Instrumentalism and epistemic responsibility: researchers and the impact agenda in the UK and Australia

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Abstract

The management and measurement of the non-academic impact of research has emerged as a strong and consistent theme within the higher education research environment in the UK. This has been mirrored in other national contexts, particularly in Australia, where research impact policy is evolving at a similar pace. The impact agenda - a move to assess the ways in which investment in academic research delivers measurable socio-economic benefit - has sparked discussion and in some instances controversy, amongst the academic community and beyond. Critics argue that it is symptomatic of the marketisation of knowledge and that it threatens traditional academic norms and ideals, whilst its advocates welcome the opportunity to increase the visibility of research beyond academia.

In this thesis, I explore the response of academics in the UK and Australia to impact in these two respective national contexts. Adopting a case study approach and using interviews with mid-senior career academics (n=51), I drew my findings both inductively and deductively using thematic analysis. The thesis contributes to the relatively small but emerging body of scholarly research into academics' attitudes towards research impact.

Analysis indicates that considerations of research impact have profound effects on academic behaviour and identity. Increased focus on justifying the value of research affects how academics feel about their roles and responsibilities. An association with knowledge and its utility dominates academic perceptions and is seen to be in direct tension with a strong sense of epistemic responsibility. Whilst responsibility emerges as a key motivation for engagement with the impact agenda, the pressures of an increasingly competitive research environment can be seen to negatively affect the integrity of academics. These effects span disciplinary and national boundaries and reveal two distinctive cultures where affinities between academics whose research has a less instrumental nature, appear to contrast with views expressed predominantly from those with an instrumental focus. Analysis reveals complex diversity across the disciplines in how impact is understood and contextualised, indicative of a new clustering of academic disciplines, distinct from the traditional divide between arts and sciences yet reminiscent of a pure/applied distinction. Despite a persistent theme of resistance, it is perhaps in the acknowledgement and understanding of the diversity in disciplinary responses that the potential for the impact agenda to bring enhanced intellectual credibility to applied research can be explored, providing greater motivation for the disciplines to work together for maximum impact. These findings have significant implications for national governments, policy makers and funders, as well as for leaders of academic institutions and of course, for the academic community.

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Acknowledgements

"There is much pleasure to be gained from useless knowledge."

Bertrand Russell, 1935

I dedicate this thesis to my mum Moira. Thank you for your unwavering support and enthusiasm throughout my PhD and always. You have always inspired me and I would not have completed this thesis without your love, support and pies! Special thanks also go to Dad, Lel and to my brilliant Nan, Jean.

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Declaration

I declare that this thesis is a presentation of original work and that I am the sole author. This work has not previously been presented for an award at this, or any other university. All sources are acknowledged as references.

Elements of the thesis (particularly, though not exclusively Chapters 6, 7 and 8) were published in two journal articles listed below. They were both co-authored with Dr Richard Watermeyer, University of Bath (2016 & 2017).

The 2017 journal article was co-authored with Dr Richard Watermeyer (University of Bath) and Dr Paul Wakeling - my supervisor from the University of York.

My research has informed and is referenced in two book chapters of the first UK impact textbook, Success in Research: Achieving Impact in Research (2013).

List of publications:

1. Chubb, J., Watermeyer, R. and Wakeling, P., (2017). Fear and loathing in the academy? The role of emotion in response to an impact agenda in the UK and Australia. *Higher Education Research and Development*, 36 (3).
2. Chubb, J., & Watermeyer, R., (2016). Artifice or integrity in the marketization of research impact? Investigating the moral economy of (pathways to) impact statements within research funding proposals in the UK and Australia. *Studies in Higher Education*, 1 -13.
3. Chubb, J. (2013). How does the impact agenda fit with attitudes and ethics that motivate research? In P.M. Denicolo (Ed), *Success in Research: Achieving Impact in Research*. (pp. 20 – 32). London: Sage.
4. Chubb, J. (2013). What skills are needed to be an impactful researcher? In P.M. Denicolo (Ed), *Success in Research: Achieving Impact in Research*. (pp. 113 -126). London: Sage.

Note: This thesis is my own work and not based upon the articles listed here. I am first author on the both of the journal articles listed above. The articles were based upon the data I collected and analysed for this project. The contribution of the two authors on the articles listed above includes further analysis and dissemination. Both papers were authored following data collection and after I had conducted a full analysis of the data set.

1 Introduction

Every art and every inquiry, and similarly every action and pursuit, is thought to aim at some good; and for this reason, the good has rightly been declared to be that at which all things aim. But a certain difference is found among ends; some are activities, others are products apart from the activities that produce them.

Aristotle, The Nichomachean Ethics (1976)

The need to identify the economic, social and cultural return from public investment in research is observed as a growing part of the "academic contract" in the UK and elsewhere (Watermeyer, 2014, p.359). This need is characterised and understood by what is commonly referred to as an 'impact agenda' in higher education (HE). The emergence of impact as a criterion for research funding models in both the UK and Australia reflects a drive from governments for greater visibility of the benefits of research for the public, policy and commercial sectors.

In this thesis, I focus on the attitudes of academics from the UK and Australia towards the impact agenda and contribute to the relatively small body of qualitative, empirical literature on the philosophical, political and personal effects of this directive across all disciplines and these two national contexts. This research aims to shape the discourse concerning research impact policy, particularly within UK and Australian HE sectors by providing a rich, in-depth insight into the issues surrounding the research impact an increasingly global phenomenon.

This research primarily focuses on how academics feel about *prospective* economic, social and cultural impact. Additionally, interviewees also provided their views on *retrospective* impact as a performance measure in research quality assessment and were able to do so through the use of semi-structured interviews. Both foci form the discussion in this thesis - defined and further discussed in Section 2.4. In order to frame this discussion, and before introducing the structure of the thesis, I will firstly clarify my use of the term 'the impact agenda'.

It is recognised in HE that the impact agenda, where impact is defined as the demonstrable contribution that excellent research makes to society and the economy, represents a move towards the formalised introduction of impact as a criterion for both funding and assessment purposes. I will refer to the need for academics to articulate, perform and deliver impact for both the purposes of funding and assessment as 'the impact agenda' – not as a singular 'event', but rather to encapsulate the ways in which the introduction of impact with respect to both funding and assessment is evolving and developing in the UK and Australia.

This notion has been conceptually analysed by scholars notably Donovan (2011; 2017), Frodeman (2017), Morton (2015), Oancea (2009; 2011; 2015; 2017) and Watermeyer (2012; 2014; 2015) among others and is often seen as symptomatic of overarching developments in HE (Marginson & Considine, 2000; Rhoades & Torres, 2006). Many have associated impact with a focus on academic performativity (Ball, 2011; Oancea, 2009) potentially leading to an instrumentalised view of research - calling for greater visibility of the use of public funds.

Notwithstanding, the first published reactions from academics treated the impact agenda with suspicion, and even contempt. The impact agenda was problematised by some as a political, top down notion concerned with measurement and assessment (Lucas, 2004; Sayer, 2015; Watermeyer, 2016) and as representative of a kind of audit creep from institutions who were seen as seeking to control and over manage academics in order to perform better overall, on a global scale. However, the impact agenda can also be understood with respect to how individual or groups of academics respond to it – so conversely instead of resistance it could also represent opportunity and transparency, building trust in research, arguably vital in today's post-truth era of politics. In that sense I characterise it as a multi-layered agenda, crossing various actors involving a political top down approach but also arguably one that involves end users and publics who benefit from research as well. Despite the pressures on academics from governments and institutions, the impact agenda does not have to render academics powerless. Rather, in many cases academics may be complicit and motivated by political and public demands for accountability to demonstrate the use of public funds. In doing so, they can also respond to demands from their institutions to remain competitive. Where impact is referred to in the thesis, I will clarify whether I am referring to the agenda as a whole (with respect to prospective and retrospective/funding and assessment purposes), thus referring to the 'impact agenda' or whether I am referring to a particular characterisation of impact, for instance I might refer to 'REF impact' when describing retrospective impact. I begin by summarising UK and Australian research impact policies from the perspective of research funding (prospective) and assessment (retrospective). Full details of the impact policies outlined to follow are detailed in Sections (2.3 - 2.6).

The concept of research impact was originally articulated and defined in the UK by Research Councils UK (RCUK, 2002; 2006; 2011a; 2011b; 2014d) arising from the 2006 UK Warry report, which stressed the importance of demonstrating social and economic return from research. Here, impact is defined as "the demonstrable contribution that excellent research makes to the society and the economy" (RCUK, 2011b, p.2). In 2007, 'Impact Plans' were introduced in RCUK grant applications, requiring academics applying for research funds to anticipate the potential benefits of their research for broader society, as opposed to those

simply within the academic domain. Following criticism that this approach was too prescriptive, RCUK revised this policy and introduced 'Pathways to Impact' documents in 2009.

In addition to these measures to identify prospective impact, methods first devised (but subsequently abandoned) in Australia to measure the quality of research by assessing impact were adopted by the UK, where a retrospective focus on impact as an indicator of research quality were implemented by HEFCE as part of the Research Excellence Framework in 2014 (REF). Here, impact was defined as descriptive of a 'change', 'influence' or 'effect' "beyond academia" (HEFCE, 2011, p.48) and was assessed through case studies by expert panels according to the perceived 'reach' and 'significance' of each case. More detail of this process can be found in Figure 1 and in Section 2.4.

Concurrently, policy within the Australian HE system moved on a similar trajectory. With respect to assessment, in 2004 the equivalent Australian model for assessing the impact of research and its quality known as the Research Quality Framework (RQF) was under short to medium-term consultation as part of 'Backing Australia's Ability'[1] five year innovation Plan (BAA) – in what Donovan (2008) referred to as a "hybrid solution to academic concerns about research quality and government interest in research impact." (p.49). Like the UK, Australian Government was keen to show the dividend of investment in research and through a panel-based approach, hoped to be able to demonstrate that using case studies. After consultation and the issuing of several 'approach' and 'issue' papers, the Australian Government released a preferred model for the RQF in a paper 'Research Quality Framework: assessing the quality and impact of research in Australia – the preferred model' in 2005.[2] A new advisory group was commissioned in 2006 and the RQF was announced. Following this, a technical working group for impact was created involving academics managers and industry whose role it was to devise a methodology for assessing impact and to advise the government moving forward. This working group published a document of 'Guiding Principles' mid-2006 and following advice from the advisory group, published their recommendations for the RQF in October 2006. Their model comprised a panel-approach, using academic and non-academic peers as reviewers and the use of both qualitative and

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[1] Department of Education, Science and Training (DEST). (2004). Backing Australia's ability: Building our future through science and innovation. Canberra: Commonwealth of Australia.
[2] Department of Education, Science and Training (DEST). (2005). Research quality framework: Assessing the quality and impact of research in Australia—The preferred model (Report by the RQF expert advisory group). Canberra: Commonwealth of Australia.

quantitative indicators to assess impact – but a change of government in 2007 involved an announcement that the RQF would not proceed and it was criticised for being "ill-defined"[3] (ISSR, 2007). It was instead replaced by the 'Excellence for Research in Australia' (ERA) process, which would <u>not</u> include the assessment of impact. Further developments though included the 'Excellence Innovation Australia Trial' (EIA), which subsequently ran in 2012. Further detail of these developments can be found in Figure 1 and in Chapter 2 Section 2.5.

Following a consultation in 2012, which included discussion with the UK's major funders of research - the Higher Education Council for England (HEFCE) and RCUK, the Australian Research Council (ARC) introduced impact in the EIA 2012 and finally announced a requirement for impact statements in their funding proposals in 2014 (Lewis & Ross, 2011; Morgan, 2014). These developments were accelerated by recommendations of the Watt Review of Research Policy and Funding (Australian Government, 2015) focused on developing and strengthening Australia's research system:

> The Australian Government commit to the assessment of the economic, social and other benefits of university research through an impact and engagement assessment framework, which will have an impact on future research funding.

> Watt, 2015, p.16

The continued focus on academic performativity and impact in the UK is reflected in the change in research funding models managed by RCUK, in which the governance of both funding and assessment will be consolidated in structure and policy under UK Research and Innovation (UKRI) (following recommendations outlined in the 2016 Nurse Review). In addition, 2016 saw the introduction of the Global Challenges Research Fund (GCRF) representing a £1.5-billion investment by the UK government to support disciplinary and inter-disciplinary research that addresses global challenges in developing countries. The expectation that UK research funded by GCRF will lead to impact is implicitly reflected in the guidance in words such as 'urgency' and 'challenge-led'. Within this context, impact may be further understood as something that is directly useful to society and the economy.

Impact is here to stay, with the UK and Australia at the vanguard of impact policy developments (Upton, Vallance & Goddard, 2014, p.352). Both face a continued focus on

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[3] Department of Innovation, Industry, Science and Research (IISR). (2007). Cancellation of Research Quality Framework implementation [media release]. Retrieved 10 August, 2017 from http://minister.industry.gov.au/SenatortheHonKimCarr/Pages/ CANCELLATIONOFRESEARCHQUALITYFRAMEWORKIMPLEMENTATION.aspx

impact as a core aspect of academic labour, indicative of the politicisation of knowledge and a market-driven logic in HE (Lewis & Ross, 2011; Naidoo, 2003; Olssen & Peters, 2005; Palfreyman & Tapper, 2014; Holmwood, 2014). For this reason, both national contexts represent cases that are worthy of exploration. By way of summarising some of these changes, Figure 1 provides a visual depiction of key impact policies in the UK and Australia, highlighting some of the most pertinent developments. This is not an exhaustive list, but is intended to frame the discussion that follows in (Sections 2.3 – 2.6) and throughout the thesis.

My research questions are framed by philosophical and political insights but the key issues explored in the thesis and the methods of inquiry are empirical. I set out to contribute to the broader philosophical issues raised by the impact agenda (Chapters 2 and 3) with this timely empirical contribution. This thesis addresses the following research questions:

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- Do academic researchers' responses vary across different groups, such as across disciplines and different national contexts?

The dimensions shaping my analysis were the discipline of the participant, their role and their national context. As such, after each quotation, the following are given in brackets: discipline, national context, role, gender. This may also include a number and the first letter of the discipline if more than one person was interviewed i.e. 'A1' – Agriculture, participant 1. Please note that I did not include career stage, ethnic background or the type of institution in my analysis and that all demographic information was provided by lists given to me by the institutions (see Chapter 4). I will use the term 'discipline' as opposed to 'field of study' or similar in order to denote a branch of knowledge in HE. The discipline area in which my participants are situated is driven entirely by the information they provided and the departments in which they were based at the time. In providing this information I do not suggest that participants 'belong' to certain disciplines, indeed I acknowledge the increasingly fluidity and rich ecology of the disciplines. I do however by using these dimensions note trends and dimensions which vary or are common across disciplines similar to those highlighted in previous research (Chapter 3). More detail of my methods can be found in Chapter 4.

UK   **Australia**

2003
The Lambert Review of business and community collaboration

2006
The Warry Report challenged the Research Councils to do more in terms of "achieving and demonstrating a step change in the economic impact of RCUK investments"

The Leitch Review of skills focused on entrepreneurship and innovation for the knowledge economy

2004
Research Quality Framework: Impact assessment
- Proposed to measure quality and impact
- Pilot in 2005 included impact
- Process concluded in December 2007, replaced by ERA

2007
HEFCE announce that following the RAE 2008 there will be a new framework for assessing research quality and performance in the UK

RCUK introduce impact plans into grant applications

2009
UK Research Councils introduce "Pathways to Impact"

2009
Excellence in Research for Australia (ERA)
- Pilot conducted in 2008-9
- ERA National Reports released for 2010, 2012 and 2015

2010
Impact pilot - 29 institutions
Focus on socio-economic impacts of any type between 2005-2009, underpinned by research from 1993

2011
Focusing Australia's publicly funded research review maximising the innovation dividend
- Increase reporting and liaison on impact of research
- Funding should recognise and reward focus on external collaboration and partnerships

2011
Decisions on assessing research impact (HEFCE)
- REF will include explicit element to assess the impact of excellent research
- A weighting of 20% would be given to impact across all units of assessment
- Impacts to have occurred between Jan 2008 and Jul 2013
- Published criteria and working methods for REF 2014

RCUK statement of expectations on economic and social impacts

RCUK knowledge exchange principles published

HEFCE publish detailed guidance on impact

2012
Excellence in Innovation for Australia (EIA) Trial
- The Australian Technology Network of Universities (ATN) and the Group of Eight (Go8) undertook a joint trial exercise to assess the impact of research produced by the Australian university sector

2012
Research Impact Principles and Framework: ARC Funding policy
- ARC working group was established to develop a common understanding of approaches, terminology and reporting of research impact

2012
Final panel criteria and working methods published

2012-2014
IAA scheme introduced by RCUK

2013
Assessing wider benefits of research
DIICCSRTE discussion paper and submissions

ASTRA (Australian Science, Technology and Research Assessment)
Pilot study undertaken for the Department of Innovation, Industry, Science, Research and Tertiary Education (DIICCSRTE) by the Melbourne Institute of Applied Economic and Social Research

2014
First UK REF held: including impact at 20% weighting using case study methodology

2015
The Metric Tide: Independent review of the use of metrics in research assessment

Nurse Review: Government review to improve university research funding

REF Impact Case Studies: published online

2014
Requirement for impact statements in ARC grants

2015
Australian Academy of Technological Sciences and Engineering (ATSE)
Focused on a single indicator of engagement

National Innovation and Science Agenda (NISA)
launched by the Australian Government

Watt Review of research policy and funding arrangements

2016
Lord Stern Review of REF

Higher Education and Research Bill 2016/17
The Research Councils to become UK Research and Innovation (UKRI) - Also includes Innovate UK and Research England

Altmetrics: working group established

2016
ATSE Research and Engagement Consultation

2017
Research and Engagement exercise pilot
as companion piece to ERA

2018
ERA 2018 roll-out

2021
UK REF to take place

Figure 1: Research policy timeline in the UK and Australia

I follow this introduction in Chapter 2 by contextualising the discussion arising from the introduction of the impact agenda. I introduce my conceptual framework and explain why I focused on those particular themes. In this introduction, I also include definitions and characterisations of the themes I discuss. I examine the concept that impact is a symptom of political knowledge regimes such as marketisation and I introduce this by framing the debate as one characterised largely by resistance in order to set out and problematize the impact agenda, which was central to the formation of my research questions. I then describe research impact policy in the UK with respect to funding applications and the REF, outline research impact policy developments in Australia with respect to assessment (both in terms of the EIA trial and the Research and Engagement Consultation due to be rolled out in 2018 following a pilot in 2017) and outline ARC impact policy with respect to funding proposals.

In Chapter 3, I explore the contribution of previous research examining academic attitudes towards impact and the literature pertinent to the themes that emerged from analysis of the interviews. I present both the academic and policy literature so as to contextualise the broader themes before exploring research examining academic responses to these issues. This will foreshadow my analysis, which considers whether these responses are reflective of disciplinary norms, practices and philosophies. I explore the literature, which illuminates how certain types of research are more or less attuned to utility through describing the context in which notions of pure and applied research (and subsequent theories) arose, and their relevance today. I then explore previous research relating to the emergent themes discussed in this thesis, for instance, epistemic value, responsibility and academic freedom. I review the literature concerning these themes as important philosophical issues pertinent to the impact agenda and my research questions and summarise my contribution.

Chapter 4 describes my research methodology and outlines the philosophical nature of my inquiry. I present a rationale for my research design, which is characterised by a case study approach of two research-intensive universities. I explain how I recruited my participants and justify the use of interviews and discuss how I collected the data. In doing so I provide an interview schedule and explain how I prepared for the interviews and my method of recording and transcribing them. I also include a section on ethics, informed consent and reflect on my role as a researcher. This chapter explains how I attempted to recruit similar numbers of male and female participants and presents the representation across the disciplines. I outline how I analysed the data with thematic analysis in order to inductively gather information from the data and how I was also able to deductively produce analysis from the data with respect to direct questions which were asked to all participants concerning impact, freedom and responsibility.

In Chapters 5 - 9 I present my analysis of the emergent themes and responses to my overall research questions. I begin in Chapter 5 by discussing the ways in which my participants defined and conceptualised impact. I consider the important role these interpretations played and show how interviewees' perceptions of what constitutes impact may vary across discipline and national context. I argue that the language used to depict impact across the disciplines resonates with rhetoric about epistemic value which is perhaps deep-rooted in what it means to be an academic. I note the connotations of the word 'impact' in academics' abilities to accept the agenda. Here, I consider how impact is referred to with reference often to weight and force, and how these connotations may be negative or even gendered. I consider the ways my interviewees attempt to characterise impact through analysis of the types of activities they associated with it. Finally, using NVivo I examine the number of times activities were mentioned and the impact domains to which these activities belong. I find that disciplinary orientation towards impact can be seen to dictate the type of activity associated with it.

In Chapter 6 I explore academic attitudes towards the relationship between impact and academic freedom. I consider the idea that academic freedom may encompass impact, explore responses from my participants where freedom is viewed as nostalgic and where research is a privileged activity, as well as the opposing view that impact impedes freedom and the reasons for these viewpoints.

Chapter 7 considers the theme of the instrumentalisation and value of knowledge. This theme emerged as a key concern for most of the participants and relates to notions of the intrinsic and extrinsic value of knowledge, or what increasingly might be referred to as knowledge as a private or a public good. The chapter introduces concerns about the instrumentalism or even reduction of knowledge to its ends rather than possessing value 'in and of itself'. I consider how the idea of knowledge as pertaining to usefulness or utility relates to and challenges 'ivory towerism' (Bok, 1984) and examine the extent to which interviewees defend the inherent value of knowledge for its own sake.

Chapter 8 presents analysis of how the themes explored in Chapters 5-7 affect academic behaviour, identity and practice. I analyse academic testimonies which claimed that impact was a threat to integrity and academic agency, creating emotional and moral dissonance amongst those whose work does not naturally align to it. Once more impact can be seen as problematic for certain disciplinary groupings. I explore how integrity was seen to be at risk by several participants and highlight the local and systemic issues cited by academics in what we refer to as 'impact sensationalism' or window dressing activity (Chubb & Watermeyer, 2016). Here, a warning of an increase in 'game-playing' in research is revealed

along with concerns about how academic conceptualise impact and their resulting behaviours. Closely associated with issues of integrity, the chapter then explores the emotional reactions of interviewees towards impact. I firstly consider how impact can be seen as critical to academic agency. Where that is the case less emotional turmoil results, which is in sharp contrast to the negative 'doomsday' rhetoric which surrounded impact upon its inception. I then consider the opposing view that impact leads to a loss of agency and creates a range of negative emotions relating to academic identities, abilities and skills. I suggest that it is through harnessing these emotions rather than attempting to eradicate or ignore them that impact policy can be better understood and made more meaningful to academics.

Chapter 9 presents the findings concerning discipline responses to an impact agenda. Here, I suggest that the impact agenda gives rise to the 'Two-by-Two' Cultures of Research Impact, whereby discipline groupings from the pure arts and pure physical sciences form one distinctive impact culture, and life, earth, social and engineering disciplines form another. I note a new-found currency for applied research and argue that through an impact agenda there is greater scope for greater interdisciplinary working within and across each impact culture (Section 9.2).

I conclude the thesis in Chapter 10 by drawing the findings together and considering the longer term perceived consequences for research, before identifying opportunities for future research.

2 The impact agenda: the history of a debate characterised by resistance

2.1 Introduction

This chapter contextualises the debate and broader issues surrounding the introduction of an impact agenda and outlines impact policies in the UK and Australia. I begin by describing the ways in which impact was largely resisted upon its emergence (Section 2.1) and provide background on some of the broader issues affecting HE such as marketisation (Section 2.2). Sections 2.3 and 2.4 outline impact policies with respect to UK Research Council funding (RCUK) (prospective impact) and the means for assessing research quality in UK universities (REF) (retrospective impact). Sections 2.5 and 2.6 then describe Australian Research Council (ARC) impact policies with respect to funding and assessment. I summarise the chapter in Section 2.7.

The inclusion of impact in funding and assessment mechanisms in the UK initially received "a hostile reception" (Watermeyer, 2012, p.118) from scholars and commentators alike who claimed that the politicised notion of research impact was absurd and nebulous, detrimental to and at odds with scientific discovery (Braben et al., 2009; Fox, 2009; Ladyman, 2009b; 2009c; Martin, 2011). Indeed, a similar "chorus of opposition" was observed in Australia (Cuthill, O' Shea, Wilson & Viljoen, 2014, p.42; Riemer, 2016; Bonnell; 2016; Hughes and Bennett, 2013). The debate about whether all research ought to generate 'real-world' outcomes was largely driven by its critics (Braben et al., 2009; Collini, 2011; Cuthill et al., 2014; Bexley, James & Arkoudis, 2011; Ladyman, 2009c; Watermeyer, 2012). As such, it was one characterised by resistance by the academic community, (particularly in the UK but increasingly elsewhere including Australia) by those who claimed it was an 'assault' on academic freedom (Docherty, 2014; Gibbs, 2016; Holmwood, 2011b; Moriaity, 2011; Orr & Orr, 2016). In addition, impact also reinvigorated discussion about epistemic responsibility, the university as a public good and the intrinsic value of knowledge (Collini, 2012; Graham, 2002; Newman, 2004).

The introduction of an impact agenda has been accused by some commentators of compounding the idea that the university is "in ruins" or "crisis" (Burawoy, 2011; O'Shea, 2014; Readings, 1998). This kind of hyperbole then increased following the publication of media articles on impact such as those in the UK Times Higher Education (THE) serving to act as an echo chamber for impact critics in which academics could arguably be seen to be shouting into the abyss (Chubb & Watermeyer, 2016). Notwithstanding, described as a kind of 'straitjacket around research', the main source of resistance towards the impact agenda

was the threat it was seen to present for academic autonomy and freedom (Bhattacharya, 2014; Braben et al., 2009; Collini, 2013; Docherty, 2014; Gibbs, 2016; Sadler, 2011; Tickle, 2012). Corbyn (2010) for instance, warned about the effects of over-management in research and described how impact is identified as having the potential "to skew research funding to reward those academics whose work delivers the biggest economic, social and public policy pay-offs" (p.1). Concerns that research quality would suffer because of impact arose and impact was perceived as threatening to academic norms and ideals (Bornmann & Haunschild, 2016; Frodeman, Briggle & Holbrook, 2012). Francis-Smythe (2008) for instance expressed "concern over academic engagement with knowledge exchange and entrepreneurial approaches as destructive of traditional values" (p.68). Related to this, the potential for impact to erode academic virtues and integrity emerged as a serious consideration (Banks, 2013; Barnett, 2000; Battaly, 2013; Chubb & Watermeyer, 2016; Haslam & Koval, 2010; Macfarlane, 2010; Nixon, 2008; Osakwe et al., 2015; Ritzer, 1999; Williams, 2002) (discussed in Chapter 8).

