed in the comments concerning aspect CCMT-2.9 (above) and in earlier comments. Very broad methods of evaluation have been used to address all of the issues raised. This included the development (in Chapter 3 and Appendix 4) of this table and its completion here.
CCMT-2.11	*Should produce results with greater accountability; easier for industry/business to understand and adopt.*	As discussed in rows above, the levels of accountability involved in this dissertation and the PTM-ECS are high because of diverse processes, engaging representatives of community organisations as well as research collaborators and other academics. The very well references dissertation provides detailed and comprehensive explanations of the theories, methods and techniques involved in the PTM-ECS and EDM.

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END OF DISSERTATION