One of the main commentators at the time of the emergence of the impact agenda in the UK was the advocate of academic freedom, scientist Professor Donald Braben, who spearheaded a lobby group against impact. Braben's argument was that 'pathways to impact' in grant applications violated the principles of science such as the 1918 'Haldane Principle' which stated that decisions to award research funding are best taken by researchers with minimal government interference. Braben claimed that pathways to impact would cause academics to lie in research funding applications, leading to scientific reductionism (Chapters 7 and 8). In defence of a letter compiled by 20 eminent UK scientists, Braben stated that the impact agenda was a great threat to scientific values referring to it as "the last straw" (Braben et al., 2009). The paper argued that the greatest discoveries ever made were the result of creativity and serendipity and highlighted that scientific advancements such as Faraday's discovery of electromagnetic induction would not have been made had there been an impact agenda. To demonstrate how strongly some academic responses were at the time, Fox (2009) reports how "one signatory said he would happily sign 'in blood' against the government's plans for an impact agenda" (p.1).

In a further provocation 'against impact', Ladyman (2009c) appeared hopeless about the future of research and held the impact agenda accountable. This kind of stance was rehearsed in the media and grey literature in particular, although not exclusively, by academics whose work did not naturally align with an impact agenda, particularly theoretical scientists and humanities scholars. This group of scientists urged the government to abandon pathways to impact statements in grant applications claiming that "academic freedom offers by far the best value for taxpayers' money and the highest prospects for

economic growth" (Braben et al., 2009). In a telephone call with me in 2012, Professor Braben acknowledged that he was at the end of his research career and that perhaps he could better afford to be so outspoken and rebellious - one suspects the same cannot be said for all academics. He concluded that "you have to be prepared to play the game". This is reminiscent of Lucas (2006) who talks about the 'research game' in academic life and others (Chubb & Watermeyer, 2016; Knowles & Burrows, 2014; Watermeyer, 2011; 2014; Wilsdon et al., 2015) who alluded to game playing (Chapter 8).

The political landscape in Australia also focused on research funding and public accountability. Jamie Briggs (an Australian Liberal policy maker) in his speech titled 'Ending more of Labor's waste' (2013) caused significant controversy. He stated that if elected to government "the Coalition would look to targeting those ridiculous research grants that leave taxpayers scratching their heads wondering just what the government was thinking" (Briggs, 2013, p.1). Briggs attempted to gain favour by stating that he would "reprioritise funding through the ARC to deliver funds to where they're really needed, such as medical research" (Ferguson, 2014, p.1). In doing so, this would naturally decrease support for disciplines less able to justify the impact of their work such as the arts and humanities, who he claimed "do little, if anything, to advance Australia's research needs and funding priorities" (Briggs, 2013; Ferguson, 2014). The level of controversy linked to Australian impact policy has distinct echoes of similar reactions in the UK (Orr & Orr, 2016; Martin-Sardesai, Irvine, Tooley & Guthrie, 2017; Rea, 2016; Small, 2013; Wood & Meek, 2002).

It is important to note that views on the positive effects of the impact agenda are also present in the literature. Francis-Smythe (2008) noted that scholars such as (Crespo, 2007; Shattock, 2005) viewed impact as "compatible and enabling" (p.68). Watermeyer reported on the positive effect that the REF has had on academics' perceptions of public engagement as an activity, now 'elevated' by the requirement to consider public benefits of research. He claimed "it has arguably revitalised the engagement initiative" (Watermeyer, 2012, p.127). Meanwhile Salter, Tartari, D'Este and Neely (2010) suggested that UK academics are developing new skills and becoming more entrepreneurial which challenged the ivory tower concept (Chapter 7). Indeed, Chantler (2016) argued that impact and knowledge exchange are becoming part of the university's "other identity" (p.215) and much like Watermeyer's idea of the 'third space' (Watermeyer, 2015) responsibility emerges as a key aspect of academic labour which may override or at least challenge some of the resistance felt against the agenda.

Although the debate was dominated at least initially by resistance, there are surely other dimensions which need to be understood. Academics are not a homogenous group. The

question as to whether the strength of opinion towards the impact agenda is uniform across all disciplines, national contexts, career stages and gender therefore becomes apparent (much of the resistance described here is rather characterised by male scientific professors). Indeed, the diversity of the academic community may be indicative of other behaviours that prevent academics from feeling they can pursue and realise the impact of their research. I will now introduce the context in which the impact agenda sits within global trends in HE towards marketisation and the notion of a knowledge economy in which knowledge is a 'commodity' (Naidoo, 2003).

2.2 Research impact and marketisation

The impact agenda in the UK has been referred to as symptomatic and emblematic of the marketisation and metricisation of HE (Bok, 2003; Brown, 2015; Brown & Carasso, 2013; Connell, 2013; 2015; Marginson & Van der Wende, 2007; Moretti, 2013; Olssen & Peters, 2005; Palfreyman & Tapper, 2014; Ziman, 2000), arising from governmental reforms in the UK (Browne, 2010; Dearing, 1997) and in Australia (Bexley et al., 2011; Cuthill et al., 2014; Duncan, Tilbrook & Krivokapic-Skoko, 2015; Orr & Orr, 2016). Scholars have been divided on whether a move towards a knowledge economy is constraining knowledge workers or empowering them (Fuller, 2003) but there is a strong rhetoric of the former discourse. There is a long history of discussion about the broader goals of HE which places marketisation as a clear threat. Lord Dearing's vision made famous in 1997 for example was that HE should be "part of the conscience of a democratic society" and he stressed the importance of the wider "ethical dimensions of higher education" (Arthur & Bohlin, 2005, p.11). A major challenge for global HE therefore is that these wider ethical dimensions are in direct tension with the notion of accountability and the need for a 'return on investment' (Warry, 2006) - what we now refer to as an impact agenda.

The so–called marketisation of HE can be traced back to the 2007 Sainsbury Review of Science and Innovation. It was here that the need for the development of business-led and R&D investment through schemes such as Knowledge Transfer Partnerships (KTPs) was first emphasised. The Browne Review (2010) also represented a "radical transformation of HE" (Holmwood, 2014, p.62) which "focused on the role of HE in contributing to international economic competitiveness" and is reported as being "pretty pessimistic" about the state of HE (Reisz & Stock, 2012, p.1). It was arguably because of these developments that arguments such as those made by Graham (2002) and Barnett (2000) concerning the preservation of the intrinsic and fundamental value of knowledge were revisited by scholars like Collini and Holmwood. Holmwood (2014) remarked that the Browne Review was "conspicuous by the absence of any discussion of the wider values of HE" (p.62) because it

referred only to education in terms of private interest of economic benefit, potentially threatening to personal and professional values (Evans, 2015; Moriarty, 2011; Nixon, 2008). In addition, the 'student as consumer' model became prevalent in the literature (McMillan & Cheney, 1996; Naidoo & Jamieson, 2005) and demands to see value for money from universities increased. The concern, as explained by Kayrooz, Kinnear and Preston (2001) summarising (Marginson & Considine, 2000; Meek & Wood, 1997), is whether the "public university" is being taken over by the *enterprise university* (essentially that which is led by the market). These issues are reminiscent of those raised by the Browne Review on the rise of student tuition fees and the increased pressure for universities to travel up the ranking and league tables, indicative of what Collini called the "champions league syndrome" (Collini, 2011, p.17). An impact agenda can be seen as part of this broader landscape.

Within the context of the impact agenda, marketisation is characterised as a fiscal rationalisation of knowledge (Chubb & Watermeyer, 2016, p.1) coupled with a focus on academic performativity (Ball, 2001; 2003; 2012; Olssen & Peters, 2005; Rhoads & Torres, 2006). The emergence of the 'knowledge economy' is representative of the commoditisation of knowledge focused on maximising profit and income, reflecting capitalist theory (Fuller, 2003, p.103). Stehr (1994) was crucial to developing the idea of the knowledge economy but also stressed the importance of retaining the individual. Brown and Caresso (2013) report that "the past twenty years have seen a global shift towards market–based provision" where the "dominant theme" is "that of growing state, and reducing academic control over the universities" (p.12). Marketisation is therefore associated with a loss of autonomy, or is at least seen as a major threat to it. Critics have linked this to a political vision of the commercialisation of universities through a range of governmental reports (Browne, 2010; Lambert Review, 2003; Warry, 2006).

The shift from public to a privatised interest of knowledge regimes where there is a focus on economic return (Giroux, 2014; 2015; Holmwood, 2014; Peck & Tickell, 2002) results in what Deem, Hillyard and Reed (2008) refer to as 'new managerialism' with "declining trust and discretion" (p.3). Within this context, academics are increasingly expected to become more entrepreneurial, which some critics view as devoid of intellectual merit, or at the very least at odds with the traditional notion of academia. Ultimately, academics must conform to this system, perhaps as a survival instinct; perhaps out of fear (Chubb, Watermeyer & Wakeling, 2017) but what results is the perception that knowledge is being over-regulated and constrained, where market forces are defining and directing the knowledge that is created. Some argue this goes against enlightenment and Mertonian norms of scholarship such as 'universalism, communalism, disinterestedness and organised scepticism' described by

Sociologist Robert Merton. These norms describe an ethos of science about what scientists *ought* to do and include permissions and prescriptions (Merton, 1979):

> …Although the ethos of science has not been codified, it can be inferred from the moral consensus of scientists as expressed in use and wont, in countless writings on the scientific spirit and in moral indignation directed toward contraventions of the ethos.

Merton, 1979, pp. 268-269

The financialisation of HE is seen to lead to retrenchment of such values, where a lot of what matters are rankings, power-play and hyper-competition (Sayer, 2015). Part of this competition is the UK REF, described in Section 2.3.

With this in mind, Collini (2013) warned of the effects of the REF, particularly the impact aspect, claiming it was an attempt to constrain the autonomy of researchers and described it as "another metric designed to redirect universities' research in politically approved directions" (p.1). Brown and Carasso (2013) also argued that the metrification and over-regulation of university research is simply damaging, making for a less productive academic work force, lacking in autonomy and freedom, which he deemed as counter-productive. Stothard (2009) explained that Collini called the REF impact mechanism "ludicrous" claiming "it might seem laughable were it not so serious" (p.1) Collini believed that measures were meaningless, particularly if applied uniformly across the disciplines and felt that the research impact agenda would be "potentially disastrous" for the humanities (Collini, 2011). Collini feared that academics would dedicate less time to their quest for knowledge (arguably their fundamental purpose) and instead devote more energy to "becoming door-to-door salesmen" of what he called "vulgarised versions of their increasingly market-orientated products" (Collini, 2010, p. 17).

Another common tendency is for these changes to be associated with and seen as symptomatic of *neoliberalism.* The recent 2016 UK HE and Research Bill is at the most radical stage of a process of change in HE that began in 1985 with the Jarret Report which arguably led to managerialism in universities. This founded an incremental process of change that saw universities begin to move in a market direction. Holmwood claimed that 'neoliberalism' is responsible for the shift from public interest where HE is a social right (Robbins, 1963) to private investment and a market-based knowledge economy (Holmwood, 2014, p.63).

Several meanings and definitions of neoliberalism can be found in the literature. Harvey (2005) stated that it referred to a set of economic practices and policies and the idea of growing and intensifying the markets and economic growth (MacEwan, 2005). Others

defined it beyond the policy emphasis to include its role as a philosophy or ideology, where the expectation is that one ought to embrace entrepreneurialism and similar values (Fullbrook, 2006). Here is one such definition:

> Neoliberalism is a philosophy in which the existence and operation of a market are valued in themselves, separately from any previous relationship with the production of goods and services . . . and where the operation of a market or market-like structure is seen as an ethic in itself, capable of acting as a guide for all human action, and substituting for all previously existing ethical beliefs.

<div align="right">Treanor, 2005, p.1</div>

Despite the wide-ranging definitions and interpretations, most share a sense that neo-liberalism is associated with growth and the privatisation of economies. In the case of HE, this invokes a market-logic in the organisation of institutions, their consumers (students) and their outputs (knowledge). Within this context, one can understand the impact agenda as a potential symptom of that drive to produce a 'return' or promote efficiency of the product (knowledge) being generated in universities (Stein, 2012). Since Neoliberalism confers upon the state the responsibility for developing knowledge and innovation, it is a model that assumes people will want to create income and that they are self-interested, something that the debate concerning the impact agenda suggests researchers are not.

Manifesting in an impact agenda, what arguably results from a market-logic is a range of effects both potentially deleterious and advantageous with respect to academic practices and behaviours (Clegg, 2008; Delanty, 2001; Fanghanel, 2011; Henkel, 2009; Leathwood & Read, 2013; McClennen, 2008; McInnis, 1998; Whitchurch, 2012; Winter, 2009). In particular, a decline or corrosion of academic ideals and standards because of hyper-competition is perceived (Chubb & Watermeyer, 2016; Giroux, 2014; Lucas, 2006; Lamont, 2010; Naidoo, 2003; Watermeyer & Olssen, 2016). Criticised also as symptomatic of 'academic capitalism' (Sennett, 1999; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004), the impact agenda can be seen to represent a growing audit culture of research threatening academic autonomy (Etzkowitz & Leydesdorff, 2000; Gibbons et al., 1994; Henkel, 2000; Olssen & Peters, 2005; Shore & Wright, 1999).

These changes are also discussed with reference to 'academic capitalism' which Slaughter and Rhoades (2004) define as "the involvement of colleges and faculty in market-like behaviours" – an environment in which the politics and the policies of a growing "enterprise university" can be seen to "shape and control" academic life (p.37), Here, knowledge is 'consumed' and generated in order to maximise revenue rather than preserve the "unfettered expansion of knowledge" (p.38). Impact is arguably indicative of a departure from the idea of

the university as Newman (2004) first envisaged it where knowledge is "but an end sufficient to rest in and to pursue for its own sake":

> Its object is, on the one hand, intellectual, not moral; and, on the other, that it is the diffusion and extension of knowledge rather than the advancement.

> Newman, 2004

Scholars have continued to revisit similar views about the nature and purpose of knowledge and of the university (Aronowitz & Giroux, 2000; Barnett, 2000; Collini, 2012; Docherty, 2011; Graham, 2002; Holmwood, 2011b). Collini (2012) also discussed the need to frame the debate about the role of universities in the context of the public good. He rejected reductionist statements that universities should simply exist to justify the return on public investment. He defended the value of the humanities stating that their significance is wide-ranging and that "the case for their importance needs to be made" (p.16). He claimed however that "it needs to be made in appropriate terms… not exclusively economic" but also educational and cultural (Collini, 2012). He went on to express concern that the 'marketisation' of HE is damaging the idea of a university as a "beacon of culture" (Collini, 2012). Arguing that in the past universities were "an antidote from the grubby pressures of economic life" (Collini, 2012, p.33), Collini and other critics blame the perceived over-regulation in HE for putting that ideology at risk. For instance, Docherty also claimed that universities are over-managed "managed, in fact, almost to death" and that; "the power of unconstrained knowledgeable dialogue is marginalised" (Docherty, 2014, p.1). This speaks to broader debates in this thesis.

Impact can therefore be seen as symptomatic of the marketisation of HE, at least perceived by its critics to be altering the academic role, eroding freedom and autonomy. However, responsibility also forms part of the academic role. Indeed, whilst Graham's 'idea of the university' rejects the neo-liberal tendency and considers the usefulness of knowledge in a sympathetic way, most acknowledge that such ideologies have become progressively more remote and hard to retain in an age of increased accountability.

The purpose of this research is to explore how uniformly these changes are being resisted and rejected as part of everyday academic life in both the UK and Australia and the justifications for any dissent. I will now introduce impact policies in the UK and Australia.

2.3 Impact in RCUK funding proposals

This section introduces impact policy in RCUK funding proposals. Figure 1 demonstrates some of these developments and shows how impact in funding proposals in the UK arose

from the recommendations of the 2006 Warry Report and on-going debates about the interaction between researchers and the public. It was Warry who suggested that research funding proposals should be assessed on their potential for impact (Warry, 2006). Following the recommendations of the Warry Report, the 2007 Wakeham Review gave a similar message about the importance of impact. This strengthened Warry's recommendations that researchers should engage more with knowledge transfer/exchange activities. Following these influential reports, RCUK introduced 'impact plans' in 2007. This was criticised for presupposing that academics could 'predict' a-priori the impact of their research and was felt to be too prescriptive and potentially threatening to academic freedom and autonomy (Braben et al., 2009). Impact plans were also criticised for applying a scientific model to research which particularly affected the sensibilities of the arts and humanities.

As a result they were quickly renamed and replaced with 'Pathways to Impact' in 2009. These were arguably less prescriptive and could be interpreted as opportunities for end users to benefit from research as opposed to having to make unrealistic predictions. Despite this, they were still met with resistance as outlined in Section 1.1. RCUK continued to forge ahead and proactively called for researchers to strategise impact in funding applications. RCUK launched its 'Impact Strategy' in March 2010, in which they outlined three main themes: engaging key stakeholders, maximising research impact and delivering highly skilled people (RCUK, 2011a). This strategy led to the 'Excellence with Impact: Framework for the Future' (RCUK, 2014c) report, and the RCUK Statement of Expectation on Economic and Societal Impacts (RCUK, 2014d):

> Our commitment to excellent research that extends the boundaries of human knowledge remains as strong as ever. These documents (pathways to impact) signal a progression in the Research Councils' policy on knowledge transfer, begun in 2006 with the publication of the Warry Report, which recognises that publicly funded research should benefit us culturally, socially and financially.

RCUK, 2014d, p.1

The formalised inclusion of 'Pathways to Impact' therefore seeks to address how potential research will lead to economic and social impact. RCUK broadly define impact as "the demonstrable contribution that excellent research makes to society and the economy" (RCUK, 2011a, p.2). This definition is said to reflect all the "diverse ways" in which potential beneficiaries of academic research can be reached across disciplines. These 'ways' can be as specific and well defined as 'increasing economic benefit' and less quantifiable such as 'improving quality of life' or 'cultural enrichment'. Here, impact "can take many forms, can become manifest at different stages in the research process and beyond and can be promoted through many different mechanisms" (RCUK, 2011a, p.2).

On a practical level, researchers from across all disciplines have to write a two-page document and short impact summary outlining who will benefit from the proposed research and how. 'Pathways to Impact' is an attachment in the *Case for Support* section of a research grant application. It addresses the question 'what will be done to allow them (the beneficiaries) the opportunity to benefit from the research?' Here, applicants can include plans for communication with lay audiences, public engagement activities, and/or plans for exploitation or activities, which enhance dialogue with 'user communities' of research with appropriate resourcing. RCUK emphasise the *process* (impact generating activity) as opposed to the *event* (the impact itself) and refer to the importance of embedding 'knowledge exchange' throughout the research process.

Knowledge exchange refers to the "two-way flow of people or ideas between the research and non-academic environment for mutual benefit" (RCUK, 2011a, p.2). Traditionally, funders described the process by which expertise; in this case, academic research was translated to end users as 'knowledge transfer', but this implied a one-directional activity. Knowledge exchange is the vehicle and the very process that mobilises knowledge to create impact. The word 'exchange' reflects that we are talking about a deeper process than a mere transfer of information. Unlike instances where knowledge is transferred out of the academy (such as through dissemination or perhaps a commercial licensing of technology), there is the implication that this process will be two–way, reciprocal and mutually beneficial.

Individually, funders under RCUK have introduced their own support with the impact agenda. For example, the Economic and Social Research Council (ESRC) attempts to further define impact in the social sciences. Here, impact can be conceptual, instrumental and/or capacity building. The introduction of RCUK funded 'Impact Accelerator Awards' (IAAs) which are designated block funds assigned to universities, also specifically promote the acceleration of and engagement with impact activities.

Importantly, current policy stipulates that where there is no obvious pathway to impact, applicants should simply explain why this is not the case and states that to do so should not disadvantage pure research:

> Research Councils recognise that blue-skies research is essential in underpinning future academic advancements and they will continue to fund high quality blue-skies research. Research excellence remains the primary criterion for decisions on funding.

> RCUK, 2011a, p.2

Finally, reviewers of research grants are asked to consider the ways in which the research demonstrates the potential for impact and to consider how appropriate and relevant the beneficiaries and routes to impact are. It is now accepted that whilst excellent research may still be the primary criteria for the assessment of grants, pathways to impact may be a differentiator and could tip the balance with respect to research funding decisions.

RCUK state that "impact has always been at the core of RCUK" (RCUK, 2011b), however for many, RCUK impact requirements signal a new and direct imperative for researchers to quantify, qualify and articulate the fundamental *value* of the knowledge they create to society and the economy, which for some is a complex and difficult task. The requirement to consider the impact of research at the time of planning for funding describes only half the story when contextualising the impact agenda in the UK. The next section considers impact as a component of research assessment in the UK REF.

2.4 Impact and the UK REF

As outlined in the introduction, in addition to the inclusion of pathways to impact in funding allocations, the impact agenda as a collective term also refers to the impact of previous research and the economic, social and cultural impact of research is now a key component of research assessment (such as the UK REF - a system which highlights areas of excellence and benchmarks the quality of previously funded research). Forming 20% of the assessment, impact is analysed through case studies underpinned by at least 2* research "quality that is recognised internationally in terms of originality, significance and rigour" (REF, 2011; REF, 2012; HEFCE, 2011). Funding is then assigned to universities in relation to the quality rating given through this system known as Quality Related (QR).

The REF replaces the previous process in the UK known as the Research Assessment Exercise (RAE) in which the impact of research was not measured. Changes to the RAE were announced in 2006 through the consultation of a potential metrics exercise in 2007/8 and due to the increased expectation on universities to demonstrate the impact of research, HEFCE ran a pilot exercise in 2010 to determine whether the creation of impact case studies to report retrospectively on the impact of publicly funded research would be feasible. The pilot involved 29 UK universities and the disciplines of English literature and language, social policy and social work, physics, earth systems and environmental sciences, and clinical medicine. Impact was assessed by a panel of relevant experts and researchers. Following the 2010 pilot, it was deemed that the impact of previous research could be assessed through structured narrative case studies. It was recommended that the weighting of impact in overall REF scores be less than 25%, but that there would be potential for this to rise following the REF's first assessment of impact in 2014. The conclusions of the REF impact

pilot were published in a report in 2010 by Technopolis 'REF Research Impact Pilot Exercise Lessons-Learned Project Feedback on Pilot Submissions' and by publication of the findings of the expert panels in November 2010 'Research Excellence Framework impact pilot exercise: findings of the expert panels'. The expert panels concluded that it was possible to assess impacts from research in the disciplines outlined above both in terms of being able to collect and demonstrate evidence for social and economic benefits from research in these disciplines. They deemed the panel process appropriate and though they espoused the case study model, suggested that there should be changes to the components of the submission such as the use of a wider impact statement, the template and the evidence which is provided by universities. The panel concluded that although there was disciplinary diversity, impacts were broadly similar and as such a "common approach should be possible"(HEFCE, 2010, p.3). They also suggested lowering the rating at the time below 25% while the process "beds down" (p.3). Importantly, the panel stressed the need to define impact broadly and to discount impact in academia in the impact assessment. They stressed the need for longer time frames, the need to include public engagement of the broader departments and claimed that there should be more guidance for the panels themselves in acting as reviewers. This is not dissimilar to the findings by Technopolis who stressed that the exercise improved HEIs' understanding about the meaning of research impact (Technopolis, 2010, p.3), the processes that would be involved in REF 2014 and improved their awareness of the ways in which research was being used outside of the university environment. They concluded that as a result most institutions were "broadly content" (p.3) with the process and recommended that it ran as the pilot had done.

Following this, HEFCE consulted with Heads of HEIs, those responsible for research in publicly funded research organisations and those with an interest in research in businesses, public sector bodies and charities, outlining a draft assessment criteria and methods for REF 2014 panels. HEFCE published guidance on impact in 2011 followed by issuing set of guidelines to institutions (REF, 2012) outlining that the weighting on impact would be 20%. One in every ten full-time equivalent member of staff per unit of assessment was expected to submit a case study on impact, directly linking the research to its impact, underpinned and backed by meaningful indicators and evidence.

Impact case studies (known as REF 3b documents) had to include a 'summary of impact', details of the underpinning research, references, details and 'sources to corroborate the impact' (REF, 2012, p.48). Evidence could include evaluation of both a qualitative and quantitative nature and accounted for research that took place between 1st January 1993 and 31st December 2013 with the impacts occurring between 1st January 2008 and 31st July 2013. In addition to the case study, there was an expectation on the Unit of Assessment

(UOA) to produce an impact template and a summary. These were known as the REF3a and REF5 documents.

HEFCE defined impact in Annex C of their Guidance on Submissions as "an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia" (REF, 2012, p.48). They further categorised it in point five of the guidance document in which they stated that "impact includes, but is not limited to, an effect on, change or benefit to a range of contexts" (REF, 2012, p.48).

The way in which impact is defined for these purposes provoked further concern already sparked by pathways to impact. This is due to many factors discussed in Chapter 3 including the restrictive time frame of the supposed impacts, the issue of attribution of a particular individual piece of research and the meaning of the terminology itself which has been called 'nebulous' and "neglectful of differences within and between disciplines" by scholars (Watermeyer, 2012. p.119).

The issue of measuring and assessing research impact caused particular concern for disciplines less able to pin down impact in the way HEFCE require. Researchers have reported difficulties in quantifying and qualifying the influence or the effect that a particular piece of work has had (Derrick & Samuel, 2016; King's College London and Digital Science, 2015; Oancea, 2010; Samuel & Derrick, 2015; Watermeyer, 2014). This was seen to affect those we might refer to as non-instrumental researchers more so than those whose work is more naturally attuned to application or use. One might argue for instance that it is far easier to report on the creation of tangible outcomes such as increased profits or the amount of jobs created, rather than something like cultural enrichment. The issue of evidencing research impact therefore became a concern (Wilsdon et al., 2015) whilst simultaneously exacerbating the debate about discipline differences and their 'value' to society (discussed in Chapter 3).

Impact is further problematised as the REF requires academics to accept an additional definition of impact for the purposes of assessment which is distinct from that of RCUK's definition. HEFCE outline their criteria for assessing the impacts arising from past research and claim that impacts can be categorised by their 'reach' and 'significance', (highly debateable terms in their interpretations and definitions, discussed in Chapter 5). The results of the 2014 UK REF were published in January 2015.

Evidence is emerging that in practice different interpretations of impact were applied at panel level and greater exploration of this and the experiences of the authors of the case studies is also an area of growing interest to scholars (Derrick & Samuel, 2016; Neyland & Milyaeva,

2017; Sayer, 2015; Watermeyer, 2012; Watermeyer & Hedgecoe, 2016). Indeed, HEFCE carried out analysis of the impact case studies with RAND Europe focusing on both the process itself and evaluator experiences (Manville et al., 2015). A key challenge was in finding robust evidence to back up impact stories for research that did not plan for impact and for which no method of monitoring impact was established. Such are the criticisms of the REF impact system, among other debates concerning attribution, which place importance on the issue of autonomy in research. The 2016 Stern Review of the REF took into consideration many of these challenges. Now, impact has risen to 25% of the assessment and recommendations including a broadening of the definition of impact, a greater focus on interdisciplinarity through the role of interdisciplinary institutional case studies and the continued use of case study narratives to demonstrate impact are being implemented[4]. The literature exploring impact in the REF is found in Chapter 3. Pertinent to this thesis, some of the interviewees in this project were case study authors; this may therefore have shaped their responses to impact, the implications of which are explored in Chapter 4. The next section describes the emerging impact agenda in Australia.

2.5 Australia and research assessment

The UK REF's case study approach to impact assessment was first modelled on the Australian predecessor the 'Research Quality Framework' (RQF) to their current process (ERA). This promoted the assessment of impact through case studies, an idea that was abandoned in 2007 with a change of government in Australia.

Chapter 1 detailed how the RQF was under consultation in 2004 as part of 'Backing Australia's Ability'[5] five year innovation Plan (BAA). Australia was keen to show the dividend of investment in research and, through a panel-based approach, hoped to be able to demonstrate that using case studies. After consultation and the issuing of several papers, in 2005 the Australian Government released a preferred model for the RQF in a paper *'Research Quality Framework: Assessing the quality and impact of research in Australia – the preferred model'*.[6] A new advisory group was then commissioned in 2006 and RQF was announced. Following this, a technical working group for impact was created involving

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[4] Lord Stern's review and announcement of changes to the REF followed submission and examination of this thesis.
[5] Department of Education, Science and Training (DEST). (2004). Backing Australia's ability: Building our future through science and innovation. Canberra: Commonwealth of Australia.
[6] Department of Education, Science and Training (DEST). (2005). Research quality framework: Assessing the quality and impact of research in Australia—The preferred model (Report by the RQF expert advisory group). Canberra: Commonwealth of Australia.

academics, managers and industry whose role it was to devise a methodology for assessing impact and to advise the government moving forward. The working group published a "Guiding Principles" document mid-2006 and following advice from the advisory group published their recommendations for the RQF model in October 2006. Their model was going to comprise a panel-approach, using academic and non-academic peers as reviewers and the use of both qualitative and quantitative indicators. The change of government in 2007 however included an announcement that the RQF would not proceed and it was criticised for being "ill-defined"[7] (ISSR, 2007).

Following on-going dialogue with UK decision makers at HEFCE, the ARC undertook their equivalent process 'Excellence in Research for Australia' 2013 (ERA) assessment exercise with the addition of a pilot impact trial, titled the 'Excellence in Innovation Australia' impact trial (EIA) in 2012. The trial involved 'The Group of Eight' (Go8) research-intensive universities and the Australian Technology Network (ATN) who sought to assess the benefits of Australia's research on the broader economy and society. Their objective was "to judge the *impact value* of the submitted case studies and to demonstrate if such an assessment methodology were feasible" (ATN-GO8, 2012, p.5). This followed "a growing international realisation of the need for universities to demonstrate the benefit, or impact of their research – to government, to funders and to the broader society" (ATN-GO8, 2012, p.5). If successful, it was hoped that the EIA would be a possible companion piece for future ERA, which would prove the "innovation dividend" (p.2) of Australian universities.

The EIA was described as:

> One of the largest attempts worldwide to assess the non-academic impact of research arising from the HE sectors using a case study methodology. The only comparator exercise is the UK REF impact pilot.

> ATN-GO8, 2012, p.2

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[7] Department of Innovation, Industry, Science and Research (IISR). (2007). Cancellation of Research Quality Framework implementation [media release]. Retrieved 10 August, 2017 from http://minister.industry.gov.au/SenatortheHonKimCarr/Pages/CANCELLATIONOFRESEARCHQUALITYFRAMEWORKIMPLEMENTATION.aspx

The EIA trial, modelled on the UK approach, assessed 162 case studies from the Australian universities involved. The trial concluded that:

> High quality research carried out in Australian universities has had enormous benefits for the health, security, prosperity, cultural and environmental wellbeing of Australia, the region and the world... approximately 87% of case-study assessments could demonstrate considerable impact.

ATN-GO8, 2012, p.8

RAND stated that the use of case studies was a suitable 'means of demonstrating impact' (Morgan Jones et al., 2013). Indeed, RAND Europe's[8] review of the EIA trial claimed that the trial "was in many ways a success and served to bring the importance of understanding and disseminating the wider impacts of academic research into sharp focus" (Morgan Jones et al., 2013, p.10). RAND examined individual researchers' perspectives on the experience of writing an impact case study by surveying the institutions who took part and the case study authors themselves. RAND reported that of 64 case studies, they received 24 individual perspectives from the authors in their survey of ATN universities. These included surveys of the five ATN member universities who provided an institutional perspective of the trial and survey data from case study authors. The survey results contribute to the evidence base of empirical accounts of those involved in the specific impact trial, but do not necessarily reflect broader individual experiences in Australia of the impact agenda. The survey questions related to the experience of writing a case study and did not explore the personal or philosophical issues they might have faced. Nevertheless this research provided some early indication of Australian academics' dispositions towards the impact agenda. The impact trial in Australia received quite a positive response from authors, in which they stated that they "appreciated the value of research at a university level and in the wider community" (seven authors) and that the process improved "understanding of the impact and effect their research has had" (12 authors) (Morgan Jones et al., 2013, pp.73-79). However, the trial also revealed concerns over the robustness of this process itself, including issues relating to time lags, attribution, and reward. I consider these concerns in Chapter 3.

Research impact policy developments in Australia continued to follow a similar trajectory to the UK (Carr, 2008; Gable, 2013; Haslam & Koval, 2010; Lewis & Ross, 2011; Martin-Sardesai et al., 2017; Neumann & Guthrie, 2002). Following the Australian Government's

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[8] RAND Europe: a not for profit research organisation commissioned to carry out policy review and research on the Australian EIA trail and more recently the UK REF process.

Innovation Statement in 2015 in which it was intimated that the Australian research base was poor at developing industry collaboration and delivering societal impact, the government severely cut research funding for pure and theoretical research, instead focusing on that which enabled industry collaboration. The Watt Report of 'Research Policy and Funding' (2015) also made a firm commitment to impact assessment. The Australian Government carried out a consultation on research and engagement as criteria for introduction to the ERA assessment in 2018 (ATSE, 2016). Following this consultation, in 2015 the ARC announced its 'National Innovation and Science Agenda' (NISA) and will pilot an impact assessment in 2017 before it becomes a companion piece to ERA 2018 (ATN-GO8, 2012). The trial assessment will allow the ARC to review the methods for submission and assessment used in the pilot and will involve feedback from university industry and end users of research. These will include 1) Case studies - which will allow for narrative; 2) Metrics – which will incorporate measures trialled by ATSE in 2015, (but acknowledges that this is "not a good measure for the humanities, arts and social sciences") (Watt, 2015. p. 71) and 3) Peer review, which will include "expert panel judgements on the value of research for end users" (p.71). Watt (2015) claimed this "balanced approach" should satisfy the diverse needs of the research community. Importantly, some of the interviewees in this study were involved in the EIA trial (EIA, 2013) which may have shaped their responses and although many of these developments took place following the time of the interviews, there was no doubt a sense of government strategy on the horizon. Finally, ARC research funding has also moved further in line with the UK with respect to prospective impact. I will now explore this before closing the chapter and reviewing the literature in Chapter 3.

2.6   Impact in ARC funding proposals

The ARC's mission "to deliver policy and programs that advance Australian research and innovation globally and benefit the community" increasingly focuses on impact (ARC, 2014, p.1). Figure 1 shows that the ARC announced a requirement that "75-word statements on the intended impact or benefits of their research, which will be considered by assessment panels" should be included in grant applications (Trounson, 2014, p.1). The other major funding body in Australia is the National Health and Medical Research Council in Australia (NHMRC, 2017). This funder also requires information about community engagement activities and the translation of research into policy and practice.

The ARC, like RCUK proposed that researchers should 'embed' impact into the research process from the outset, but Australian policy did so, it seemed, with caution and consideration. For instance, the Chief Executive of the ARC in outlining the new requirements is reported to have said that the ARC did "not wish to over – engineer

anything" (Trounson, 2014, p.1). This reflects the ARC's awareness of the controversy surrounding the impact agenda in the UK and the concept that the demand for impact statements could lead to gaming or false representation of the facts, highlighting concerns for the preservation of research integrity (Chapter 8). ARC defines impact as:

> The demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, beyond contributions to academia.

ARC, 2014, p.1

ARC stipulated from 2015 that *'discovery'* applications would require a Socio-Economic Objective (SEO-08) which "indicates the sectors that are most likely to benefit from the project if funded" (ARC, 2015, p.1). ARC requires evidence "in relation to research impact and contributions to the field over the last 10 years most relevant to this proposal" (ARC, 2014, p.1). This is not unlike pathways to impact where details of public engagement, examples of policy input and track record are expected to be included. Traditionally for ARC, research with an obvious application or strategic partnership would be most appropriate for 'linkage schemes', where external organisations are implicitly linked to the project. The focus on impact in more traditional forms of funding such as ARC, originally reserved for more traditional and blue skies research, highlights a shift in ARC funding where impact is very much now a consideration.

2.7 Summary

Chapters 1 and 2 have shown that the UK and Australia have taken similar approaches to how impact is characterised for the purposes of funding and assessment and share similar approaches in its implementation. Issues pertaining to my research questions emerge in both contexts, although to a lesser degree it might appear, in Australia where impact policy was rather more in its infancy at the time of interviewing. Since then, policies have moved on in both contexts.

Pertinent to this research, we have seen how much of the discussion surrounding the introduction of an impact agenda in the UK was initially characterised by resistance and that a similar reaction was felt in Australia. Many of these concerns relate to broader trends in HE such as managerialism and marketisation which can be seen to put at risk and undermine the broader ethical functions of universities. These issues relate to the themes in this thesis covered in Chapters 5-9.

Chapters 1 and 2 have introduced the impact agenda and described the different manifestations of impact across the funders. I have outlined the differences across the two

countries and the ways in which they have been engaged in policy borrowing, highlighting the differences and similarities in approaches to impact policy. In order to provide further context, I have also provided a brief snapshot of impact policies in other countries and across other funders in Appendix 13 such as those in the US and Canada at the time of interviewing.

Having described the research impact policy landscape in the UK and Australia, it is necessary to understand how the issues pertaining to individual researchers are situated within the broader literature with regards to the concerns identified within Chapters 1 and 2 before outlining my methodology (Chapter 4) and analysis (Chapters 5-9). A review of the literature now follows, focusing on the thematic areas which emerged during analysis and existing research into academic attitudes towards the impact agenda.

3 Understanding research impact: the contribution of previous research

3.1 Introduction

This chapter considers the contribution of previous research with respect to an impact agenda and the emergent themes of this project. I review the research published by the main commentators and identify gaps in the current literature which highlight the unique contribution of this study.

After outlining the key features and gaps in the literature (Section 3.1.1), I begin by reviewing previous research on academic attitudes towards impact (Section 3.2). This includes how impact has been received by the academic community and the effects it is reported to have had (3.2.1 & 3.2.2). In Section 3.3 I outline the literature on disciplinary responses towards impact. I begin Section 3.3.1 by exploring research which has looked at impact across the full spectrum of the disciplines, before exploring the contributions of previous research concerning attitudes of disciplinary groups - the sciences (life, earth, physical and applied), humanities and the social sciences (Sections 3.3.2, 3.3.3 and 3.3.4). I briefly summarise these sections in Section 3.3.5. Section 3.4 builds on this by discussing the underpinning themes which relate to the impact agenda. I begin in Section 3.4.1 by plotting a brief history concerning different 'types' of research, such as pure/applied. Following this, I review the contributions of previous research relating to instrumentalism and the value of knowledge (Section 3.4.2), followed by integrity and affect in Section 3.4.3. I consider the literature concerning academic freedom, responsibility and the relationship between the two (Section 3.4.4 - 3.4.6) before summarising the chapter in Section 3.5.

In order to conduct a review of the academic literature I mostly used the search engines 'Web of Science', 'Scopus' and 'Google Scholar'. During my search, I used key words such as 'research impact', 'the impact agenda', 'impact pathways', 'academic freedom', 'academic duty', 'responsibility', 'research integrity', 'academic attitudes', 'epistemic', 'value', 'instrumentalism', 'academic values', 'academic identity' and 'knowledge'. These were either used alone or in combination to identify the latest research in my field. I also looked for key words such as 'research policy', 'REF', 'ERA', 'research impact assessment', 'research funding' and 'research Australia'. The following sections reflect this search.

The conceptual framework informing this review stems from the themes (drawn from the literature) on which my research questions are based. The themes of resistance, freedom, academic identity, responsibility and knowledge 'as value' within the global context of managerialism (Deem, Hillyard & Reed, 2008) in HE characterise this theoretical framing.

The overarching theorisation of this research can be seen to contribute to notions of 'academic capitalism' (Rhoades & Torres, 2006; Shore & Wright, 1999; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004) which can be defined as academic involvement in market-like behaviours, discussed in Section 3.4.4. This notion can be seen to result from and be emblematic of moves in HE towards an increasingly managed, audited and governed university (Ball, 2012; Bok, 2003; Etzkowitz & Leydesdorff, 2000; Giroux, 2014; Marginson & Considine, 2000). The theoretical literature and commentary in the media which speaks of resistance to impact (Braben et al.,2009; Jump, 2010; Ladyman, 2009c) relates to longer standing debates about the role of universities in society and issues of autonomy and the value of knowledge (either for use or its own sake) (Collini, 2011; Docherty, 2001; Graham, 2002; Haddock, Millar & Pritchard, 2009; Holmwood, 2011b; Oancea, Florez-Petour & Atkinson, 2017). These themes resonate as the impact agenda can be seen to unearth questions about the role of knowledge through its politicisation, ultimately seen to be at odds with freedom (Arblaster, 1974; Barnett, 1988; Colley, 2014; Collini, 2011; Eddy, 2003; Gibbs, 2016; Kayrooz, Kinnear & Preston, 2001). The literature shows that the impact agenda and other significant developments in HE ultimately have implications for academic practice and behaviour (Battaly, 2013; Chubb & Watermeyer, 2016; Harris, 2005; Henkel, 2000; Hey & Leathwood, 2009).

As such the themes drawn from the literature and commentary surrounding the broader HE landscape aim to contribute to the theorisation and understanding of these issues, through the lens of impact. The need to look across dimensions such as discipline and national context are guided by the literature, drawing on theories concerning diversity across the disciplines (Becher, 1989; Becher & Trowler, 2001; Biglan, 1973; Kuhn, 1962; Pantin, 1968). This includes theories about different modes of knowledge production (Geertz, 1967; Gibbons et al.,1994; Stokes, 1997).

The themes I focus on in this literature review can be characterised and defined in the following ways. I define instrumentalism as denoting a 'means to an end separation' of knowledge to justify its communication or value in terms of practical use rather than in ideological terms – what some refer to as 'knowledge for its own sake'. Additionally, I use the term 'epistemic' in this thesis as pertaining to knowledge. This term can be used quite generally to refer to any 'epistemic good' such as knowledge, belief, doubt, certainty, understanding or similar. More specifically, epistemic refers to a variety of 'goods' or activities and values relevant to the acquisition, assessment and application of knowledge. In fact, many epistemologists use 'intellectual' and 'epistemic' as interchangeable, unlike ethics/morality which are subtly different. However, the term 'intellectual' could be seen to have narrow connotations. With respect to responsibility and duty, these terms can be seen

as distinctive, not interchangeable. I refer to responsibility as that which entails one or more individuals in a certain relationship (in this case academia), to require certain sorts of actions or activities which invite praise or criticism – the public responsibility as an intellectual, for instance (Chomsky, 1967). This, unlike duty is empirically sensitive. To define duty, I draw upon Kantian deontological ethics, discussed in Section 3.4.5 which speaks in terms of fixed obligations, which are typically empirically insensitive such as "do assist the injured". Notions of responsibility which are affected by roles and responsibilities then, as opposed to duties, appeared more in the literature. With respect to epistemic value, I define this as value pertaining to knowledge. I draw from the work of Haddock, Millar & Pritchard (2009) and Kvanvig (2003) who among others are interested in the value of knowledge and the nature of that value. I specifically consider how my participants viewed the valorisation or use of certain epistemic goods (Andriessen, 2005), as well as broader theories of assigning value to knowledge (Dewey, 1939).

Finally, with respect to academic freedom, I draw upon the literature of Hammersley and Fish and note that there is great discrepancy in academic understanding of this term (Hammersley, 2016). I tend toward a definition of academic freedom, drawing from Conrad Russell's attempt to harmonise notions of freedom with public accountability. Russell claimed that "there must be some things recognised as academic questions, to be decided by academics according to academic standards" (Russell, 1993, p.109). I note that academic freedom can be seen to relate to notions of positive and negative liberty (freedom to / from) and consider that there might be degrees of freedom. The notion of freedom with respect to an impact agenda can be seen to relate to issues of agency, autonomy and choice because of the need to increase accountability. Here, academics can be seen to feel less free, certainly if they are in receipt of public funds (Gibbs, 2016). It is this tension, that this thesis seeks to empirically explore through the lens of impact.

3.1.1 Key features and gaps in the literature

The key features of the literature include an emerging body of empirical research mostly relating to the academic experience of increased managerialism in HE and the impact agenda itself, some theoretical discussion and a large amount of policy/grey/commentary literature on the research impact phenomenon in UK and Australian research policy. These contributions are enhanced by a wealth of research on the underlying themes relating to marketisation, instrumentalism, academic freedom and epistemic responsibility. Contributions of previous research have focused on prospective funding and retrospective accounts of impact, with a particular emphasis on the latter, particularly in the UK REF context. Accounts concerning research impact assessment are also beginning to feature

globally in Australia and the US where impact is often contextualised as a symptom of marketisation and neoliberalism. Increasingly, impact has been the focus of several studies assessing the practical and institutional merits of the use of metrics and methods of research assessment. There is an emerging yet small amount of research examining the effects of impact specifically for academic identities and behaviours with an emerging concern about gaming and pressure on academic workloads. In addition to previous theoretical research which has attempted to categorise and classify the disciplines, empirical accounts have aimed to understand academic attitudes across certain disciplines towards impact. Few have looked across the full spectrum of disciplines. Studies have revealed that there is complex disciplinary diversity with respect to impact. What cuts across these positions is a shared concern about the future of pure and basic research, issues concerning research quality (does quality suffer if everyone has to have an impact), what it means for professional autonomy and emerging thought that impact is more aligned with applied and instrumental research thus disadvantageous to certain kinds of knowledge.

There is a small body of empirical research analysing the way impact is conceptualised and characterised by academics, including research into particular impact 'domains' such as public engagement and commercialisation and the associated barriers. In particular, there is a wealth of literature concerning enterprise and industry-academic engagement. Emerging themes from previous research indicate that there is lack of consistency across the disciplines in the understanding of what impact means, and what counts. A preoccupation with relevance, betterment or 'good' is prevalent, but the impact agenda appears to present challenges of a *practical, political* and *philosophical* nature. I attempt to highlight some key contributions in this chapter.

The contributions of previous research indicate that academics consider time to be a main barrier to achieving impact. In addition, there is a strong theme that evidencing impact accounts for a large amount of concern. Several papers point to issues concerning academic ability with respect to conducting knowledge exchange such as clarifying benefits to policy makers with alternative agendas. There is frequent mention of impact as a *burden* or a *hurdle* (Pettigrew, 1997) and the main philosophical and political concerns that repeatedly appear include the association between impact and *short-termism*, *threats to pure research* and *scientific/academic freedom*, *a-prioi predictions* and increasingly, concerns about *game-playing*.

With respect to research assessment, issues emerge concerning the need to 'sell' impact, the attribution of research, time-lags associated with delivering impact, the process of evidencing impact, and the development of metrics. Concerns about capturing the multiple

consequences of research and an emerging dialogue concerning *excellence and research quality* are also present in the literature. Underpinning much of these issues is a discourse concerning professional autonomy. Scholars have begun to investigate researcher duty, responsibility and virtue, but it is here that theory and practice are still yet to converge as much of the research on this lacks the empirical evidence to support the claims being made. These contributions fit within the broader discourse of marketisation, the value of knowledge or instrumentalism and academic freedom.

Before proceeding to review the academic response to impact, I note gaps that exist in drawing together of theory and practice where relatively little is known about the philosophical concerns facing academics. There is also little empirical research that surveys the full spectrum of disciplines and fewer still exploring the two national contexts featured in this study. Scholars have attempted to apply theory (Bourdieu's 'Habitus'; Maton, 2005; Naidoo, 2004; Zipin & Brennan, 2003, for example) to the impact phenomenon but without empirics (Martin-Sardesai et al., 2017) (Section 3.3). There is suggestion from emerging studies about the influence of seniority and institutional status on academic attitudes to impact but this is also an under researched area. Another consideration relates to the gender of respondents who have been the subject of research about impact. There is a wealth of literature about women in academia; however there is very little research on impact and gender other than in the context of marketisation and neo-liberalisation in HE. Ahmed (2006), Bank (2011), Gromkowska-Melosik (2014) and Leathwood and Read (2008) are some of the key scholars who examine women in academia and whose work sheds light on what could be deemed today as a masculinisation of HE (I discuss this in Chapter 5). This could therefore be an area for future research.

Finally, some studies have attempted to explore the impact phenomenon using surveys, with some use of interviews and latterly observational ethnographic studies, but many are from a theoretical or have a practice-led / reporting perspective. The use of interviews, employed in this study, provides an insight into the deeper moral concerns at the heart of my research questions. I begin by setting the scene about the contributions of previous research to this emerging field of enquiry.

3.2   Contributions of previous research: introduction

This section addresses the contributions of previous research exploring impact with respect to research funding, how it is perceived with respect to assessment and differences / commonalities across the disciplines. Following this, I discuss some of the fundamental contributions to the literature on the underpinning thematic strands of this research such as academic freedom and responsibility.

A review of the literature reveals that in addition to the substantial media coverage about impact (Jump, 2010; 2011a; Tickle, 2012; Trounson, 2014) over the last decade particularly, scholars have begun to research the impact agenda in relation to funding and assessment, the practical challenges posed and the characterisations of impact across the disciplines (Bartholomeou et al., 2007; Bastow, Dunleavy & Tinkler, 2013; Chubb, Watermeyer & Wakeling, 2017; Chubb & Watermeyer, 2016; Derrick & Samuel, 2016; Dunleavy et al., 2014; Holbrook & Frodeman, 2011; Holt, Goulding & Akintoye, 2014; Macfarlane, 2010; 2016; Naylor, 2007; Oancea, 2011; 2013; Oancea & Furlong, 2007; Oswald, 2009; Upton, 2012; Upton et al., 2014; Watermeyer, 2012).

There is an emerging body of research led in particular by philosophers of science and education who have taken an interest in the potentially corrupting effects of the impact agenda and similar directives (Bailey, 2011; Battaly, 2013; Billot, 2010; Chubb & Watermeyer, 2016; Clegg, 2008; Frodeman et al., 2012; Henkel, 2000; Hewstone, 2012; Lucas, 2006; Macfarlane, 2010; Nixon, 2008; Williams, 2002; Smith, 2010). Sociologists of education and political scientists have looked at the ways in which impact is being implemented and the policy implications thereof (Knowles & Burrows, 2014; Salter et al., 2010; Watermeyer, 2016; Wilsdon et al., 2015).

Much of the discussion has related to the practical challenges impact poses as a criterion for funding and assessment (Belcher et al., 2016; Chowdhury et al., 2016; Denicolo, 2013; Derrick & Samuel, 2016; Martin, 2011; Nutley, Percy-Smith & Solesbury, 2003; Oancea, 2010; 2013; Parker & Teijlingen, 2012; Smith, Crookes & Crookes, 2013; Taylor & Bradbury Jones, 2011; Terama et al., 2016; Watermeyer, 2016). I will explore each of these areas in the sections to follow drawing on the relevant literature prefaced here. I begin by describing some of the key features of the literature with respect to academic perceptions of the impact agenda.

3.2.1 Research into the challenges presented by the impact agenda

This section details some of the empirical studies focused on academic attitudes towards impact and also highlights salient theoretical or commentary literature on the impact agenda.

A study of nine UK universities by Upton et al. (2014) analysed and examined academic institutional perspectives on impact. They stated that differentiating knowledge exchange from impact as a process incentivises academics towards impact more effectively than the impact-based evaluations that are in place within many universities. Indeed, a focus on new ways of engaging through knowledge exchange activities from public engagement to social media consequently emerged as a new subject of enquiry in the literature (Watermeyer,

2012). Upton et al. (2014) suggested that the preoccupation with outcomes may act as a disincentive for academics. They carried out a survey and semi-structured interviews with academics and institutional members from six pre-1992 and three post-1992 universities and observed that the REF had incentivised knowledge exchange activities "the direct link made by the REF between the conduct of 'impactful' research and the level of institutional funding has significantly raised the profile of knowledge sharing activities" (p.355). They asked participants about their personal motivations for doing research in response to which a high level of importance was given to both "making a contribution to scientific/academic knowledge" and "intellectual curiosity or personal interest" (p.356). Unsurprisingly, this revealed that a key driver for academics was the passion and excitement for their work in and of itself – they had an intrinsic sense of motivation and perception of the value of their work discussed in detail in Chapter 7. The study also revealed that "delivering public benefits" ranked highly in responses but for the want of time to carry out knowledge exchange "out of hours" (p.359) and noted that these activities were not incentivised.

Similar reports have been published in Australia (Bexley et al., 2011; Brewer, 2013; Cherney, Head, Boreham, Povey and Ferguson., 2013; Coaldrake & Stedman, 2013; Cuthill et al., 2014; Doraisami & Millmow, 2016; Kayrooz et al., 2001; McKelvey & Holmen, 2009; McInnis, 1998; Metcalfe, 2013; Pittman & Berman, 2009). Many of these have not been based on empirical data but rather provide commentary and discussion around the impact agenda. For instance, Cuthill et al. (2014) reported that a "chorus of dissatisfaction has been noted" because of increased pressure on Australian HE (p.42). They claimed that Australian "scholarship" was "being redefined" and that there was a "pressing need" to address knowledge exchange and impact policy (p.43). They noted that there has to be "institutional commitment" towards impact (p.38) so as to "move beyond piecemeal or disparate activity" (p.38). They reviewed Australian academic perspectives on knowledge exchange policy and practice and found recognition for academics to be more "socially responsive" (p.40). They acknowledged that the Australian knowledge exchange policy response remains "thinly spread" (p.40) and that the sector needs to better grasp what impact means. Cuthill et al. (2014) cite a lack of support because of "disjointed policies" on knowledge exchange as a challenge (p.41) and fear Australia has 'fallen behind' as a result. Additionally, they cite a lack of engagement, collaboration skills and issues concerning performance metrics as barriers, as well as motivation to engage particularly in commercialisation processes in which capacity and skill are issues (p.42). Finally, they argue that career enhancement is a barrier and claim that there is little time or incentive for academics to carry out knowledge exchange. This applies across all career levels (p.43). The tone of the paper is hopeful that

Australia can follow in the footsteps of other countries looking at research impact, which may "invigorate" their focus on the public good (Cuthill et al., 2014, p.43).

Bexley et al. (2011) contributed to an empirical understanding of some of these issues and reviewed the academic profession in a study based on a survey of over 5,000 Australian academics. Within the survey, several points related to an impact agenda. Most relevant to this study, academics were asked about the "aspects of academic work that drew respondents to the profession, and that held the most value for them" (Bexley et al., 2011, p.13). Responses indicated that academics viewed the status of the 'academic in the public eye' as the lowest out of fourteen variables, where the top values included the "chances for intellectually stimulating work", "genuine passion for a field", "creation of new knowledge", and "autonomy and control over working life" (p.15). Towards the bottom of this list but interestingly above "job security and opportunities for travel," were "opportunities for productive community engagement" (p.15). The findings implied that whilst the status of public engagement in Australian universities may be low, the motivation is relatively high. Several responses indicated that there was a high level of pressure to consider research impact. Bexley et al. (2011) claimed that "there is more pressure to tailor research towards applied outcomes and a rush towards outcomes at the expense of basic research" and stated "there is a lack of value attached to important forms of academic endeavour which do not 'count' under the ERA process" (p.30). They revealed that there was a level of dissatisfaction in Australian universities and that respondents felt undermined. One respondent from the study stated:

> Much of what I value most about academic work…is continually undermined by the techno – bureaucratic nonsense of 'quality' audits and the farcical presence that perpetual competition, ranking and measuring somehow produces improvements.

> Bexley et al., 2011, p.30

This is not unlike research into the personal and in-depth issues pertaining to academic life found in Leathwood and Read's empirical study in the UK(2012). They explored the impact of emerging research policy changes on academic lives by carrying out email interviews with 71 academics specialising in HE research, of different gender (39 women, 32 men) and career stages from pre-1992 and post-1992 HEIs (p.7). Interestingly, the impact agenda "received more support than any other main development" in research policy (p.18). However, the study revealed some level of concern: "support was heavily qualified with reservations about definitions, criteria and whether meaningful impact can be predicted and/or measured" (Leathwood & Read, 2012, p.18). This is similar to Penner et al. (2013) and Braben et al. (2009) whose commentary expressed concern about the unpredictability of

scientific research. One respondent reported "I have been 'told-off' for doing work which I found highly engaging but which is not valid in terms of impact" (Leathwood & Read, 2012, p.11). That impact is low priority is a recurring theme (Jacobson, Butterill and Goering (2004). Lockett, Kerr and Robinson (2008) also attempted to provide "multiple perspectives on the challenges for knowledge exchange between HE institutions and industry" and claimed that "many academics appear willing to engage but not at the expense of their careers for fear that being enterprising will mean becoming an entrepreneur and abandoning research and teaching" (p.661). A limitation of this research is that the focus was on 'engaged' academics, as opposed to the unengaged but the study broadly identifies the following concerns; (1) motivation and reward is a barrier to engaging with impact, (2) evaluation of impact is problematic, (3) brokerage with partners is a challenge, and (4) building trust with externals present challenges (p.661). Motivation also emerged as an issue in the research of Salter et al. (2010). They claimed "few academics engage with industry for purely financial gain" (p.7). This suggests that the mind-set and characteristic differences between the academic community and external partners should be taken into account in relation to impact.

Having highlighted some of the broad issues with impact found in the literature I now describe research which has focused on issues concerning research impact assessment. I then consider how the impact agenda has been received by different disciplinary groupings in the literature. I will now consider how impact is perceived with respect to research assessment.

3.2.2   The challenge of impact as a component of research assessment

Much of the literature reveals obstacles and barriers associated with impact in the UK REF and research assessment. Scholars have sought to consider how to review international practices on capturing research impacts (Grant et al., 2010) and are sharing lessons about the ways in which impact can and should be assessed through a range of policy documents and reports from both academics, funders and policy groups alike (Davies, Nutley & Walter, 2005; HEFCE, 2010; LSE Public Policy Group, 2008; Martin & Tang, 2007; Oancea, 2009; Penfield et al., 2013; RCUK, 2006; Technopolis, 2010; Walter, Nutley & Davies, 2003; Wilsdon et al., 2015). I will now discuss some of these important contributions before considering the scholarly research into academic reactions to impact.

In a review of international practices of impact, Grant et al. (2010) claimed that there were several challenges faced by evaluators of research including attribution, connecting research to its impact, variations across scoring and the value judgements made, accessing evidence and assessing the underpinning quality of the cases. These concerns were also expressed

in *The Metric Tide,* a report which presented "the recommendations of an independent review of the role of metrics in research across the disciplines in research impact assessment and research management". "There are powerful currents whipping up the metric tide" claimed (Wilsdon et al., 2015, p.2). This report highlighted the negative and "unintended effects of metrics" (p.vii) on the research culture as well as the opportunities to use responsible metrics. Over 150 responses were received to a call for evidence including testimony from over 40 individuals (including some from Australia) as well as institutional reports, focus groups and evidence gathered from REF 2014 evaluations. Wilsdon et al. (2015) describe how metrics are a symptom of the growing pressures from government to audit research when the "research assessment landscape is contested, contentious and complex" (p.4). A mixed response from the academic community reveals that the use of metrics "is open to misunderstandings", peer-review is favored in order to account for "expert judgment" and "disciplinary diversity" is observed (p.viii). The report suggests that the term "indicator" is preferable to "metric", indicative of the importance of language in policy guidance which I discuss in Chapter 5 (Wilsdon et al., 2015, p.4).

The report reveals concerns that some indicators can be gamed (Altmetrics for example). The report calls for a more robust and responsible approach to metrics and warns of a burden, which will be felt across administrative processes and institutions – arguing therefore for an open infrastructure of accessing information about research. The report states that quantitative measures cannot substitute narrative in REF case studies. Such use of metrics would be too 'narrow', favoring certain disciplines and types of impacts over others. I discuss gaming in Chapter 8 and the disciplines in Chapter 9.

In light of disciplinary differences, Wilsdon et al. (2015) report the use of the term 'research qualities' reflecting "different cultures, practices and philosophical approaches of the disciplines" as opposed to one definition of quality. The report states that "impact is still a contested term" (p.44) and notes problems with linear definitions of impact and the use of metrics. Wilsdon reports that "a key concern for some critics is that impact metrics focus on what is measurable at the expense of what is important" (2015, p.44). This is reminiscent of Goodhart's Law which stated "when a measure becomes a target, it ceases to be a good measure" (Royal Society, 2015, p.14). Despite a range of indicators being used, Wilsdon et al. (2015) concurred with a review of impact case studies carried out by Digital Science and King's College London concluding that "impact indicators are not sufficiently developed and tested to be used in funding decisions" (p.46). The report suggests that "widespread concerns about quantitative indicators (such as citation-based data) cannot stand alone as marks of quality" (p.46). Wilsdon et al. (2015) instead propose the "notion of responsible metrics ensuring robustness, humility, transparency diversity and reflexivity" (p.135) and

argue for the continued place for metrics in "informing peer review judgments of research quality" (p.146).

Another important empirical contribution concerning impact assessment was made by Watermeyer (2016). Describing the complaints and concerns "voiced by academics in opposition to the adoption of impact as 20% of the REF", Watermeyer claimed that impact "sparked controversy from its very beginnings" (p.201) resulting in a "plethora of conceptual and practical objections" (p.210). Watermeyer focused on general structural concerns associated with the impact agenda and ultimately condemns it as a "conceptually flawed process" (p.199). He stated that impact "as a measure of assessment in the REF is habitually confused and conflated with the impact factor of an academic journal" (p.200), indicative of persistent confusion over the definition of impact (I explore this in Chapter 5). Watermeyer (2011) also argued that impact is seen as an infringement of academic rights and autonomy. He described how it potential corrodes academic values (Harris, 2005; Moriaity, 2011) resulting in crisis (Burawoy, 2011) and a "blunting of academic truth" because of the short termism it encourages (p.204). Watermeyer (2016) reported a community response which has been "disjointed and imbalanced" (p.205). Here, he stated that academics have not been collecting evidence for impact assessment and that much of the evidence may be "obscure, lost or irretrievable" (p.205). Watermeyer also warned that the REF impact system favoured quantitative approaches and numbers, resulting in academics 'playing it safe', which might disadvantage some disciplines and some types of impact (p.205). He reported the "vagaries of research prioritisation" (p.208) as an obstacle when trying to influence government policy as well as practical concerns such as work structures, practices, ethos and timeframes "it takes time and significant personal investment" (p.208). Watermeyer concluded by suggesting that for many, impact is an "aggressive assault on the public university or at least its ideal" (p.204). I discuss integrity and virtue in Chapter 7.

Watermeyer and Hedgecoe (2016) further explored academic attitudes towards the 'selling' of impact in the REF in a more recent empirical study. Watermeyer and Hedgecoe looked at how academics made value judgements about impact for the REF. This was an ethnographic observation of 90 senior academics peer reviewing case studies over two days. The findings suggested that panel members had tried to guess how others were going to score case studies before scoring themselves, which indicated a lack of confidence in grading impact. Findings also revealed that post REF 2014; academics appeared to have a clearer idea of what REF impact meant than previous REF mock panels. In addition, Watermeyer and Hedgecoe (2016) suggested that there was an "embryonic understanding of what made an excellent case study or excellent evidence" (p.655). Style, presentation and

structure of the case study appeared to be influential in the scoring of case studies with academics preferring those which were more aesthetically pleasing and engaging. Findings also suggested that academics noted a sense of over-selling impact "throwing in everything but the kitchen sink" (p.656); in addition, reviewers claimed "none of us really know how to handle this" (p.655), suggestive of issues concerning conceptualisations of impact and the meaning of "reach and significance". Here, geographical significance appeared to be deemed as more valuable than local significance (p.659) favouring "diasporic reach" (p.662). The research examined the need for the "legitimisation of public engagement" (p.659) and revealed that the REF may favour those who were "willing to sell" their research (p.663).

This is reminiscent of other more theoretical contributions to the field (Lucas, 2004; 2006; Martin, 2011). Martin (2011) for instance warned of creating a "Frankenstein Monster" in the REF. Martin (2011) warned it would be an "onerous and complex" business (p.247) stating that the main issues were cost, capacity burden and capturing impacts. Martin claimed that there was a need to have an "open debate" (p.248) about the "dangers that lie ahead". He too suggests that impact is unclear and ill-defined: "what is it? No-one is very sure" (p.249). He gives an analogy of a boiling saucepan in which the water gradually rises and without open debate involving the academic community; it may come to the boil resulting in academics being condemned to the "fate of a boiled frog" (p.252). This view is not unlike Sayer (2015) who criticised the REF for its high cost to public funds, academic time and capacity, the threats to pure and blue skies thinking and negative effects to staff morale. Sayer, like others, referred to the REF as a "burden" (p.51) and to the need for serendipity in research: "there can be no guarantee that any academic research is going to have an impact; not knowing the results in advance is what makes it research" (p.28).

A recent theoretical study by Chowdhury, Koya and Philipson (2016) also reflected on lessons from the UK REF involving the analysis of 363 cases from clinical medicine, physics, engineering, communication and media studies. The findings demonstrated particular trends across the disciplines relating to impact domains. For instance, analysis revealed that certain disciplines should demonstrate certain activities in order to get a high score i.e. physics and engineering "should demonstrate public engagement activities, impacts on the economy, society and services" (p.11), whereas clinical medicine should demonstrate that their work "improves quality of life, life expectancy, reduces morbidity and risk of future illness" (p.10). This suggests correlation between particular disciplines and impact activities (Chapter 5). This research did not take into account the views of the authors, however. These accounts suggest that the REF and research impact assessment is problematic, largely characterised as a burden potentially disadvantageous to certain kinds of research who may struggle to evidence impact. Additionally, some authors have considered the link between academic

emotion/identity and the changes taking place in Australian HE. For instance, Connell (2014) added the commentary surrounding impact and described how the 'marketised' university 'demoralised' staff (p.56) and, commenting on the rise of university management, claimed that "we cannot get by with a demoralised or disintegrating workforce" (p.95). These concerns are echoed by others such as Duncan, Tilbrook and Krivokapic-Skoko (2015), Martin (2011), Winter & Sarros (2002) and Hughes and Bennett (2013) in their commentary. In connection with this, I now turn my attention to the disciplines and impact. There is still relatively little empirical research giving voice to many of these issues.

3.3   Disciplines and the impact agenda: context and influential concepts

This section will broadly introduce the contributions of previous research concerning the full spectrum of disciplines before focusing on recent inquiry into particular disciplinary responses to impact from academics in the sciences (life/earth/physical, engineering and maths), arts and humanities and the social sciences (Sections 3.32 – 3.34).

Inquiry into the differences across disciplines has long been an area of academic study. Most notably, I will firstly outline some of the main commentary and background relating to this subject. In his 1959 lecture on 'The Two Cultures', CP Snow controversially debated the views of his contemporary FR Leavis (1962) on the subject of the apparent polarisation between the scientific community and the humanities. This set the scene for a longstanding discussion about the value of different disciplines and the characteristic differences observed across 'intellectuals', which Snow characterised as the natural and social sciences. Snow theoretically referred to these cultures as "two proud kingdoms lying alongside in chaste self-sufficiency ... Between the two a gulf of mutual incomprehension – sometimes … hostility and dislike, but most of all lack of understanding" (Snow, 1959, p.4). Snow debates the value of certain types of knowledge stating that what constitutes research can in some cases be hard to justify; "what is anyway, only with some awkwardness called 'research' in the humanities" (Snow, 2012, p.1).

Between "two polar groups" (p.4) of intellectual society Snow favoured it seemed, his own culture of science. Unsurprisingly, such a binary categorisation of the two domains was met with suspicion, even by Snow's own admission (p.10). However, he adopted the concept of the cultures as representative of what he saw as reflective of the differing politics, class backgrounds, beliefs and attitudes of the intellectuals who reside in either culture. The spread of attitudes across the cultures, Snow noted was "obvious between the two, as one moved through intellectual society from the physicists to the literary intellectuals, there are all kinds of tones of feeling on the way" (p.11). He saw physics, for example, to be far removed from poetry. Pertinent to this discussion about impact, Snow advocated science as the

solution to society's problems and dismissed the arts within that context. This bleak polarisation was naturally deeply contested by those in the arts – When Snow claimed scientists had "the future in their bones" Leavis fiercely attacked back and stated "he (Snow) is as intellectually undistinguished as it is possible to be" (Collini, 1993, p.viii). Perhaps the 'two cultures controversy' and the confrontational exchange depicted here only serves to emphasise the cultural and conceptual differences observed across the disciplines (Collini, 2012).

In light of this debate, a stark and entrenched tension emerges about certain kinds of knowledge, its 'place' in society and its perceived value – both intellectually and socially. To dismiss this clear tension, and to condemn any ideas raised by the Two Cultures debate, would be to ignore the 'elephant in the room' that certain disciplines are perhaps more readily able to 'prove' their 'value' than others. Geertz (1976) spoke theoretically to these debates, which sparked further discussion and empirical research in more recent times (Oancea, Florez-Petour & Atkinson, 2015; 2017). Chapter 7 discusses these concepts.

Within sociological theory, Pierre Bourdieu (1988), argued that fundamentally, one can only understand a phenomenon (in his case he refers to literature or a work of art) when it is situated within other senses of meaning or practice. Most notably, Bourdieu observed differences between the disciplines in his famous work *Homo Academicus* (1988) and the concept of 'habitus' relating to values and dispositions (1984). He observed a "conflict of the faculties" and explored the inherent differences observed across academics from a variety of fields of study. Like Weber before him, he spoke of "second-class faculties", "subordinate disciplines" and individuals from the "lower echelons of the university space" (p.21) implying that there was a hierarchy of the disciplines. Bourdieu made attempts to characterise intellectuals and to describe a social hierarchy of the faculties based on their intellectual foundations and philosophies (pp.105–126). Bourdieu's characterisation of academic life is a place where certain fields fuel power, conflict and competition. Bourdieu described 'autonomous' and 'heteronomous poles' where autonomous poles relate to the value of knowledge for its own sake and those orientated towards social, political or economic goals are heteronomous. The corrosion of autonomy can be seen to resonate today with an impact agenda which arguably promotes the heteronomous.

Bourdieu's field approach has been applied to HE policy and while several scholars have drawn on aspects of his work (Ball, 2012; Bennett et al., 2009; Delanty, 2001; Holmwood, 2010; Marginson, 2008; Naidoo, 2004; Oancea, Florez-Petour & Atkinson, 2017; Smith, Ward & House, 2011), only a few scholars have applied the specifics of Bourdieu's' theory to the impact agenda itself (Colley, 2014; Maton, 2005; Oancea, Florez-Petour & Atkinson,

2017; Zipin & Brennan, 2003). Most notably, these scholars have drawn on Bourdieu's notion of autonomy and habitus as it can be seen to chime most strongly with the concept of an impact agenda.

From a Bourdieusian perspective, the notion of autonomy is vital to the conception of the 'field' of HE. Maton (2005) for instance, argued for the 'centrality' (p.688) of autonomy in the field in light of policy developments, which he claimed is now 'fractured' (p.688). Maton (2005) suggests that autonomous poles, once valorised over the heteronomous, become under threat from policy developments (p.691). This echoes the resistance felt by academics towards an impact agenda (outlined in Chapter 2) and may explain why institutions and their academics are in some way 'lauded' if they keep their distance from application (p.691). Maton (2005) argues that moves towards 'new managerialism' (Deem, 1998; Waitere, Wright, Tremaine, Brown & Pausé, 2011) (of which the impact agenda can be seen to be symptomatic), represent a shift towards the adaptation of heteronomous principles. The tension between different modalities of autonomy, where 'relational autonomy' resembles notions of the intrinsic value of knowledge arises when autonomy is weakened, Maton argues (2005, p.697).

Similar concepts are found in the literature by Naidoo (2004), who applied Bourdieusian theory across the HE landscape as opposed to solely the impact agenda. Using case studies and theoretical exploration, Naidoo (2004) explored the autonomy or independence of case universities from the 'political field' (p.462). Like Maton, Naidoo (2004) draws on Bourdieu's framework to explore the degree of autonomy of HE as a field relative to politics. Pertinent to this study, Naidoo highlights Bourdieu's distinctions of forms of capital as scientific (intellectual authority) or academic (educational achievement). Naidoo draws on the concept of the field and capital to illustrate the relative autonomy of HE. It is through such conceptions that the tension between HE and impact can be better understood.

The main contribution which entirely devotes discussion to Bourdieu and impact is that of Colley (2014) who looked at the impact agenda through the lens of Bourdieu's habitus and 'illusio'. Like others, including Australian authors (Connell, 2013; Rowlands & Rawolle, 2013; Zipin & Brennan, 2003), Colley specifically drew upon Bourdieu. Here, illusio can be said to denote objects of value that elicit "commitment" (p.675) or rather more simply, stake or interest. Colley applied this to her own research with end users of a Connexions service and argued that the research impact agenda should be resisted because even though there was a clear 'impact', the narrowing of this conception through initiatives such as the REF could be seen to 'encroach' on academic freedom. Colley describes how Bourdieu can be utilised to help researchers to understand the 'complexities of social life' and acknowledges that

academics have a moral responsibility to use their expertise in society, but claims that there is a tension between certain groups' habitus and their illusio. Colley uses Bourdieu to highlight how this might disadvantage certain groups occupying certain positions within the field, for instance, certain disciplines, who have a disinterest or less of a 'stake' in social, economic or cultural capital. The UK REF and other initiatives are seen in this light to demand a shift in the commitment of interests or 'illusio' of academics, where one has to play the game and 'adjust' one's illusio – the interface between field and habitus. Notwithstanding the acknowledged limitations of Colley's report on her own research, like Bourdieu who discussed resistance to 'defend outmoded' stakes, Colley argues that impact is at the heart of the tensions which have arisen in recent times.

With respect to identity, Zipin & Brennan (2003) also draw on Bourdieu to discuss a "crisis" of 'habitus' in Australian HE and a "declining autonomy" of academic fields (p.359). They describe how governmentality in universities is resulting in ethical dissonance, ultimately challenging academic identity. Like others, they at the time called for further research in order to explore these dimensions and apply Bourdieu's theory as they argue " many policy-orientated studies fail to address the question of how people come to comply with changes that go against their grain" (Zipin & Brennan, 2003, p.357). Despite these accounts, the literature on the disciplines themselves provides perhaps more specific context upon which to contextualise this discourse.

Attempts have been made to categorize the disciplines since the late 19th Century - the first real sense of the word 'Faculty' being used by Kant in his Critique of Pure Reason in 1781. Whilst certain scholars have considered the disciplines very much within the context of teaching and assessment (Neumann, Parry & Becher, 2002; Smart, Feldman & Ethington, 2000; Waggoner, 1994), sociologists and philosophers of science have also long considered academics as situated within certain 'fields'. Scholars have attempted to consider the commonalities and differences across certain kinds of knowledge (Becher, 1989; 1994; Biglan, 1973a). The literature has advanced with respect to typologies of the disciplines (Becher & Trowler, 2001) the 'tribes' in which they are seen to reside, and how some of these disciplines are further associated with being 'hard' or 'soft' (Chapter 5).

Attempts to categorise and divide the disciplines and conversely to harmonise them have been made (Biglan, 1973a; 1973b; Becher, 1994; Caplan, 1979). Becher & Trowler's *Academic tribes and territories'* and subsequent papers provided great insight into the nature of the disciplines in response to the ever-changing HE landscape. Indeed, many scholars have attempted to theoretically map the epistemological domains of the disciplines (Biglan, 1973b; Schommer–Aikins, Duell & Barker, 2003; Stokes,1997) in order to visualise

the nuanced ways in which the disciplines interact, are attuned to the notion of use and utility (Stokes, 1997) or in this case, an impact agenda (Stokes is discussed in Section 3.4).

Particularly pertinent to the context of this research is Biglan's system of classifying disciplines into groups based on similarities and differences in their subject matter which remains prominent in the literature. Within this context, it is important to note the persistence of the classification of certain disciplines as having particular behaviours or characteristics and therefore forming part of clusters or groups – 'pure', 'applied', 'soft', 'hard' etc. Simpson (2015) argues that Biglan's classification persists as one of the most commonly referred to models of the disciplines despite the prominence of some others primarily concerned with the sciences (Pantin, 1968; Kolb, 1984; Kuhn, 1962; Smart et al., 2000). Biglan (1973b) classified the disciplines across three dimensions; hard and soft, pure and applied, life and non-life (whether the research is concerned with living things/organisms). Biglan's work involved the development of theory through empirical work with academics. This led to a 'taxonomy of the disciplines' in which Biglan stated that 'pure-hard' domains tend toward the life and earth sciences, 'pure-soft' the social sciences and humanities, and where 'applied-hard' focus on engineering and physical science with 'soft-applied' tending toward professional practice such as nursing, medicine and education.

Table 1, which relates to Chapter 9, shows a representation of Biglan's classification of the disciplines. Interviewee discipline backgrounds used for this study are highlighted in bold. Discipline is of direct relevance to this study and is explored in particular in Chapter 9. What follows now is a review of the recent literature focusing on disciplinary reactions to impact.

	Hard		Soft	
	Life	**Non-life**	**Life**	**Non-life**
Pure	**Biology** **Biochemistry** Genetics Physiology etc.	**Mathematics** **Physics** **Chemistry** Geology Astronomy Oceanography, etc.	**Psychology** **Sociology** Anthropology **Political Science** Area Study etc.	**Linguistics** **Literature** Communications Creative Writing **Economics** **Philosophy** **Archaeology** **History** Geography, etc.
Applied	**Agriculture** Psychiatry **Medicine** Pharmacy Dentistry Horticulture etc.	Civil Engineering Telecommunication **Engineering** **Mechanical Engineering** **Chemical Engineering** **Electrical Engineering** **Computer Science**, etc.	Recreation **Education** Nursing Conservation Counselling HR Management, etc.	**Finance** Accounting Banking Marketing Journalism Library & Archival Science **Law** Architecture Interior Design Crafts Arts Dance **Music**, etc.

Table 1: Biglan's classification of academic disciplines (interviewee discipline backgrounds used for this study highlighted in bold)

3.3.1 Discipline perceptions of impact

Recent research has explored academic perceptions of impact from the perspective of different disciplines and this emerges as pertinent to our understanding of the impact agenda. For instance, academics from less instrumental disciplines have been reported as being more critical of the agenda than those in applied subjects, and "a potential threat to qualitative, innovative and/or critical research in education and across the social sciences and humanities" was observed by Leathwood and Read in their empirical work on issues in HE (2012, p.18). Much of what is to follow in this section details the empirical contributions towards our understanding of research impact, with some salient commentary or theoretical contributions noted.

Scholars have researched academic attitudes towards impact across the disciplines using a range of methods. Some have employed the use of questionnaires and large scale surveys (Holt et al., 2014), whilst others have adopted methodology closer to mine, involving interviews and mixed methods to canvas academic opinion on impact (Cherney et al., 2013; Oancea, 2011; 2013; Oancea, Florez-Petour & Atkinson, 2017; Salter et al., 2010; Watermeyer, 2011; 2016; Xu, 2008). Some studies have looked across the spectrum of

disciplines using interviews (this is seen predominantly for instance in the work of Watermeyer and Oancea whose work I will discuss in this section among others pertinent to this study), others have focused on particular disciplines (to follow in Sections 3.3.2 – 3.3.4).

I begin by discussing Watermeyer's 2011 survey of attitudes towards public engagement as a means of achieving impact in a study of UK universities. He carried out a number of interviews with senior academics and warned of a level of "anxiety" and a "mood of indecision" (p.386). He highlighted key issues such as a lack of consistency in views about the conceptualisation of engagement (most felt it was synonymous to translation), an interest from academics to engage despite "pejorative type-casting as disinterested and deficient public communicators" (p.393), issues of capacity including inadequate institutional structures, "undermining of academic expertise through the popularisation of specialist knowledge" (p.393) and "hazy" (p.394) opinions as to the value of engagement activities. These views were seen to be "elevated" in a later paper in 2012, (p.115) in which Watermeyer suggested that the REF was seen to incentivise and "provide greater credence and tacit momentum" to engagement (p.199). It is the REF itself which Watermeyer later problematizes alongside pathways to impact, the effects of which are deemed as "deleterious to the production of new knowledge, both symptomatic of the marketisation of HE" (p.199). These studies reveal a sense that engagement itself may be positive, but the politics of the processes of impact, may be deemed to be negative. Indeed, Pettigrew (2011) describes how "there is now greater recognition that scholars can both continue to search for general truths and give greater weight to temporal and spatial context" (pp.352-353)

In terms of disciplinary differences, revisiting the 'Metric Tide', Wilsdon et al. (2015) acknowledged how for some disciplines "the use of indicators would never be plausible" (p.53) (English literature is one example provided). This report details the disciplines and their alignment or (not) with metrics and advocates a tailored approach as different disciplines "seek to articulate the value of their work in different ways" (p.55) such as by developing a "basket of appropriate metrics, tailored to each community in question" (p.56). Diversity across disciplinary boundaries was therefore a key consideration for the role of indicators and metrics in research assessment. This report was of course an official report as opposed to empirical research.

Oancea (2011; 2013) also added to the debate concerning discipline differences conducting a number of empirical studies. Oancea presented the findings from a 2010/11 study across arts and humanities, social science and physical science researchers, whose views were sought on their characterisations of research impact. Oancea (2013) stated that there was an "opportunity to debate and reconceptualise impact" and that a "healthy ecology is needed

in higher education" which she argued "requires autonomy" and "open debate" (p.248). Oancea (2013) noted real "diversity" across "the disciplines, sub fields and modes of research" with respect to how impact is conceived (p.246). In particular, Oancea identified concern over a perceived preoccupation with short-term impacts and the required causal link between research and impact as directed by funders. She reported concerns with evidencing impact and the "ambiguities in researchers' takes on impact" (p.247). Most notably, she observed that the current notion of impact was not "fluid" enough to describe the ways in which impact can be achieved across the disciplines. She reported that "for impact indicators to be an adequate proxy of impact value, they need not only to be technically refined, valid measures, but also pitched at the right level" (Oancea, 2013, p.248). This work formed the basis of further research into the arts and humanities and their response to the impact agenda, explored in a later section (Oancea, Florez-Petour & Atkinson, 2015; 2017). Studies have also focused on particular sets of disciplines. I follow this section by providing an insight into some of the research which has looked at particular sets of disciplines, pertinent to this study.

3.3.2   Academics from the sciences and their attitudes towards impact

We have seen that the debate described in Chapters 1 and 2 was largely fuelled by academics in the pure physical sciences and that this may account for some of the evidence concerning scientific academic attitudes towards impact, but it may not be the full picture. Firstly, there has been significant amount of empirical work examining the views of scientists. Focus groups with engineering and physical science academics have illuminated the views of applied scientists (Holt et al., 2014; Henkel, 2000; Roesnner et al., 2010; Salter et al., 2010), the health sciences have been examined by Lavis, Ross, Mcleod and Gildiner (2003), Ovseiko, Oancea & Buchan (2012) and Wells & Whitworth (2007). In addition, there is a body of emerging research on the practice of impact such as how to use research to influence policy (Huw, Davies & Smith, 2000). I will now describe some of the key issues found in the research.

Holt et al.'s empirical research (2014) specifically focused on UK academic attitudes in the areas of Engineering, Construction and Architectural Management (CMR) in 2014. With a sample focused on applied disciplines in which many respondents held previous roles in industry, Holt cited Barrett and Barrett (2004) who claimed that CMR academics would be more naturally inclined towards professional practice. Holt et al. (2014) analysed responses from over 250 CMR academics that were given a number of statements about impact with which to agree or disagree. The findings indicated that some (20%) CMR academics perceived impact to be a threat to freedom, encouraging short termism and hindering

innovation. Overall, Holt et al. (2014) found that there was a positive response from researchers towards impact, with over 80% of respondents stating that they understood impact and that it was a good thing for CMR research, but the 'politics' of impact proved problematic. Holt et al. (2016) carried out further research in which they again used a survey approach to gather views of the CMR academic community. Practical issues such as time and competency were identified as key factors, but market forces were also seen to act as external factors for concern.

Salter et al. (2010) also contributed to the body of empirical research in this areas and looked at applied scientists' attitudes. They reported time, resource and support as concerns claiming that there is not enough time for researchers to do justice to their impact endeavours. Salter et al. (2010) instead stated that universities should "create more time resources and support for academics to engage in venture creation, especially in disciplines where such activities are uncommon may yield the greatest return on policy effects" (p.8). They argued that more should be done in terms of support and suggested that over the period of the study, which was carried out between 2004 and 2009, there were less perceived barriers to engagement with knowledge exchange than in previous studies. Salter et al. (2010) also highlighted a "divergence of opinion between academics and industry" (p.8) suggestive of cultural issues and difficulties building partnerships. These studies indicate some very practical concerns as well as philosophical issues outlined in Chapter 1 and 2 experienced by the pure science community. I will now take a closer look at research examining academic attitudes towards impact from the arts and humanities.

3.3.3   Academics from the arts and humanities and their attitudes towards impact

Many studies have concentrated on the humanities perspective on impact. The majority of this work has been on a theoretical nature (Frodeman, 2016; Pittman & Berman, 2009; Riemer, 2016; Small, 2014) but many researchers have also carried out empirical work using case studies, qualitative network analysis and interviews (Belfiore, 2015; 2016; Belfiore & Bennett, 2007; 2010; Benneworth, 2015; Kenyon, 2014; Levitt et al., 2010; Oancea, 2013; Oancea, Florez-Petour & Atkinson, 2015; 2017). Indeed, there is also a significant amount of commentary on the 'role' of the arts and humanities and their response to impact (Benneworth, 2015; Collini, 2001) and the Arts and Humanities Research Council (AHRC) in the UK and scholars in both the UK and Australia have made attempts to justify the value of research on scholarly grounds (Bate, 2011; Belfiore, 2015; 2016; Benneworth, 2015; Benneworth & Jongbloed, 2010; Holmwood, 2011a; Small, 2013).

A significant voice for the arts comes from Collini (2011) who believed that the arts "are more central to a university than the natural and social sciences" and "hoped to raise the profile of

these lesser understood disciplines" (p.1). Similarly, Benneworth (2015) outlined a "crisis in the humanities" (p.3), (first introduced by J H Plumb, 1964), who "voiced a fear in the humanistic academy that the rise of the industrial society would render redundant society's interests in the arts and humanities education" (p.3). Over time, Benneworth observed how concerns for the humanities grew and claimed that a "rhetoric of gloom settled upon the academy" (p.3). Benneworth reported a sense that the humanities were not delivering clear social benefits to policy makers looking for a return on the public investment in research. US Philosophers Frodeman, Briggle and Holbrook, for example have made significant academic theoretical contributions to considerations of impact from the perspective of philosophy. Frodeman (2017) claimed that "academics have either acquiesced to the demands of an accountability regime whose triumph seems inevitable or engaged in foot dragging tactics of passive resistance" (p.2). Frodeman determines three distinct attitudes towards impact and groups them according to disciplines. The first includes what he refers to as the "natural sciences and engineering" where "the focus on results is acceptable or even congenial". The second, the claims are those whose demands for accountability i.e. the social sciences, have led to new funding and investment (sociology/economics, for instance). The third set comprises the humanities, who he states "have largely fallen out with the impact discussion". He states "one finds de rigour complaints about the depredations of neoliberalism" (p.2) Instead, Frodeman argues for the role of 'field philosophy', which contributes more than a theoretical response to impact. His work continues to contribute to the discussion about the arts and humanities and impact. Oancea, Florez-Petour & Atkinson's empirical work (2015; 2017) which built on work initially carried out by Oancea in 2011 mentioned previously in this review, focused on ideas and articulations of value across arts and humanities scholars in five institutions, three countries and 69 participants. Using interviews and qualitative network analysis mapping, they drew no single definition of value for the arts and humanities. They reported on the rich ecologies and economies present in the way value is conceptualised and emphasised the complex interactions through which values are enacted within the arts and humanities. Like Dewey (1939) and Joas (2000) who rejected binary distinctions of value, they suggest the need for a more holistic approach to notions of value. This is similar to Donovan's (2009) empirical and theoretical work in which she calls for a 'holistic' combination of economics and non-economic measures of impact pertinent to all disciplines, not only the humanities.

3.3.4   Academics from the social sciences and their attitudes towards impact

The social science perspective has been explored extensively (Bates, 2002; Bastow et al., 2013; Brewer, 2013; Cherney et al., 2013; Davies et al., 2005; DeLange, O'Connell, Mathews & Sangster, 2010; Donovan, 2009; 2011; Dunleavy et al., 2014; Eynon, 2012;

Francis, 2011; Lejeune, Davies & Starkey, 2015; MacFarlane, 1997; Morton; 2015; Neumann & Guthrie, 2002; Pettigrew, 2011; Phillips, 2010; Rogers et al., 2014; Webster, 2016). Contributions have focused on educational research, geography, business schools and the social sciences more broadly. This section will focus primarily on the empirical contributions in the literature about academics attitudes, in addition to noting some salient work of a more theoretical nature.

Bastow et al. (2013), for instance added a theoretical contribution by examining the ways in which the social sciences have made an impact. Based on a three year project that studied 380 cases of UK-based impact across several sectors, they show how the *social sciences* have improved policy, public and economic impact. Throughout the book, Bastow et al. (2013) introduced a range of challenges and observations as well as celebrating the achievements. With respect to pathways to impact, like other scholars they described that time-lags were an issue with respect to emerging impacts "it takes a lot of time and effort to translate academic work for audiences outside of HE… and even more to get noticed" (p.35). They suggest that whilst academics are beginning to strategically consider impact, many just "get lucky" (p.35), suggestive of the need to maintain a space for serendipity in research.

Pertinent to this study, Bastow et al. (2013) also suggest that impact may favour more experienced researchers with "high academic reputations" through service as expert witnesses, for example (p.36). Also with respect to age they later analyse an internet/external reference search and claim that "the age variable suggests that with an increase in age there is a marginally greater likelihood that external references will increase around 10-15%" (p.79). This suggests a negative association with external references. They add that "perhaps as people get older, they wind down" (p.80), but explain that with regards to seniority "the picture becomes much hazier" (p.82). Other barriers cited included concerns of traceability and questions about the direct/indirect value of certain fields. Bastow et al. (2013) claim that impact should be embedded "over time" (p.169) instead of "hoping to be in the right place at the right time" (p.168). This suggests an even greater need to strategise impact. This is not unlike the work of Bates (2002) who examined the Australian report (Impact of Educational Research, DETYA, 2000) looking at the practices of educational researchers and the impacts they have made – another timely theoretical contribution.

Like Bastow et al. (2013), Bates (2002) identified "the complexity and subtlety" of impacts made in the field of educational research (p.407). Bates described the difficulties in pinning down the relationship between research and practice claiming that whilst it is "indirect" they are also "significant and numerous" (p.407). Bates stated that the scientific "theory to

application" model does not chime with educational research and instead relationships are far more dialogic and nuanced. Like Frodeman (2017) and Oancea (2013), Bates (2002) claimed that an "open dialogue" is needed to truly understand and reflect on the ways research influences non-academic environments. Bates (2002) also warned of "serious erosion" (p.407) of support in Australian universities, in which accountability is on the rise.

Much of the literature is based upon empirical research using surveys and interview methods. A study led by Cherney et al. (2013) involved a targeted survey with Australian social scientists and examined the issue of research utilisation from the perspective of researchers in education, economics, sociology, political science and psychology (Milena & Gray, 2016). They also did a small number of interviews with academics and policy personnel (p.786). They found that "disciplinary and methodological context matters…" (p.780), "because these can shape behaviours and views about dissemination and engagement" (p.785). They suggest a number of factors influencing research uptake. These include the circumstances of the researcher; a) *"researcher context"* (p.784) i.e. their success at securing grants and institutional support for collaborating with external partners, factors relating to b) "*end user contexts"* (p.785) which includes external practitioners views on the "value placed on the quality of research evidence" (p.785), c) they describe *dissemination variables* which concern how well researchers can translate their research and how much they invest in doing so and d) *interaction variables*, which focus on the need for "intensive linkages" with beneficiaries of research (2016, p.785).

Unlike Cherney et al., (2013), Francis (2011) found philosophical concerns relating to academic responses to impact, though solely from an educational researchers' perspective. In this empirical work into attitudes towards impact in educational research. Francis argued that there is a moral imperative for educational researchers to "develop ways to better ensure the impact of research" but admits that this will be easier for some researchers than others (p.4). Francis attempted to define impact and suggests that the word "developed specific and perhaps somewhat distorted connotations" (p.4). Even though she calls educational research a "field of practice", she identifies the following issues. Firstly, Francis claims that the narrow definition of the REF does not allow for the true sense of "making a difference" (p.5) and she cites how impervious policy is to academic research because policy makers want "definitive answers" (p.8). She is also concerned that there is a hierarchy of activities (i.e. greater valorisation of economic impact generating activities). Cynicism about the likeliness of impact appears to dominate views as well as a repetitive theme that time and capacity are challenges to achieving impact. Broadening the base upon which to focus the review, others have shown the more positive side of impact through empirical research with academics from perhaps more traditionally 'applied' subject domains. For instance,

empirical studies have been carried out in management and business schools, for example by Lejeune et al. (2015) and Macfarlane (1997).

Lejeune et al. (2015) suggested that business schools should align well with impact and carried out short surveys of deans, directors of research and managers at UK business schools. Analysis revealed that over half felt that the impact agenda had changed their strategic priorities, with 85% of participants stating that it had influenced their research design (p.46). This study also found that the impact agenda doesn't appear to have reduced the importance of academic papers but instead promoted collaboration and cross disciplinarity (p.46). In addition, the paper states that impact "seems to have re-invigorated some types of interactions" (p.46) and is beginning to be incentivised. The study also revealed however that many suggested that the university risks "becoming too commercialised" (p.47) suggestive of a desire amongst participants to preserve traditional norms of academia. In addition, many saw impact as distracting to pure research, rewarding journalistic writing in case studies as opposed to academic skills. The paper concludes however with an overall sense that for UK business schools involved, the impact agenda was simply formalising what had always gone on before (p.47). For others though, the impact agenda is not so straight forward or part and parcel. To emphasise this point, Rogers et al. (2014) who explored the attitudes of geographers towards impact, described impact as nebulous "often messy and unpredictable" (p.4). Rogers et al. are quick to point out the risks associated with an impact agenda describing the financialization and instrumentalism of knowledge as "troubling" (p.4) particularly for theoretical research areas which threatened the autonomy of basic research "even without impact per se, research has a value as provocation as well as policy" (p.4). This is not unlike Frodeman (2017) who when describing impact in philosophy defended the need to be able to say there was "no impact" (p.6). Rogers et al. (2014) described the need for traceability of impacts and evidence, warning about making predictions and impact becoming a "disproportionate" measure (p.5). Rogers et al. revealed "constructive and in some ways suppressive attitudes" in which academics attempted to "reconfigure" impact (p.5), fears about short termism and indications that impact affected all career stages. There are therefore a range of perspectives even within what we might refer to as 'cognate groups' of disciplines, in this instance 'the social sciences'. I will now summarise some of these contributions.

3.3.5 Impact and the disciplines – a brief summary

A key feature of the literature on academic perceptions of impact is the importance of disciplinary focus. Previous research reveals that time-lags, time (capacity), lack of incentives/institutional support, skills gaps, evidencing impact, managing relationships and

selling the benefits of research, particularly to policy makers who have conflicting priorities, are all common issues across the disciplines. Issues of short termism and arguments concerning freedom and discovery also appear to relate to the disciplines along with a clear defence of the value of less explicit forms of knowledge.

There is a lack of agreement regarding the meaning and conceptualisation of impact, this allows for a broad understanding of what constitutes impact in different disciplines but equally creates instability for academics that produce less explicitly valuable knowledge. This review shows that there is a fear and a reluctance to accept the politics of impact and that there is evidence of resistance towards mechanisms that attempt to measure the value of research such as the UK REF, particularly from less instrumental researchers. Differences in the accompanying philosophical concerns of the disciplines also emerge. The arts and humanities for example appear to engage in a rhetoric concerning value and culture (Belfiore & Bennett, 2010; Oancea, Florez-Petour & Atkinson, 2015; 2017) whereas the applied and social sciences generally appear to favour a practical 'what works' approach. The picture is complex, but the literature indicates that academics *are* carrying out knowledge exchange activity and that many recognise impact as an integral part of academic labour. This is driven by certain processes like the REF, indicative of a step-change in HE perhaps, but there are clear issues for academic behaviour and identity emerging as a result. In order to consider disciplinary reactions in more detail, I will now introduce one of the underpinning themes of this research - how impact relates to notions of pure and applied research. Chapter 9 focuses on disciplinary differences and commonalities.

3.4   Underpinning themes

3.4.1   Types of research - pure and applied

For some time, academic commentators of science/research policy and policy makers have drawn distinctions between kinds of research in a way that relates these concepts to technological innovation models. Although this thesis does not explicitly explore innovation and its relationship with science and technology, it is pertinent to the findings of the research to consider types/modes of research indicative of the associations that come with certain kinds of knowledge (Bush, 1945; Caplan, 1979; Kuhn, 1962; Nowotny, Scott & Gibbons, 2003; 2006; Nutley et al., 2007; Stokes, 1979). The commentary and theoretical contribution to this is wide ranging and historic. Drucker and Smith (1967) advocated that there must be a mix of disciplines in order for innovation to occur. Gibbons et al. (1994) advocated their approach to knowledge production and stated that there are two 'modes' of research (1994). O'Shea (2014) describes how 'Mode One' is 'pure', 'linear' and 'disciplinary' research where

the "quality is academically defined". 'Mode Two' is 'applied' and 'participatory', similar to 'impact' in that its "quality is both academically defined and socially accountable" (p.393).

For Gibbons et al. (1994) in the context of a push for a knowledge economy, Mode 1 is at risk of decline. This might appear to chime with recent events - for example the Australian research system appears to be 'turning away from blue skies' favouring more applied research (Moodie, 2017). However, these polarising states or modes do not translate to the complex and diffuse process of innovation, certainly with respect to an impact agenda. Of particular note is the discourse that arose, in which a 'post-war paradigm' (Bush, 1945; Kuhn, 1962; Stokes, 1997) gave rise to the concepts of pure and applied research. Most notably, Bush in his 1945 science policy report '*Science, the endless frontier'* defined two distinct types of research in which scientific research could be mobilised to benefit societal growth. Through this report, US science was mobilised under public control to assist the government marking a significant shift in science policy, still relevant today. Bush made these distinctions in the name of preserving basic research and assumed that innovation is rooted in pure research. He wrote "if the colleges, universities and research institutes are to meet the rapidly increasing demands of industry and government for new scientific knowledge, their basic research should be strengthened by public funds" (Edgerton, 2004, p.11). Bush described a dichotomy between pure and applied research in which he reported two distinct poles or paradigms of research in a one-dimensional linear model. Bush proposed firstly that basic science is derived without the thought of practical use and secondly that the results of scientific research can and should be converted to apply to society and drive 'technological innovation'. Though Bush is criticised as oversimplifying the paradigm, the concepts developed in the report have proved enduring. They resonate today with the introduction of an impact agenda, which arguably could be seen to reinforce this argument. Basic research can be seen to be fundamental to applied research:

> …it results in general knowledge and an understanding of nature and its laws. This general knowledge provides the means of answering a large number of important practical problems, though it may not give a complete specific answer to any of them.

> Kline, 1985, p.36

Figure 2: Bush's types of research

In Bush's model, illustrated in Figure 2, he noted an inherent conflict (Stokes, 1997, p.9) between pure and applied paradigms of research and therefore in their separation sought to create a distinction. The acceptance and adoption of this concept is said to have led to the 'golden age' of scientific research after world war two in which applied was equal to 'use' and basic was equal to 'understanding' (Stokes, 1997, p.8). Bush's linear model situated basic research at one end, and the development of services at the other end of the spectrum, Figure 3 notionally illustrates this model.
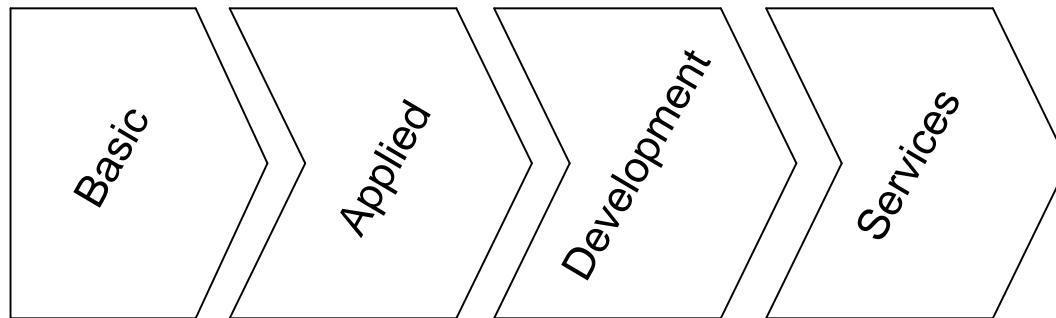
Figure 3: Bush's linear model

Bush himself may not necessarily have espoused the linear model, but Stokes (1997) drew on it to develop his notion of 'use-inspired research', reframing and situating Bush's report as a simplified model of a process that he claimed harmonised both pure and applied aspects of knowledge. Stokes introduced the term 'Pasteur's Quadrant', which "outlines the ways in which notions of pure and applied research need no longer be polarised" (Chubb, 2013, p.24). This framework allowed for the consideration of use and the preservation of knowledge that may be of intrinsic value or non-instrumental in nature. Stokes used the example of Pasteur's work in microbiology, through which fundamental scientific discoveries led to the prevention of disease. Stokes used a quadrant to show how Bohr and Edison's knowledge 'typify' pure and applied respectively - Bohr for his theoretical research into atomic structure and quantum theory, and Edison for his applied work that led to inventions such as the first electric light bulb. Stokes claimed "as Pasteur's scientific studies became progressively more fundamental, the problems he chose and the lines of inquiry he pursued became progressively more applied" (Stokes, 1997, p.13).
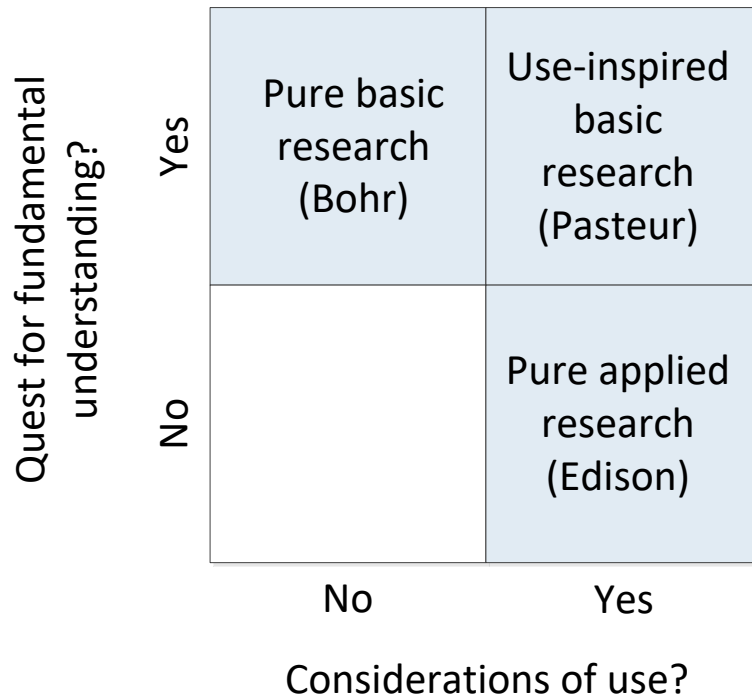
Figure 4: Pasteur's Quadrant (from Stokes, 1997)

This model conveys a clear sense that basic research may be fundamental, at least in some cases in the sciences, to achieving a practical outcome. Nutley et al. (2007) further nuanced the model of research use as shown in Figure 5. This model identifies a spectrum of activity between conceptual and instrumental use of research, but avoids Bush's implicit assumption of linear progression between discovery and application.
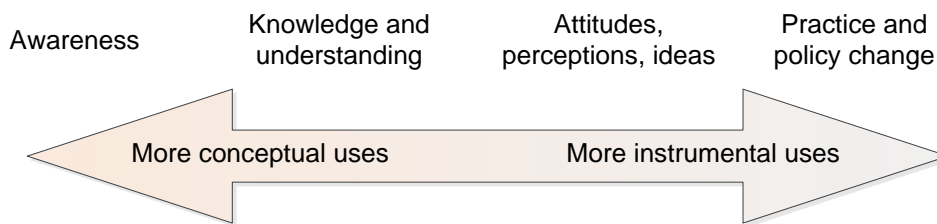
Figure 5: A continuum of research use (from Nutley et al., 2007)

Further attempts have been made to "delineate a distinction between basic and applied research…even if it is often or even mostly, poorly understood and neglected, or even explicitly rejected" (Roll-Hansen, 2009, p.27). Roll-Hansen (2009) believed these distinctions assist debates about the philosophical and political nature of science, which are also important in the context of the impact agenda. Despite on-going recognition of the concepts of pure and applied research, the focus of research funding has narrowed and accountability has increased, depleting funds for research with less immediate outcomes. In Chapter 9 I argue that the disciplines appear central to understanding resistance towards the impact

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agenda across both national contexts. This could present a huge opportunity to both highlight and encourage further, cross-disciplinarity and interdisciplinarity across fields of research in order to respond to global societal challenges.

Figure 6 depicts a recent analysis of nearly 7000 REF impact case studies which showed that academics are working across disciplinary boundaries to create impact. Digital Science, working with King's College London (King's College London and Digital Science, 2015) created a map highlighting the ways that impact case studies "drew on research from multiple disciplines providing compelling evidence that disciplinary diversity delivers impact" (Hill, 2015). This UK study, commissioned by HEFCE looked at the content of the bibliography of journal articles. It has limitations in that these represented the author's view of their disciplinary home, but it reveals that the UK has published a large volume of interdisciplinary articles. The study found that over 80% of the REF impact cases were underpinned by multidisciplinary research and 60 "impact topics" were described with over 3000 pathways to impact identified.

King's College London and Digital Science (2015) identified that certain types of impact were more common in some disciplines than others, for instance the report provided 'impact wheels' detailing the kinds of activities that were described in the cases. As an example, Panel A shows the greatest number of impacts in health care services, mental health, pharmaceuticals and clinic guidance (p.35). Analysis also showed that different kinds of HEI specialised in different types of impact; "small institutions are more likely to make a disproportionate contribution to an impact topic and make a greater than anticipated contribution to sports, regional innovation and enterprise and arts and culture" (p.7). A further finding was that different types of research take varying amounts of time to generate impact. Some disciplines shared similar time-lags, (REF panels A and B for instance) whereas this factor was longer for Panel D. These findings indicate once more the importance of disciplinary diversity when understanding impact and show that the impact case studies are a rich source for analysis and unpicking impact activities and trends.
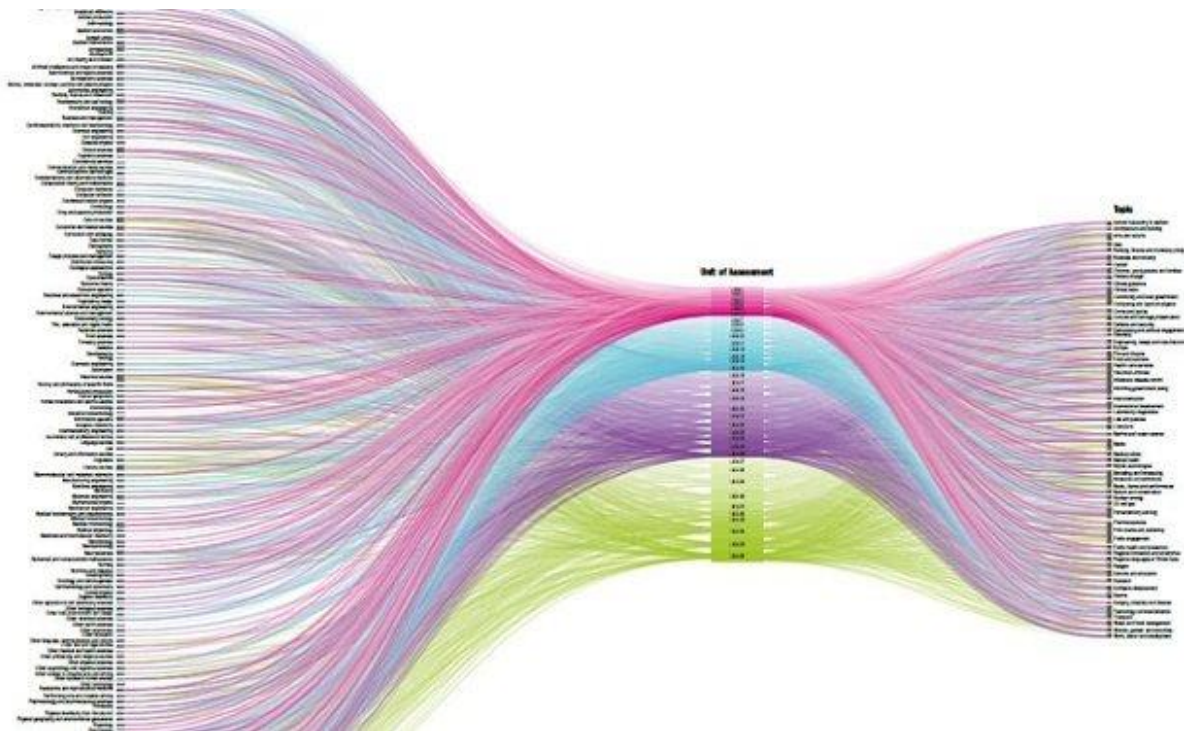
Figure 6: Cross-disciplinary modes of working (King's College and Digital Science, 2015, p. 25)[9]

Variations across disciplines are therefore apparent and central to this thesis. I now move on to consider one of the emergent themes of this study, the notion of impact as associated with utility and the questions this poses for epistemic value.

3.4.2   The instrumentalism and the value of knowledge

The original statement of the ideal of instrumentalised knowledge can be found in Francis Bacon's *Novum Organum* (1878) in which he praised enquiry that enhanced 'human utility and power'. Bacon's *New Atlantis* was also devoted to instrumentalised science and education through its depiction of institutions as places of learning and studying 'useful' subjects such as agriculture, health, etc. Philosophers have long discussed the concept of the value of knowledge (epistemic value) (Aristotle, 1976; Plato, 2004) and these ideas have continued to resonate in recent times (Brady, 2009; Carr & Kemmis, 1986; Goldman & Olssen, 2009; Kvanvig, 2003; Popper, 1946; Pritchard & Turri, 2007; Russell, 1996).

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[9] This figure appears in (King's College and Digital Science, 2015, p. 25) King's College London and Digital Science (2015). The nature, scale and beneficiaries of research impact: An initial analysis of Research Excellence Framework (REF) 2014. Permission sought and granted by authors J. Grant, King's College London and Steven Hill, HEFCE 2017.

Sociologically, the concept has also been explored with respect to rank and position (Bourdieu, 1988). Hayek (1947) argued against the utilisation of knowledge for instrumental ends and claimed that knowledge should be a free pursuit; this is similar to views held by Barnett (1998), Newman (2004) and others.

In recent times, the concept of knowledge as associated with utility has been revisited. Fuller (1999) (cited in Jacob, 2003, p.129) claimed that social utility as a concept is vague and begs the question as to whether there can be such a thing as useless knowledge, famously described by Bertrand Russell in his work 'in praise of idleness,' first published in 1935 (Russell, 1996). Some scholars dismiss the ideal vision of scholarship and knowledge as intrinsically valuable as nostalgic (Drucker & Smith, 1967). Etzkowitz and Leydesdorff (2000) however describe how one might be able to maintain both views through the development of their 'triple helix concept' of the university in which they advocate the university's role in society but not at the cost to basic research or academic freedom.

Indeed, types of research, or modes of knowledge production as we saw in the previous section, can be seen as important to this debate. Nowotny et al. (2003) claimed that utility ought to drive the production of knowledge. This work conveyed an implicit sense that economic value ought to be pushed into the knowledge economy as a priority over what is more socially useful (this gives an impression of the level of esteem associated with certain types of impact discussed in Chapter 5).

Some scholars associate knowledge with its use (Olssen & Peters, 2005) and policy makers consider knowledge as something that should be reconceptualised in terms of its epistemology so that its inherent purpose is also defined by its utility (Delanty, 2001). In doing so, many have associated use with epistemic value. To explain the concept of instrumental and intrinsic value, one might refer to philosophy where to conceive of something as possessing *instrumental* value associates it with its outcome, not as an end in itself but as a means to an end (Bentham, 1996; Mill, 2003). Both British and utilitarian, it is perhaps no coincidence that the instrumental conception of value emerged from thinking rooted in British intellectual culture. Recent research has argued for symbolic value or 'intrinsic' value in both instrumental and non-instrumental research (Boswell, 2014). An interesting assertion, for if governments do not intend to stamp out pure and 'blue skies' research, a concept of symbolic value could soften the divide between pure and applied types of research (Chapter 5).

Within the context of this thesis, instrumentalism refers to the *telos* of knowledge – in other words, the product or outcome of knowledge and how knowledge can be utilised in society. In Greek, telos can also refer to the fulfilment of purpose (Aristotle, 1976). Within this

context, epistemic value could relate, for example, to knowledge and/or understanding and represents a set of epistemic goods that may or may not be applied to a further set of practically useful ends. The *intrinsic* value of knowledge can be understood as that which denotes an inherent merit for its own sake, regardless of an end goal or outcome – an object has value because of what it is alone. As is pertinent to this discussion, one might therefore value theoretical knowledge for its own sake. In the context of an impact agenda, this perspective on knowledge risks becoming ideological and unrealistic in light of neoliberal knowledge policies (Oakeshott, 1972). The impact agenda appears to relate to a discourse of the utility of knowledge but one that is axiologically thin because it only acknowledges practical value that is potentially invidious as it purports to be the only authority on the subject.

Considering the philosophical roots of epistemic value, Plato's *Meno* (2004) contends that what is valuable about knowledge is not its *use* but its *intrinsic properties* and it is in this work that Plato discussed why knowledge is more valuable than pure belief. This led scholars to ponder the question, if knowledge *can* be useful *should* it be pressed into action, 'applied' so that its use is fully realised (Brady, 2009; Greco, 2009; Rooney, 1992). The notion of impact questions the intrinsic/extrinsic value of knowledge with renewed focus (Collini, 2011; Goldman & Olssen, 2009; Haddock, Millar & Pritchard, 2009; Kvanvig, 2003; Miles et al., 1998; Pritchard, 2007; Pritchard, Millar & Haddock, 2010; Russell, 2013). Arguments for and against the intrinsic value of knowledge are seen in the literature. Benneworth (2015) claimed that in today's research environment one cannot hold on to 'precious' arguments about it; "it is simply no longer tenable to make intrinsic value or self-improvement arguments that can be rejected for their self-serving nature" (p.5). Citing Gulbrandsen and Aanstad (2012), Benneworth referred to scholars that 'cling' to the preservation of knowledge's intrinsic value as the "Plato Crowd" (p.5) suggesting that there should at least be conversations "that make their research open to more applied scholars" (p.5) so as to realise the "social life of knowledge" for example, in the arts and humanities (p.3). The value of knowledge is explored in Chapter 7. In addition to issues about the value of knowledge, integrity emerges as a theme for exploration.

3.4.3 Integrity and impact

This section considers integrity, by which I mean possessing of good character traits, such as those outlined by UUK in the Concordat to Support Research Integrity (2012) promoting values such as trust, openness, rigour, transparency and respect (UUK, 2012, p.7). Challenging the intrinsic value of knowledge has been said to lead to the corruption of epistemic virtues leading to what Heather Battaly (2013) referred to as 'epistemic

insensibility'. This is similar to Scherkoske (2011) who claimed that integrity was an "epistemic virtue that is, it is a stable disposition that reliably places its possessor in good epistemic position and leads to cognitive success" (p.196).

Levine and Cox (2016) described how "Aristotle and others recognised the difficulties of cultivating and maintaining virtue within social, political and economic structures" (p.224). In the context of an impact agenda, the politicisation of knowledge creates a problematic environment for the maintenance of ideal values in academia, such as integrity and virtue (Chubb & Watermeyer, 2016; Nixon, 2008; Zipin & Brennan, 2004). Ziplin and Brennan (2003) notably discussed the 'Habitus Crisis in Australian HE' in which they observe "the new rules of the game are creating severe conflict within the dispositional constitution of professional identities, especially in the suppression of dispositions to be ethical agents" (p.351). Here, Habitus can be understood as a system of dispositions and tendencies that organise the ways individuals see the world (Zipin & Brennan, 2004). The preservation of virtue discussed in more recent commentaries suggests that the ability for academics to be fully truthful (Williams, 2002) or virtuous (Macfarlane, 2010; Nixon, 2008) is at threat and is accordingly modifying the ways academics behave. Ziplin & Brennan (2003) reported that Australian universities are therefore in similar moral "crises" to those in the UK (p.351).

In recent years, funders and other stakeholders of research have renewed their focus on integrity and ethical conduct of research. According to funders, good ethical conduct in all aspects of research including impact should be pursued to the highest standard. With respect to virtue, ethics and epistemic virtue, by upholding a certain standard of integrity in research, academics can be seen as 'virtuous', yet within this context, a pressure to conform to requirements set by funders might result in a corrosion or corruption of those values.

With respect to this discourse, virtue can be understood as a trait of character to be admired, in a similar way to characteristics such as honesty or intellectual autonomy. Battaly (2013) describes how contemporary scholars and virtue ethicists have attempted to define virtue and the extent to which *motivation* for doing good makes something more or less virtuous (Anscombe, 1958; Zagzebski, 1996). Although reflecting deeply upon the philosophical discourse of virtue would be outside the scope of this project, it is pertinent to acknowledge that impact can be viewed as incongruent with idealised Mertonian norms of academia, enlightenment 'ideal standards' of academic virtue, discussed in Chapter 7. Here, impact and other policy directives indicative of managerialism in universities can be seen to potentially corrode intellectual traits such as honesty and truthfulness (Battaly, 2013; Donovan, 2017; Nussbaum, 1997; Williams, 2002).

Critics argue that in response to a performance-driven academic environment and increasing competition for research funds, academics are being corrupted because the culture creates conditions that erode, marginalise and militate against the exercise of virtue. Battaly (2013) claims for example, that the UK REF encourages 'vice', which she refers to as *intellectual insensibility* – the inability to recognise what is intellectually valuable. In this way, academics are at risk of becoming increasingly compelled to be more dramaturgical with their imaginings of impact – a requirement which also appears to destabilise and redefine what it means to be a scholar with integrity (Braben, 2010; Chubb & Watermeyer, 2016; Collini, 2012; Sayer, 2015). Indeed, concerns over issues of 'gaming' the system have also been raised with respect to the UK REF (Wilsdon et al., 2015).

The justification of academics in this position relies on the suggestion that in an age of accountability the only way to get funding/prestige is to bend the rules (Resnik, 2008). In the event of having to foresee impact, academics whose research is further removed from application might risk compromising their virtues as honest and transparent agents, which begs the question as to whether researchers can maintain integrity in the face of such pressures. Indeed, there is a rich vein in the sociology of science that would point to contradictions between the high-minded principles of science and how it works in practice (Resnik, 1998).

> Honesty is justified because it contributes to the advancement of knowledge, not because it brings scientists money, prestige or power. Indeed, if money, prestige or power constituted some of science's ultimate aims, we would not expect scientists to be honest.

Resnik, 1998, p. 41

Resnik argues that integrity and virtuous character traits such as honesty would / should not be an expected or anticipated trait of scientists who pursue knowledge for the sake of an end goal or result such as the pursuit of research funds. This has echoes of long standing views about the role of ethics and integrity. For instance, the French mathematician Henri Poincaré claimed:

> Ethics and science have their own domains. They can never conflict since they never meet.

Poincaré, cited in Shapin, 2009, p.11

Ethics and science must meet and increasingly with the impact agenda they can be seen to be inextricably linked. Knowles and Burrows (2014) for instance explored 'the impact of impact' in their paper which "ruminates" on how impact "shapes the research we do" (p.237).

They alluded to game – playing and the changing landscape of research and characterisations of impact and report that impact raises questions about the "content and conduct of research" in the face of "deepening demands of excellence" (p.252). Within this context, the idea that academics can maintain integrity or virtue in the face of extrinsic pressures appears at least to certain groups, incongruous and worthy of exploration (Chapter 8). I now consider some of the previous literature on academic freedom and responsibility as it seems freedom may be a vital component for ethical conduct.

3.4.4 Academic freedom

Academic freedom is a concept that has been long associated with the university and its academics. In the UK for instance it is an established legal right for academics to question and dissent without the risk of losing their jobs (O'Hear, 1988). Many have defended the need for academic freedom; Arblaster (1974) claimed that teachers and students should be free to follow their own interests, for instance. The German Philosopher Karl Jaspers in his *Idea of the University* described how academic freedom was regarded as central to the modern university and this has persisted as a perception in Western HE. Conrad Russell (1993) claimed that the role of academics was to challenge politics and that this was a central part of their academic freedom.

Several attempts have been made to arrive at a definitive and comprehensive definition of academic freedom (Berdahl, 2006; Fuller, 2003; Gibbs, 2016; Kenny, 1985; O'Hear, 1988). Conrad Russell (1993) benchmarked his view of academic freedom based on an amendment to Education Reform Bill, moved by Lord Jenkins of Hillhead where academic freedom was defined as "the freedom within the law to question and test received wisdom, and to put forward new ideas and controversial or unpopular opinions without placing themselves in jeopardy of losing their jobs or privileges" (p.2). An academic himself, Russell attempted to maintain a policy-directed unbiased approach and accepted that "for any academic, there is a tendency to assume that their rights to free speech are inextricably intertwined with their right to run their own affairs' (p.3). Russell claimed that external pressures may cause an academic to "feel a Woody Allen sense of helplessness in the face of a mighty outside world over which he has no physical control" (p.3). He and many advocates of academic freedom believed that only by preserving a "medieval idea of 'liberty' into which the state does not enter" (p.4) can autonomy (vital for integrity) be preserved (Chapter 8). The state, he claimed "should not meddle" (p.3). He also implied that the idea of violating the concept of academic freedom is somehow akin to violating the Hippocratic Oath.

Given that definitions of academic freedom vary greatly they perhaps ought to be seen to adapt to different economic and political circumstances. Academic freedom is therefore often misunderstood. Hammersley (2016) identified that there was considerable "dispute" (p.108) about what it means. This forms part of the debate around whether research and knowledge can and should be pursued simply for its own sake, or whether economic reality dictates that society must see value from the research it supports. Hammersley (2016) and Fish (2014) claimed that there is pressure upon universities and thereby their academics which threatens academic freedom, whereas some scholars posit that academic freedom and impact ought to go hand in hand. Hammersley (2016) described how Post (2012) claimed that academic freedom is vital to "democratic competence" (p.109). Post assumed a link between society and research, whilst Hammersley and Fish warned that this could be disadvantageous for pure research.

Seen as a result of academic capitalism, Slaughter and Rhoades (2004) criticised the marketisation of HE for having the potential to impede freedom. Docherty (2014) claimed that "the modern university is, in some ways, always at war; and one contemporary battle in that war is for the maintenance of academic freedom" (p.1), while Chantler (2016) claimed that initiatives like the impact agenda are "eroding academic freedom and institutional autonomy on which universities' immeasurable contribution depends" (p.215). A study by Kayrooz et al. (2001) stated that "academic freedom lies at the heart of political battles" (Menand, 1996, p.4) and Gibbs (2016) drew attention to O'Hear's view that "academic freedom embodies an acceptance by academics of the need to encourage openness and flexibility in academic work and of their accountability to each other and society in general" (O'Hear, 1998, p.132). This view seems to imply that academic freedom might actually be associated with impact.

Theoretical perspectives on academic freedom and the role of the academic continue to dominate the critical discourse (Barnett, 1998; Gibbs, 2016; Haskell, 1997; Menand, 1996) but there is also an increased amount of literature on the impact agenda specifically affecting matters of academic freedom (Chubb & Watermeyer, 2016; Gunn & Mintrom, 2017; Smith et al., 2013; Upton et al., 2014; Watermeyer, 2014). As discussed, Colley (2014) applied a Bourdieusian approach to impact and resolved that academic freedom is at risk from the impact agenda and that academics must find a way to resist it (Lucas, 2004). Concerns for academic freedom and the "changing basis of academic autonomy" are also emerging (Eddy, 2003). However, the predominant position appears to be that freedom ought to be worked alongside accountability (Gibbs, 2016; Harris, 2005) and that academic identity must alter in accordance with it (Banks, 2013; Delanty, 2001; Evans, 2002; Giroux, 2014; Henkel, 1997; 2000; Sadler, 2011). The link between academic freedom and evaluation of research

nevertheless dominates the discourse (McNay, 2007a; Kayrooz et al., 2001; Martin-Sardesai et al., 2017) This relates to the concept of responsibility explored in the following section.

3.4.5 Duty and epistemic responsibility

The relationship between the academy and society is complex. Kennedy (1997) described academic duty to society in the face of pressures to perform for ever-depleting research funds and scholars have long considered the role of public accountability and autonomy with respect to the changing political landscape (Gibbs, 2016; Ranson, 2003; Sadler, 2011). Miller (2001) argued that "public attitudes to science, showed periods of great adulation and expectation immediately after the war, followed by disappointment and even hostility, giving way to a generally ambiguous viewpoint." (p.115). Miller (2001) stated there was "a tendency for scientists to retreat into their shells, frowning on those who ventured onto the public stage" (p. 115). He acknowledged potential barriers to achieving this, claiming that there needed to be a two-way exchange between the public and the research community. In 1985, Sir Walter Bodmer in response issued the Royal Society Statement on the 'Public Understanding of Science', known as the 'Bodmer Report':

> Scientists must learn to communicate with the public, be willing to do so, and indeed consider it their duty to do so.

> Bodmer, 1985

Duty is defined as "a moral or legal obligation what one is bound or ought to do, the binding force of what is right" (Hawkins & Le Roux, 1987, p.253). The idea that academics have a duty to communicate is not new but Kayrooz et al. (2001) (summarising Marginson & Considine, 2000; Meek & Wood, 1997) suggested that duty would be in tension with the fact that the "public university" is being replaced by the "enterprise university" as previously discussed. However, Kayrooz et al. (2001) also highlighted that academics see their 'duty' not only to their students and their peers, but also to society.

To contextualise the notion of duty philosophically, Kant's theory of moral philosophy focuses heavily on duty and what he defined as the 'Categorical Imperative'. Kant referred to what *ought* to be done, a principle focusing on moral actions and not what the consequences of any action might dictate. Kant claimed we have innate moral values and our sense of duty should dictate how we act, because our duties are intrinsically good in themselves (Stratton-Lake, 2000). Contemplating duty with respect to right and wrong creates an interesting dimension when considering whether one ought to communicate research for the good of society and instrumental ends (Chapters 6 and 7). Scholars have argued that impact is vital, stating that "the prime function of leading-edge research is to

develop new understanding and the creative people who will carry it into society" (Boulton, 2010, p.23). There is therefore a clear link between duty/responsibility and research communication and a range of views on how academic freedom and responsibility relate. The pertinent literature is now explored.

3.4.6 The relationship between academic freedom and epistemic responsibility

A tension exists between the idea of academic freedom and impact. Corbyn (2010) describes how Einstein defined academic freedom as "the right to search for truth and to publish and teach what holds true". This 'right' he claimed, "also implied duty" (p.1). This is not unlike issues which endure today in which academics are dependent upon governmental research funds.

The Philosopher John Stuart Mill controversially defended individual moral and economic freedom from the state and in his influential political and philosophical work 'On Liberty' he explored questions about the limits to the authority of society over the individual. Mill (2003) believed freedom would bring positive consequences for society. There is a much longer historical debate about academic freedom and the role of the university in relation to theological 'worldliness' debates and 'separation' of church and state. Graham (2002) argued that to be pure is to be insular and to be applied is to be 'in the world'. Watermeyer (2012) describes how Graham "defogs the 'ivory tower' complex" and goes on to cite Graham who argued that a "certain sort of purism about universities is not only out of place, but was never in place" (2002, p.2). Such debates have arguably existed since the beginning of the medieval university.

Russell (1993) claimed that "any right to public money must carry with it a reciprocal duty and where there is a duty; there must be accountability for performance" (p.10) and he compared the tension between state and universities as "more like a stormy but vital marriage" (p.8). He argued that academic freedom is necessary for the university to play its role within society, but talked specifically about freedom as freedom *to* as opposed to freedom *from*. He made the distinction that academic freedom is different to freedom of speech and he also talks about the fact that there are definitions that relate the rights of academics to security in academic employment to academic freedom.. Many maintain that the university plays a vital enough role in society without the need for impact and that academics 'duties' are no different to anyone else's (Russell,1993, p.10). I attempt to draw together the themes from the literature in the following summary.

3.5 Summary

Impact is a growing and developing field of academic investigation both in terms of research policy developments in contemporary HE and how these developments revisit longer standing views and philosophical thought on the role of knowledge and academics in society. Despite an emerging body of literature looking at the barriers to implementation of an impact agenda and the over-arching themes explored in this thesis, there is only a small volume of research on the philosophical and personal effects of the impact agenda. However, there are key areas of research, providing both theoretical and empirical perspectives on impact, to which this research contributes. The focus of existing work appears to be on the implementation and understanding of research impact assessment methods and also some of the broader issues affecting academic labour. There is also a body of literature on the attitudes towards marketisation and academic entrepreneurialism specifically, but a relatively small amount with respect to impact (certainly in Australia), though this continues to emerge.

Much of the emphasis in the literature focuses on the mechanisms of carrying out knowledge exchange and reporting on impact. There is also a wealth of research on marketisation and pressures on the university of which impact can be seen as symptomatic. The literature also relates to broader historical and philosophical concerns about knowledge and its utility. Although academic responses to these changes are beginning to be documented, my study provides a rich empirical base of evidence highlighting not only the practical concerns facing the academic community but also reveals their feelings, attitudes and resulting behaviours, which builds on this emerging field of scholarly enquiry. As Martin-Sardesai et al., (2017) state in their literature based analysis of Government Research Evaluation Systems (GRES) in the UK and Australia; "further empirical research on the implications of GRES on academics is urgently needed" (p.372) and the "need to address this from academics' points of view" is of great importance (p.380).

Alongside a range of practical issues described in Section 3.3.5, long standing issues relating to professional autonomy, instrumentalism, freedom and responsibility underpin some of the key contributions in this field. Questions of value are explored particularly with respect to the disciplines where impact is less explicit, where issues arise over evidencing the impact of certain kinds of less instrumental knowledge. Disciplinary diversity is acknowledged as a key issue in the literature, suggestive of impact as reliant upon interpretations and philosophies of different fields. Additionally, the moral aspects of the impact agenda emerge with respect to gaming and 'over-selling' in the context of hyper-competition for scarce funds.

Finally, impact can be seen in the literature to pose political challenges. There is an emerging body of evidence investigating the role of universities and the need for the public to see a return on investment in research. In an era of post-truth politics and anti-intellectualism, arguably now more than ever there appears to be a greater need for researchers to interrogate research policy and the effects of the broader changes taking place in HE so that impact can be better understood and supported. The key challenges highlighted in the literature suggest that academics are challenged by having to think about impact *a priori*, that they view impact as counter to the research process, unduly influencing research directions, fundamentally damaging to the process of innovation and preservation of pure research, needed for global competitiveness.

In addition to these issues raised, whilst contributions to the field are emerging and varied, in depth accounts about the underlying philosophies of academics facing these changes, are still relatively thin, with many reports and articles contributing to a broader discourse about impact as a symptom of a marketised HE. The literature clearly shows how disciplines are making an impact yet there is still a great need more which needs to be understood in terms of both enablers and blockers of impact. This research serves to illuminate some of the deeper issues already present in the literature, particularly those affecting the epistemic sensibilities of academics. I now introduce my methodology and analysis.

4 Methodology

4.1 Introduction

This chapter will discuss the research methodology and philosophical approach. I first provide an introduction to the methods used (Section 4.1), before discussing the research design; the case study approach (Section 4.1.1), case study design (Section 4.1.2), sampling and recruiting participants (Section 4.1.3), the UK interviews (Section 4.1.4), the Australian interviews (Section 4.1.5) and a rationale of the research design (Section 4.1.6). In Section 4.2, I outline the data collection process in which I describe the interview practice (Section 4.2.1), preparation and transcription (Section 4.2.2 – 4.2.5), ethics and my role as the researcher (Sections 4.2.6 – 4.2.7), gender (Section 4.2.8) and discipline representation (4.2.9). In Section 4.3, I outline the nature of the inquiry before stating my analytic approach in Section 4.4. The chapter is summarised in Section 4.5.

The purpose of the study was to investigate academic researchers' perceptions of the impact agenda in the UK and Australia. I conducted 51 semi-structured interviews with mid – senior career academics between 2011-13 in the UK and Australia (n=30 UK), (n=21 Australia). The sample comprised academics from the field areas of arts and humanities, social science, life and earth science and physical sciences including maths and engineering. The interviewees came from two institutional cases, which were selected because of their institutional and cultural contexts; both research intensive, top 100 universities which were traditional in a sense in focus (i.e. not technology focused). The interviews took place in person and a small number (five) were carried out online via Skype.

This chapter sets out the methods used to answer the following research questions:

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- Do academic researchers' responses vary across different groups, such as across disciplines and different national contexts?

A prerequisite for taking part in the interviews was that participants had experience of grant writing and an awareness of the assessment of impact as a measure for the quality of research. Table 2 provides this information.

I explored researchers' in-depth perceptions and feelings towards the impact agenda using interviews which offered an effective way to draw out empirical evidence enabling me to focus on the individual academic voice. Academics were able to express the issues they experienced, however nuanced, which were arguably easier to explore in person. This chapter will explain how I carried out my research. I begin by describing the case study approach and research design.

4.1.1 A case study approach

This project focuses on the phenomenon of an emerging impact agenda in the UK and Australia. Yin (2009) states that where the focus of the research is "on contemporary phenomena within a real-life context" (p.2) a case study approach should be used in order to reveal "in-depth description of some social phenomenon" (p.4). Bassey (1999) cites (MacDonald & Walker, 1977) who describe case studies as "the examination of an instance in action" (p.24). Yin (2009) explains that "case study research can include single and multiple case studies" and that the latter might also be referred to as using "comparative case methods" (p.19) (Agranoff & Radin, 1991; Dion, 1998; Lijphart, 1975). In this instance, the social phenomenon is the impact agenda within two real-life settings: the Australian and UK universities.

Elements of this project are characteristic of a multiple case study, however not all aspects of this study relate to this approach. Case study methodology is rooted in the disciplines of sociology, anthropology, history and social psychology (Bassey, 1999, p.22) and has only recently emerged as a tool for educational research. Cohen, Manion and Morrison (2007) discuss the case study model in detail, and state that "the case study researcher typically observes the characteristics of an individual unit" (p.24). This is not unlike Gillham (2000). In my case, whilst there was a short immersion in the Australian case environment, this was not an ethnographic study. I was nevertheless able to "probe deeply and to analyse intensively" (Cohen et al., 2007, p.124) the phenomenon of research impact through interviews. I will describe what that entailed and how I rationalised my two cases for this study, explaining the benefits and limitations of this approach.

Case study research is defined as "a strategy for doing research which involves empirical investigation of a particular phenomenon within its real life context" (Robson, 2002, p.178). Gillham (2000), states that a case study is a "unit of human activity embedded in the real world" where the case can be "an individual, a group, an institution and a community" (p.24) and a case study "seeks a range of different kinds of evidence, evidence which is there in a case study setting" (p.1).

I argue that since there is relatively small body of research into academics' perceptions of the impact phenomenon in two cases (UK and Australian universities) an in-depth approach is required. Yin (2009) acknowledges the limitations of case studies; he states that they might be perceived to be a "soft form of research" but that they are "remarkably hard" (p.21) because they rely on the researcher's "ability" (p.16). In the case of this project I acknowledge of my role as the researcher (Section 4.2.7) and found it incredibly important to be reflexive and rigorous throughout the process, such as through keeping notes and revisiting coding during analysis. A strength of the case study approach is however that it allows the "research to intensively investigate the case in-depth, to probe, drill down and get at its complexity" (p.102) and this was a real benefit in this project as it generated so much rich data, and it was the richness which I was interested in.

We have seen how policy in both countries stipulates the requirement for research that is publicly funded to have an impact or an influence or effect on the outside world that can be demonstrated, or evidenced. A multiple case study approach therefore enabled me to highlight the richness of the issues affecting researchers in both contexts with "a set of research questions serving as a guiding framework for the data collection and analysis" (Arthur et al., 2012, p.104). Here, the 'case' can be described as "an individual, such as a teacher or student: an institution…" (Arthur et al., 2012, p.102). This multi-case study approach allowed me to really unpick the issues pertaining to the academic response towards the impact agenda, thus being able to thoroughly "explore a phenomenon about which not much is known" (Yin, 2009, p.17).

4.1.2   Designing the case studies

The two cases were selected because of their institutional and cultural contexts. Partly, these universities were selected because of access as Yin (2009) states it is important to be "able to access the potential data to interview people" so as to "illuminate" my research questions but also they were selected because of their characteristics, which would provide comparable data of the UK and Australia (Yin, 2009, p.26). According to Yin (2009) case study research provides the research design or the "blueprint" for getting "from here to there" (p.26). Yin claims there are five components to designing a case study research project; "a study's questions; its propositions (if any), its unit(s) of analysis; the logic linking the data to the propositions and the criteria for interpreting findings" and puts particular emphasis on the "study questions". He says the approach is "most likely to be appropriate for "how" and "why" questions" (p.27).

This study is concerned with: *how* researchers feel about/perceive the impact agenda within these institutions and *why*. Arthur et al. (2012) cite Yin (2009) stating that "multiple case

studies involving a small number of cases are often related in some way" (p.102). In this instance both cases have many typical features of research-intensive universities within the world whose research is internationally significant and who form part of the Worldwide Universities Network (WUN) – a global HE network. There was some discussion about the merits of including the chosen Australian university as a case for this project. Initial thoughts were to compare the UK institution with another non-research intensive, perhaps, UK ex-polytechnic university in order to explore whether the range of responses relate to certain traditions within 'types' of institutions. There was however, clear merit in examination of the Australian case because of the way impact is emerging in Australia. I also had good access to the case and the chosen institution shared characteristics with the UK case, which was relevant to the analysis.

As there was little research on academic perceptions towards impact in the UK and even less in Australia at the time of designing the project, it was appropriate to use more than one case design for this project. Yin (2009) states that single case design should be used when one is "testing a well – formulated theory" (p.50), or when it is a "rare or unique case" or conversely when the case is a "representative or typical case" (p.48). Instead, it was useful to carry out the research in the UK university almost as part of a pilot case but without the expectation that it would stand alone. Gillham (2000), states that interviews are a common form of data collection for the case study design model. Similarly, the case study model lends itself well to a "narrative format" in which the researcher can "tell a story" about a particular phenomenon or event within a particular context (p.22). With this in mind I considered ways to design my questions so as to elicit information that would tell the story about the reception of research impact in the two universities.

The multiple case study approach has advantages and disadvantages. Yin (2009) talks about how "the evidence from multiple case studies is often more compelling" (p.53) as collecting testimony from two geographical contexts arguably adds weight to the research, which of course I did in this project. This was a key driver for including the Australian university in the design, although this approach required resources to carry out the fieldwork and additional time in order to collect the data – both disadvantages pointed out by Yin in his critique of this method (p.54). It was anticipated that because both countries were going through significant change with respect to an emerging impact agenda, one could either predict similar results or predict contrasting results (p.54).

Gillham (2000) states that it is important to "keep an open mind" and to try to avoid making assumptions when carrying out research (p.17). This is particularly relevant with case study research where the researcher might think they know the area or might "carry conceptual

baggage" (p.31). This was particularly important with the cases chosen for this study. At the time of interviewing I worked in the area of research impact at a UK institution, it was therefore important to keep an open mind as "this very familiarity can blind us and close our minds" (p.18). This was another reason for using a case study method approach and relates to my role which I discuss in (Section 4.2.7).

4.1.3 The sample and recruiting participants

51 semi–structured interviews were conducted with academics with experience of writing for research funding and assessment. The details of potential interviewees were provided by staff at the research offices at both institutions. The UK interviews were carried out during 2011/12 and the Australian interviews in 2013. My participants were drawn from lists of academic and research active staff at both sites. I will firstly explain the sampling and recruiting process which took place in the UK before describing the process in Australia.

I approached the Research Office at the UK site and requested a list of grant applications received by their office following 2009, when Pathways to Impact were first introduced into grant applications. The list I requested included applications targeted at RCUK funds, including AHRC, MRC, ESRC, BBSRC, EPSRC, STFC and NERC. The list included successful and unsuccessful applications, the name of the applicant, their title/gender, the date it was received, their department, the funder it was submitted to, the title of the project, the amount requested and the outcome. I was given this list in hard copy, not electronically. In total, there were over 500 names on the list, including some repetitions.

In order to decide who to contact, I examined the list and with the aspiration to achieve fair gender representation, chose ten names from each funder broadly representing the subjects within that broad subject area. For instance, for EPSRC, I contacted academics from chemistry, physics, maths and engineering and electronics to achieve a range of perspectives from within a cluster of disciplines. Inevitably, this meant that I contacted more than one individual from some academic departments and the participant sets for each group therefore contain more than one academic from the same discipline (chemistry, for instance is one example in the UK sample).

I then cross-checked details of the participants using the university's staff information to check their career level and emailed them using blind copy so that each email was discrete to the individual to maintain anonymity. I sent all the selected academics an *Invitation to Participate* email including an information sheet and informed consent form. With respect to the further interviews I carried out in March 2015 with female scientists funded by EPSRC, I again received a list of names from the Research Office and (having checked the names on the staff webpages for clarification of career level), directly contacted 10 names from the list

and the first to respond were selected for interview. This was made clear on the email invitation. From the initial email invites for the interviews in 2011/2012, all but a couple of academics responded with either a positive response. I chose not to send a follow-up to those who did not respond, as I did not wish to appear pushy or disrespect their right not to respond. This was possible because I had large number of potential participants; had I been working with a more limited pool I may have sent a polite follow-up.

Most of those selected accepted the invitation, with those who declined citing time restraints and those who were delayed in responding often citing being overwhelmed by emails. Three individuals from my original list were unable to participate, but this left a number that was still within the original quota of my selection and consequently I did not need to go back to the list to recruit further names. If the need had arisen to source further participants, I would have used the original list and again selected further names on the basis of the career stage and gender representation already achieved. I did not turn anyone down for interview.

In Australia in 2013, I also sourced participants for this study from a list of academics who had submitted grants across the relevant disciplines. This time, this list was smaller and came from the manager of the Research Office at the Australian case institution. He and his team of Research Development Managers, following a briefing with me via Skype about the study and the information provided in my WUN application which funded my visit to Australia, developed a spread sheet of names from which I contacted the academics. This may have helped me to build rapport with potential participants more effectively than would have been possible if someone else had set the interviews up for me.

The Australian Research Office Manager sent me a spread sheet showing a list of potential interviewees. He outlined on the list how a number had declined due to commitments, but how they had added a few more interviewees to the list in light of this. I remained in contact with the Australian site Research Office as they were waiting for a small number of people to respond, and kept the list as a working document. I took responsibility for contacting participants to arrange the interviews. The list included comments which included information on both availability, where given, and on who to contact to make the appointment (in cases where participants had Personal Assistants or other support staff managing their diaries).

All the Australian interviewees I approached agreed to participate, dairies permitting. This may have been due to an initial background check of participant interest and availability carried out by the host institution's Research Office. I contacted all the participants on the list (the original list included 25 names). Before arriving in Australia I had confirmed all my interview times and locations, including setting up Skype calls with those who could not be

involved during my visit there. I was advised on where to meet my participants by the Research Office and/or the participants themselves. With respect to the disciplines represented in each group for the Australian interviews, I was fortunate in that the Research Office were aware of the interviews carried out in the UK and the model I was using (broad funding bodies on which to map interviewees' current project and interests). In Figure 8, the low ratio of applicants in the Social Sciences reflected what was provided to me by the Research Office. Due to limited time in Australia (nine interviewing days), I was not able to seek further names, though had I been there for longer this is something I may have attempted to do.

In order to participate I sought participants ideally with experience or involvement with the following:

1. Experience of grant writing/holding within the last 5 years
2. Experience/awareness of pathways to impact/writing impact into funding applications
3. Experience/knowledge of (UK) REF 2014/ERA impact assessment trial (desirable)

These stipulations were important in order to produce meaningful and relevant data and to help strengthen the evidence pertaining to different responses to impact. For example, interviews with participants with these characteristics provided information on experiences of both prospective impact and retrospective impact, two distinct but overlapping areas each presenting different challenges pertinent to the research questions and the sector more broadly.

Point 3 of the criteria included the caveat that it was *desirable* for participants to have experience or knowledge of the UK REF/EIA trial. As I outlined in my initial chapters impact as a measure of quality assessment was in its infancy and being trialled in both contexts. This was an important consideration in so far as many of the UK participants would likely have this awareness because of the timing of the interviews and their proximity to the UK's preparation for the REF. Similarly, at the time of the Australian interviews the EIA had also taken place but only with a very small number of universities and academics at the site institution. The chances of sourcing enough participants for this study who all had experience of these processes would have been slim, particularly with respect to Australia, hence the caveat. Table 2 provides detail of UK and Australia participant characteristics.

As discussed the lists from which I sourced my UK participants, and the requirements I provided to the Australian case institution stipulated that grant applications from participants must have been within five years where impact was either a formal requirement or an emerging expectation reflected with respect to research policy. Interviewed academics with

experience of writing pathways to impact/impact statements may or may not have been successful with their applications. The implications of this selection may not then have been entirely known. For instance, it is possible that those who had written grant applications and impact statements might be more attuned to an impact agenda. This might reflect most strongly in the case of the UK where impact policy was more formalised than in Australia. However, it is equally plausible that a negative account may have been given as a result of the timing of these interviews. The Australian interviewees may have been more open minded to the concept, it is also possible that the UK participants may have taken more of an official line with respect to impact as opposed to thinking about it in relatively more abstract terms. Those who were not selected because they had not written grants may have had a different view of impact, perhaps in a few cases a very negative one in which their decisions not to apply for research funding was because of being disaffected by having to consider impact in applications. Indeed, some potential interviewees declined taking part in the interview, citing time constraints. It cannot be known whether they actually declined because they were so disaffected they did not wish to talk about it. Though, considering the range of responses presented in this thesis, this appears unlikely to be the case. It is perhaps equally plausible is that they didn't know much about it and didn't want to be exposed. Many were probably just too busy. I acknowledge these limitations and considerations in Chapter 10.

When devising the sample for this project, I took into account the likelihood of the richness of responses because I was aware that participants may use the interview as an opportunity to vent or off-load any frustrations they may have had about this relatively new and emerging phenomenon. I was therefore looking for emerging themes and richness in responses as opposed to alluding to representativeness of UK and Australian researchers.

It was important to be aware of when to stop collecting data. Also known as 'saturation' this is when themes repeatedly emerge and no further perspectives come to light within the scope of the project. According to the literature there is "no single answer" (Kane, 1985, p.94) as to how large a sample should be or when one should stop collecting data. I explored the research questions within the constraints of this project, towards saturation, that is, when similar issues and themes emerged from my interviews in lieu of time and resource constraints (particularly in the Australian case). Given (2008) suggests "researchers do need to decide when collecting new data will result in diminishing returns, with new details adding little to the emerging theory" (p.195). With this project, I was looking for richness of data and do not claim absolute saturation of the population of English and Australian researchers. Instead, I noted the emergence of themes whilst transcribing and listening back to the interviews. Following and where possible during each interview I made notes paying attention to the kinds of content emerging from the data. Within the scope of this study, it

was felt reasonable to aspire to interview a range of approximately 50 participants in total, in which participants were divided across four sub-groupings within the sample. For instance, I aspired to recruit up to five participants for interviews with physical scientists in both the UK and Australia, and the same number of participants for interviews with life and earth scientists, the arts and humanities and the social scientists. Table 2 represents the different characteristics of participants from both the UK and Australia with respect to their levels of experience with funding, impact and assessment. Characteristics such as career level, background and gender are discussed later in this chapter and are depicted in Figures 8-11.

	Physical		Social		A&H		Life/Earth	
	Aus	UK	Aus	UK	Aus	UK	Aus	UK
Female	3	4	3	1	3	2	2	1
Male	2	6	2	5	3	5	3	6
P2I /National Benefit experience	3	8	3	7	4	7	4	6
Experience of P2I reviewing	3	7	1	4	5	4	3	5
Case study REF/EIA	2	3	1	3	1	1	5	1
Total interviewees	5	10	5	6	6	7	5	7

Table 2: UK and Australia participant characteristics

I attempted to get as representative a picture as possible from interviewees for each sub-sample. I also attempted to achieve equal numbers of male and female participants, but trends in the number of female to male applicants for grants indicate that achievement of the same number of male/female participants in all discipline areas may not be possible (gender is discussed in Section 4.2.8 and is visually represented in Figure 8 and Figure 9). I now explore the approach to data collection in the UK and Australia as two respective cases.

4.1.4   The UK interviews and participants

In the UK, I conducted 28 face-to-face interviews, and when this was not possible, I carried out two interviews via Skype. I carried the majority of these interviews out between July and September in 2011, with a further set of interviews with female academics from the sciences in March 2015.

The UK interviews were originally supported with funding from the Engineering and Physical Sciences Research Council (EPSRC) Pathways to Impact Award (PIA). The PIA was a scheme launched by the EPSRC with the intention "maximise the impact and exploitation of

their investments, where a key priority was to embed KT (i.e. knowledge transfer) and impact activities as part of the 'normal business' in research grants (University of Southampton, 2012).

The UK case awarded several PIAs in the financial year 2010-11, with a view to trying to embed impact into funding and catalysing a step-change in academic behaviour towards impact. The PIA is now part of RCUK Impact Accelerator Accounts/ Award (IAA) received by universities as "block awards made to Research Organisations to accelerate the impact of research" (ESRC, 2015). I invited five principal investigators in receipt of a PIA in 2011 from the areas of engineering, computer science, electronics, physics and maths to participate in the study as a condition of the funding support from the university; these participants also happened all to be male.

The PIAs were awarded therefore to researchers who had already been successful with respect to impact. In order to have been awarded the funds, they were selected by their institution as having ideas which would translate to the outside world with further investment, whether through commercialisation or other related activity. As a sub-set of what was to be a larger sample, one might assume they would be more engaged with and potentially more accepting of the impact agenda. I was therefore aware of the potential for bias towards impact in their responses. In acknowledgement of this, I requested a list of applications for RCUK funding which indicated all submissions, not just those successful, across all disciplines from the UK's case's research grants office. I then subsequently invited researchers via email to participate in the study, initially looking to identify five - six researchers from the list from each discipline cluster area based on a target sample range of between 25 and 30 UK interviews. Not all of those contacted were interested in participating, some failed to respond at all and some stated they could not participate because of time restraints. From those who responded positively, I purposively selected a sample that would better achieve a similar number of male/female participants for the discipline area. To clarify these subsets, they can be ordered into what would have fallen under the remits of the following research councils in the UK at the time of designing the project.

1. The Natural Environment Research Council (NERC), the Biotechnology and Biological Sciences Research Council (BBSRC) & the Medical Research Council (MRC)[10] – Life and Earth Sciences
2. The Arts and Humanities Research Council (AHRC) – Arts and Humanities
3. The Economic and Social Research Council (ESRC) – Social Sciences
4. The Engineering and Physical Sciences Research Council (EPSRC) & the Science and Technology Funding Council (STFC)[11] – Physical Sciences, Engineering and Maths

In Australia, all participants were funded by ARC or NHMRC. Where their discipline corresponded with the UK disciplines, they were subsequently put in the appropriate category. Notwithstanding, I am aware of the increased multi/cross thematic funding trends which make it difficult to completely typify the funder category and assign a definitive discipline group. These groupings are instead devised around the funding the participant received at the time of interviewing. While this sampling approach inevitably emphasizes some groups over others, they do provide a good foundation for interviewees to talk with knowledge and conviction about the impact agenda in their field. Detail of disciplines represented in the UK sample is given below in Appendix 1. The Australian data is provided in Appendix 2.

4.1.5   Australian interviews and participant sample

I began to explore academic perceptions from the Australian community in July 2013. In order to contribute towards the impact debate in Australia, it was felt that carrying out further interviews with academics at a similar institution to the UK would provide useful insight into the motivations, challenges and perceptions of Australian academics. The desired criterion for the interviews was that participants would have recently written grants, and that they would have an awareness of the ERA process. It was therefore important that the selected university had taken part in the Australian EIA impact trial described in Chapter 2 (EIA, 2013). This institution further aligned to the UK case in its standing and mission in that it formed part of the Australian Group of Eight, akin to the UK Russell Group. The two institutions therefore formed a meaningful comparison.

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[10] I did not interview anyone funded by the UK Medical Research Council (MRC). Australian interviewees funded by the NHMRC were according classified under life and earth sciences. The UK and Australian health scientists were from applied health disciplines as opposed to clinical medicine.

[11] None of my participants were funded by STFC at the time of interviewing.

The method for sampling the Australian participants was purposive. In July 2013, I spent just under two weeks in Australia and carried out 18 face-to-face interviews, one interview via Skype during the visit and two following the visit because of researcher availability. I was able to carry out my research in Australia following a successful mobility grant proposal to visit Australian to carry out the interviews under the WUN research theme 'Global HE Challenges'. Total time spent interviewing was nine days.

As a prerequisite for the funding, I had to establish supervisory support for the project with the Australian HEI. I was able to gain access to university supervision using existing networks following a previous visit in which I had delivered research training for the university. I received clear signposting and recommendation from an existing contact in the Australian university. The project was met with enthusiasm from the department with oversight of the innovation, commercialisation and research impact activity at the university.

A supervisor agreed to support me in sourcing participants for the study and acted as a helpful gatekeeper for obtaining potential interviewees. Simultaneously, they alerted the Pro-Vice Chancellor for Research about my intentions and further support was given to proceed with the interviews. It was agreed that my supervisor there would provide me with a list of potential participants from the discipline areas of: arts and humanities, social sciences, life and earth sciences and physical sciences, maths and engineering.

I emailed the participants in advance of the research visit, citing the supervisor's name as previously having identified them as potential participants. I outlined the capacity in which I was working, the purpose of the study, the conduct of the interviews and the ethical requirements in order to proceed. An informed consent form was supplied, to be filled out prior to the interview and an information sheet (Appendix 11).

Twenty-one one-hour interviews were carried out over nine days, representing an intense short immersion in the Australian university environment. The interviews were carried out in a place of convenience for the participant. This was sometimes their office or the University Club, a members-only staff café with private space where researchers could feel relaxed and removed from their working environment. This short immersion provided a deeper understanding of the Australian case, difficult to develop at a distance.

4.1.6 Interview rationale and design

The advantage of interviewing is said to be "its adaptability" - in using interviews, one can "follow up ideas, probe responses and investigate motives and feelings" (Bell, 2010, p.161), which, in comparison to using questionnaires, allows more opportunity for interviewees to be explorative in their response.

Gillham (2000) stated that semi-structured interviews are "the most important form of interviewing in case study research." He claimed "it can be the richest single course of data", largely to do with their "flexibility" and ability to promote "naturalness" (p.65). The interviews were semi-structured, as opposed to unstructured, in which "a framework is established by selecting topics on which the interview is guided" (Bell, 2010, p.165). When deciding upon a suitable method for collecting the data on the research questions, it was felt that semi-structured interviews would be a more appropriate way of collecting data as they would support a more meaningful, enriched, analysis of the data.

Bell (2010) states that a limitation of using questionnaires is that responses can be taken "at face value", whereas interviews allow the researcher to immerse themselves in the responses and allow you to probe and to take note of the emotional behaviour/reaction of the participant, their tone of voice and disposition (p.161). This is particularly useful when trying to establish how a participant feels about an emotive issue.

The use of the semi-structured interview method in this study contributes to its originality. Previous studies exploring attitudes to impact have been carried out largely using a range of methods including interviews, but survey methods and document analysis have been fairly prominently used. Whilst still illuminating, surveys can be said to lack the depth of exploration as the questionnaire format can be problematic. A participant can respond in a particular way but one cannot probe to get a sense of the further qualification of a statement. The use of questionnaires can lead to a potential translation barrier where meaning can be lost, whereas interviews allow one to ask further questions and interpret body language and tone to provide clarity.

Though interviewing can be time consuming and arguably complex to prepare and analyse, the use of semi-structured interviews helped to unravel the more nuanced issues relating to the impact agenda. I was also able to experience the outward expression of academics which helped with my analysis. I was not able to draw on other scholars' work to generate a theory to test by using more nomothetic or variable-based methods, but this may be something which I could consider following the completion of this project.

4.2 Data collection

As described, the aim of the data collection process was to carry out 51, thirty-to-sixty minute semi-structured interviews using qualitative research methods with academics with experience of grant writing at a UK and Australian research-intensive university 2011-2013. Figure 7 details the broad interview schedule.

With respect to both cases, the same questions were posed. Yin (2009) states this was important as "a major insight is to consider multiple cases as one would consider multiple experiments – that is, to follow a replication design" (p.53). Attempts were therefore made to ensure all issues were covered in both contexts.

With regards to the interview structure, some of the questions were deductively analysed and some (the majority) were inductively analysed. The deductive questions are written in italic bold and can be found in Figure 7 marked with an asterisk. These reflect the themes of freedom and duty/responsibility central to my research questions. The other questions in Figure 7 were broad open questions from which I was able to use and entirely inductive approach in order to analyse responses.

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Interview structure:

Check understanding about what the interview is about and summarise the project aims.

Background info:

1. Your background, why/how you got into research, your experience of grants and impact
2. How do you understand and interpret impact in your discipline - what does it look like?

Practicalities:

3. How do you feel about impact?
4. Are there any challenges associated with impact?

Academic freedom and epistemic responsibility:

5. What is the role of the academic in society?
6. What does academic freedom mean to you?
7. *Critics argue that academic freedom is compromised by the impact agenda – do you agree?**
8. *The Royal Society 'Bodmer Report' (1985) talked about there being a duty of academics to communicate their work, do you agree?**

Close: Are there any further issues you would like to raise in relation to the impact agenda?

*Questions 7 and 8 were deductively coded categories.

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Figure 7: Interview schedule

These interview questions were carefully designed around the themes and issues I wished to explore using my overall research questions. The schedule in Figure 7 was not highly structured with closed questions, nor was it completely unstructured – rather, I wished to

elicit responses on a range of themes. As such the questions were openly structured so as to gather interviewees' opinions on the themes in question. This was reliant upon me to probe in order to get insights on the themes in question by asking interviewees to elaborate or give examples of particular issues. I carefully thought about the broad themes I wished to address and how I would ask about them (discussed in Section 4.2.1). I considered ways of arranging the questions and felt that starting the interview by ascertaining a general understanding of the conception of impact was appropriate from which other opinions would naturally flow. In some cases interviewees would pre-empt my prompts or questions. As a result I had to be flexible and move the order of the schedule around. I was also sure to ask at the end if there was anything they wished to add.

This approach can have limitations in that it relies on the researcher's' ability to avoid leading questions (Section 4.2.7). The researcher may unconsciously give out signals leading a participant in one direction or another for example. The data will be rich but by the same token often difficult to analyse. This approach also relies upon a trust that the respondent is telling the truth but conversely a benefit is that respondents would tend to speak more freely through semi structured interviews – as such provide their own direction on the process which may potentially be more true to themselves. Ultimately, my aim was to gather rich data about a little understood phenomenon 'the impact agenda'. I was careful to clarify terms and checked understanding with interviewees when using this schedule as a guide. Importantly, my schedule included two closed questions requiring a yes, no or maybe response and these related to academic freedom and duty (as described these are bolded out as deductive categories in Figure 7). Both open and closed questions were important in order to answer my research questions. Finally, I did not assume that participants would know the Bodmer Report reference, particularly as this may have perhaps been better known to the sciences (Royal Society reference) and perhaps better known in the UK. I was clear to explain and contextualise it within both contexts. It was used really as context for how researchers might consider their duty/responsibility to communicate their research to society (a vehicle for impact). In addition, it was contextualised further in order to explain that a duty communicate was not the same thing as an impact agenda but part of that contextual landscape such as through 'engagement or knowledge exchange, described in previous introductory chapters.

4.2.1 Interview practice

I tested out the initial interview schedule in practising for the data collection. This was important in refining the interview questions and establishing my style of interviewing. Bell (2010) describes an analogy drawn by (Cohen et al., 2007, p.82) between interviewing and fishing, in which she states that interviews require "considerable practice if the reward is to be a worthwhile catch" (p.161). Although a full pilot study was not carried out, the initial interview design was trialled with academics who I knew through my professional network. The broad interview questions were refined over the course of the initial interviews, and the questions were designed with ideas for 'codes' in mind, which would strengthen analysis at a later stage. The themes include those described in Chapters 1 - 3.

The benefits of group interviewing and using focus groups to interview participants were considered. However, given that responses were likely to vary across disciplines, the only possible scenario where this might have been useful would have been in groups of the same discipline. Such an approach would arguably have failed to elicit the same responses, and it is the individual's perspective that was critical to this study. The benefit of carrying out individual interviews as opposed to focus groups was that focus groups have the potential for individuals to derail the conversation or to dominate, thus potentially leading to a loss of data (Bryman, 2001). I also had to consider that a further issue with focus groups could have been the association with me as an employee within a university environment: there was the potential that participants would view the focus group as a 'workshop'. On the basis of these factors, it was felt individual interviews, though time consuming would be most appropriate.

4.2.2 Before the interviews

I emailed all participants an invitation to participate in the study introducing my role and outlining the purpose of the research, the research questions, the rationale and information on the content and duration of the interviews. It was clearly outlined that I was conducting the research as a PhD student so as to avoid any misinterpretation as to how the information would be used. The email outlined how the data would be managed and stored, stating that all interviews would be anonymised and confidentiality upheld. An informed consent form was sent by email which potential participants were asked to read and sign prior to the interview. Provision was made for these to be returned electronically, by mail or in person. A further attachment was provided, outlining more detail on the study, information on the potential impact of the work, dissemination and contact details. Appendix 11 and 12 include example interview information sheets. None of my participants requested to see the transcripts pertaining to their interviews, but many expressed an interest in arising publications, one academic requested and received a copy of my publications. All

participants received information which can be found in Appendices 10, 11, 12 and 15 prior to the interviews. None of my interviewees asked me to take anything out but some reiterated the need to ensure confidentiality and anonymity as outlined in the informed consent form. It was explained to all participants that this project had received ethics approval and that this was made clear in the informed consent form (Appendix 10 and 16).

4.2.3   During the interview

In the UK, I conducted 28 face-to-face interviews, and when this was not possible, I carried out two interviews via Skype. In Australia I carried out 18 face to face interviews and three were conducted via Skype. I allowed one hour for face-to-face interviews in both the UK and Australia and 30 minutes either side for travel and preparation time. For the UK interviews this posed very little issue and interviews were rarely organised more than once per day over a period of three-six months between July-September 2011 and March 2015 for the additional female science participants from the UK case institution. In contrast, the Australian interviews were organised over a very short time frame (the entire visit was two weeks including travel - actual interview time nine days). As such, I carried out approximately three-four interviews per day over nine days during the visit, which also involved the delivery of two workshops on research impact for PhD students at the Australian university and some time for personal rest.

4.2.4   Recording the interviews

Participants were invited to give consent to the recording of the interviews as part of the informed consent document before the interview took place. They were also asked again at the beginning of the interview to double-check that they were comfortable with this. The interviews were then recorded using both a small Dictaphone in the case of Australia, and/or my iPhone with its inbuilt voice memo application. Voice recordings were directly uploaded to a password-protected computer and securely stored within a password-protected storage space and backed up on a similarly protected second computer and then deleted off mobile devices.

Recording was vital to achieving the level of in-depth analysis which this study required. The recordings allowed me to listen back on more than one occasion as well as transcribing the interviews (Section 4.2.5). It was not necessary to take thorough notes during the interview but in order to carefully prepare for the interviews I took along a notebook and pen in the event that the participant decided to withdraw this element of consent following Bell's advice: "you need to be prepared for a refusal" (Bell, 2010, p.167). This did not present an issue as all participants were happy to be recorded but it was an important consideration in the

research design. Bassey (1999) explains that an "advantage of recording for the researcher is that she can attend to the direction rather than the detail of the interview and then listen intently afterwards" (p.181). It was particularly useful both during the interviews themselves for peace of mind and in the case of the Australian interviews where I had a short immersion in the environment and could not transcribe them all at once.

4.2.5   Transcription

It is accepted as good practice that interviews should be transcribed as soon as possible after being recorded (Gillham, 2000). Each interview, which lasted between 40 minutes and one hour, was transcribed either by the researcher or an assistant, each taking at least four hours to fully transcribe and edit. Where possible the recordings were transcribed immediately after the interview; however this was not possible in every case. Gillham (2000) explains that "you cannot analyse an interview just by listening to it" (p.71) because although time consuming "you can't really study an interview's content except in written form" (p.75). Transcriptions were, therefore completed in the UK. Recordings will be kept until after the thesis is examined and awarded, in order to cross-reference any material in the transcripts. Interviewees were informed that they could request a copy of the transcript and could comment/alter it if they wished. In many cases participants expressed an interest in keeping in touch about the research findings. Bell points out that this is general "courtesy" as long as it is not too time consuming and is considered at the time of planning (2010, p.169).

4.2.6   Ethics and voluntary informed consent

When conducting interviews, the importance of rigour, care, transparency and respect in interviews was vital as central to the integrity of the project. These four tenets underpin the UUK Concordat on Research Integrity (UUK, 2012). Research integrity is a subset of research ethics, in which in carrying out research one seeks the 'avoidance of harm'. It was important to follow and be familiar with such codes of practice within the university as "such a highly formalised requirement seems sensible when a risk of harm to the participants may be anticipated" (Iphofen, 2011, p.66).

I devised a voluntary informed consent form (Appendix 10) which was sent to all participants before the interviews. I also included a separate information sheet in order to provide the "bulk" of the research information for participants (Farrimond, 2013, p.110). This was necessary in order to reduce the risk of harm to the participants by ensuring they were making an informed decision about proceeding with participation in a research project. I was aware that this was not a one-off, but rather it was a "process", which would need monitoring and revisiting throughout the research process (Iphofen, 2011). Bell claims that this is better

practice than telling the participants verbally or in the interview itself as "the participants have an opportunity to query the meaning and implications of any statements and even to withdraw at that stage" (Bell, 2010, p.160).

I was conscious of the importance of upholding the highest standards of rigour in ensuring that participants were aware of all aspects of the project. Some scholars claim that it might be more in keeping with "the ethos of qualitative enquiry" to gain consent through verbal agreement, which is then recorded (Iphofen, 2011, p.30). However, in this study it was far more rigorous to ensure written consent in order to establish the "correct contractual relationship between the researcher and the researched" (Iphofen, 2011, p.71). I felt this was particularly important in light of my employment status at the time, and whilst such a contract might appear formal it nevertheless ensured that the study was adhering to a high standard of conduct and thus provided reassurance to the university, the department and the participants.

Bell (2010) states "you still have the responsibility to explain to participants as fully as possible what the research is about, why you wish to interview them, what will be involved and what you will do with the information you obtain" (p.160). Participants were given an outline of the purpose of the research study and asked to confirm that they understood that they were being invited to participate in a research study conducted by me. Participants were advised within the consent form that should they wish to ask questions about the project prior to taking part in the interview, this option was available to them.

The fact that this was outlined in advance of the interview may have affected self-selection as some declined to participate. Participants were advised that they could decline to answer any questions and that they could withdraw their agreement to participate at any time during the interview or for up to fourteen days after completion of the interview. At that time, they then knew that they may indicate whether or not the data collected up to that point could be used in the study, and that any information that they did not want to be used would be destroyed immediately.

In order to ensure participants were comfortable with speaking freely, they were advised that they were being offered confidentiality in any written report or oral presentation that drew upon data from my research, and that none of their comments, opinions, or responses would be attributed to the participant, nor would any other person discussed in the interview. In order to conform to university ethics practices, participants were advised that the research study had been reviewed and received ethics approval (Appendix 16). Participants were asked to sign and date the form if they consented to taking part in the study. Informed consent forms were securely stored in a locked filing cabinet.

4.2.7   Role of the researcher

The UK interviews were carried out at a UK research-intensive institution, where I worked as a full-time employee in a training and support role in the area of research and innovation training from October 2010 – March 2016. I was therefore known across the institution for providing expertise in this area and may have been known to some of the participants in this professional capacity prior to the interview. It is therefore important to acknowledge the effects this may or may not have had both on the participants and on me personally. Similarly, though not a member of staff at the Australian university, I was granted access through their central management and administration which may have affected responses.

Gillham (2000) likened case study research to "doing detective work" (p.32). He claimed it is important to pay attention to what one as a researcher perceives tacitly, through one's own intuition, and explicitly, i.e. by what one is told. Through my personal professional experience, I have developed academic skills and competencies around the area of research impact. This naturally heightened my awareness to some of the themes I anticipated might be raised by academics in the research interviews. The approach taken can be said to be somewhat deductive in nature as I was alert to some of the issues that academics might raise and that I wanted to explore in my research questions. However, I did not have a pre–determined theory in mind to test. By not subscribing wholly to a hypothesis, I was keen to ensure inductive, subjective reasoning was used in order to structure the interviews and analysis allowing flexibility and room for interpretation of results. This is described in (Section 4.3).

I tried to "keep an open mind" during data collection and analysis (Gillham, 2000, p.18), for whilst I was aware that I had well-formed ideas about impact, having worked at universities at the time of interviewing for over eight years, I tried not to project my existing views onto the project. Indeed, leaving my role at the university to concentrate on my PhD and maintaining the same views and approach reassured me to some extent that my role was not affecting my objectivity as a researcher. Gillham (2000) talks of how a researcher should try to approach the research as though they were "going into a foreign country" (p.18) so as to diminish the chance of bias creeping in. This was aspired to, but none the less was a difficult task. For instance, it was possible that I was known to some UK interviewees from past training interventions. In some cases, some had an axe to grind with respect to a particular process they were being made to go through, REF for example, and it's possible they saw me as 'the university'. Generally, most interviewees were senior members of academic staff - it is unknown as to whether they held any pre-existing opinions about 'non-academic staff' doing research despite my dual role as a researcher. There was a sense

from some participants that this was a chance to vent, and in some cases, their emotions were made quite clear on certain issues, often creating tension in the room (for example, one participant banged the desk in frustration about the subject matter).

I noted the emotional reactions of the interviewees in their behaviour and tone. Some participants explicitly told me they were angry with a certain department or process, others made short asides; "I probably shouldn't have said that" (anonymous). Indeed, on one occasion, the following comment was made following a candid interview:

> R: Have you any more to add?
> I: Only to say that I said some frank things about working here historically, which I regret!

On those occasions I was quick to ensure anonymity and confidentiality. None of the participants requested I make any changes or omissions when writing up their interviews other than to ensure personal anonymity and anonymity of anyone mentioned during the interview. Establishing trust and rapport was extremely important and was not something I could take for granted. I was also aware of any future professional involvement I might have with my participants.

There is a potential question of whether familiarity in any way has shaped responses, or in fact, conversely, whether participants felt more comfortable with me as a result of their prior association. In some cases participants may have hoped that any expression of an issue they had with respect to this area might be fed back 'to the centre' and be dealt with as a result of the interview. Similarly this may have affected how they responded if they were worried about their job security. I cannot be certain how far this influenced the responses from participants, though the participants at the UK institution were made fully aware of the capacity in which I was working - as a research student, not as an employee. There is however "always the risk of bias creeping into interviews" (Bell, 2010, p.169). I used an information sheet which "allows the subject to check up independently" if "they were inclined to" (Iphofen, 2011, p.69). This level of disclosure very much relates to what Iphofen (2011) and Macfarlane (2010) describe as the "virtue" of the researcher (Iphofen, 2011, p.27). I was keen to be transparent about my role as an employee of the UK institution, and similarly with the Australian university. Iphofen describes qualitative research as a "coal-face" activity, in which "the researcher is involved in a direct relationship" with the participant (p.28). It was for these reasons that building a rapport and trust was important to the integrity of the project. I was aware of these issues and tried to remain a dispassionate conduit for the research. With the exception of a few instances, participants generally seemed genuinely open to discussion and I did not sense any cagey reactions to questions. Perhaps this was because I

was not a senior member of staff and my scope for influence was perceived to be relatively small. This was less of a concern in the Australian interviews, but I was aware of having gained access to my participants through the 'centre'. It is hoped that the rapport that I built in the planning and conducting of the interviews was effective thereby observing the integrity of the project.

I acknowledge that my prior experience may have affected participants' responses in a number of ways which I will briefly explore. Firstly, it is as I have alluded to possible that my prior experience may have caused participants to respond more positively to the idea of the impact agenda because it is possible they may have thought that it was more polite to do so given my professional background or because they may have felt that I represented the university and that their words may be in some way used to create problems for them should they express a negative view. Similarly, it is possible that it may have caused participants to react more negatively if they thought their resistance might lead to change or if they saw me as a safe person in which to confide. It is possible that my almost 'hybrid' role as a researcher and as practitioner might have caused participants to feel more comfortable with me, aware of my level of knowledge of the issues they were discussing and hence a reasonable sounding board for their ideas. The extent to which any of the above statements are correct is rather unknown, but for the fact that not one of my participants asked to view the transcript or asked to withdraw from the project and all appeared to enjoy a level of rapport with me. My role as practitioner was not known to the Australian participants. However, it is possible that the way in which they were selected may have affected responses because they were selected by management at the university itself (albeit following the projects' guidelines). It cannot therefore be known quite what involvement management staff from the Australian case had behind the scenes unless this information had been shared with me. These limitations are again set out in Chapter 10.

4.2.8 Gender

Where possible I aimed to interview similar numbers of male and female participants. During the UK interviews, I was met with difficulty in achieving the same kinds of numbers of male and female participants, not by design but by virtue of the ratio of male applicants listed as grant active from the research office. There appeared to be a larger base population of male applicants and male participants in relation to this project. In light of this, four extra interviews were conducted in 2015 with female academics from the physical sciences in the UK to obtain a more equal gender representation. Themes emerged with respect to gender which may be a subject for further research. I discuss this in Chapters 5 and 10.

Figure 8 outlines the gender distribution of the UK sample. Figure 9 outlines the same for Australia. It is also important to note that whilst it was not a stipulation that the participants be at a particular career stage, many participants, owing to their experience of grants (a criteria for selection) tended to be in senior academic roles.
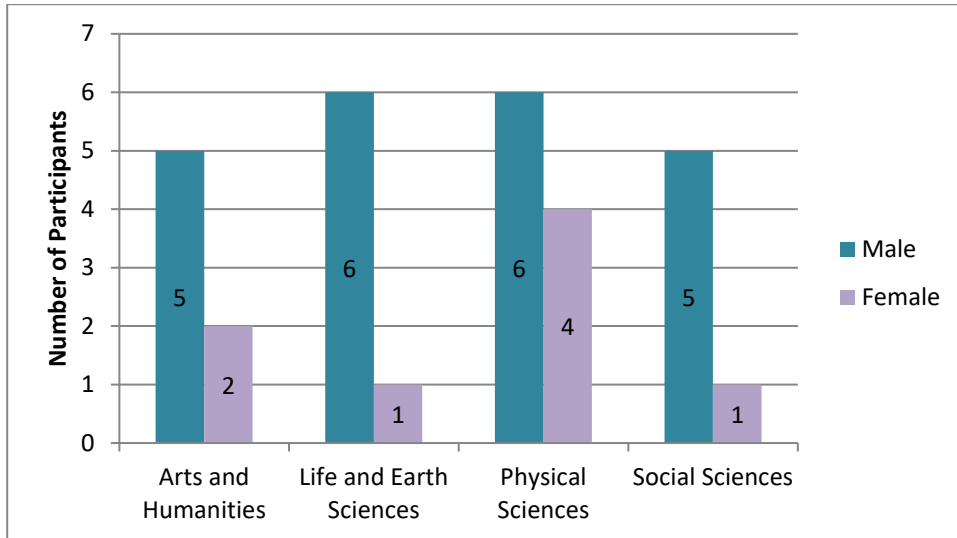
Figure 8: Gender representation across the disciplines: UK. Total 30 semi-structured interviews. Overall gender split: 21 male & 9 female.
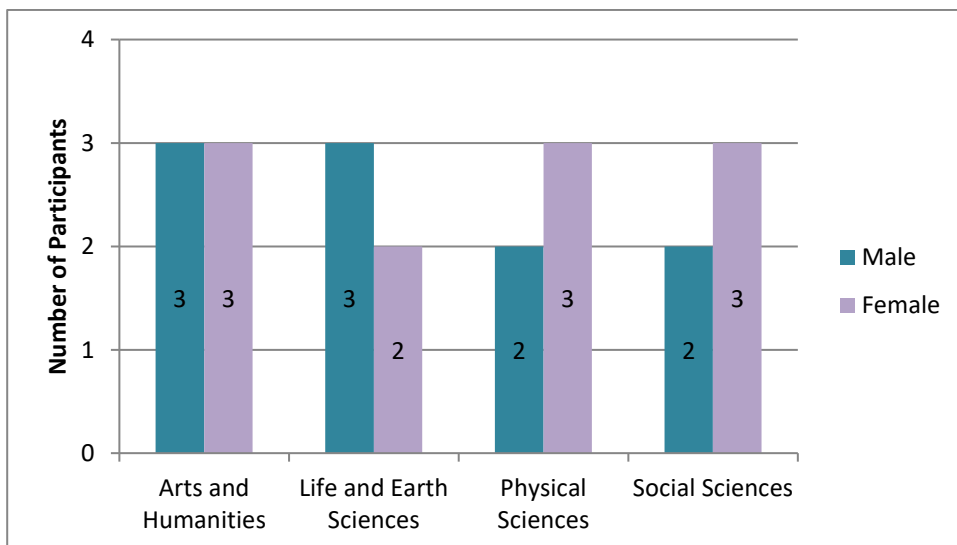
Figure 9: Gender representation across the disciplines: Australia. Total 21 semi-structured interviews. Overall gender split: 10 male & 11 female.
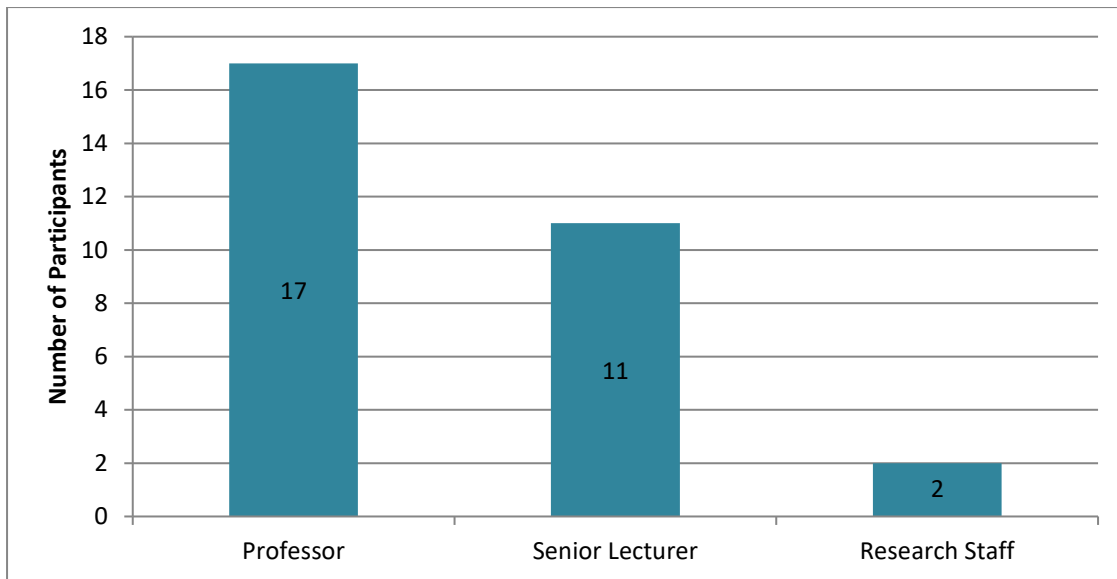
Figure 10: Participant career stage and background information UK (n=30)
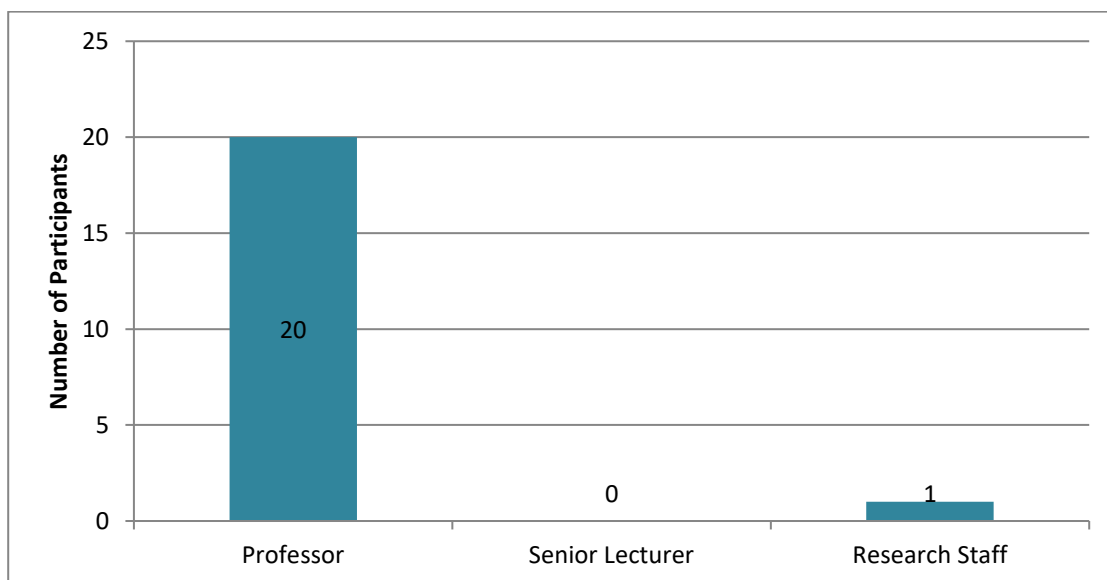
Figure 11: Participant career stage and background information Australia (n=21)

Career stage and background demographic of the participants can be found in Figure 10 and Figure 11. 37 of the total number of interviews held professorial roles (73%), 11 held Senior Lecturer/Reader roles (22%) and 3 Research Staff roles (6%) (e.g. Research Associate). Where quotes are provided in the analysis, I list the discipline, country, career stage and gender in brackets.

4.2.9 Discipline representation

As outlined previously, this research investigates the perceptions of academics from across four discipline sets: 1) Arts and Humanities, 2) Social Sciences, 3) Life and Earth Science and 4) Physical Science, Engineering and Maths.

These broadly represented the following funders under RCUK:

- Engineering & Physical Science Research Council/Science and Technology Funding Council – Physical Sciences, Maths and Engineering
- Arts and Humanities Research Council – Arts and Humanities
- Economic and Social Research Council – Social Sciences
- Natural Environment Research Council/Biotechnology & Biological Sciences Research Council/Medical Research Council – Life and Earth Sciences

The use of these groupings to categorise disciplines is helpful as it indicates from where the participants would most likely apply for funding. Since the Research Councils are consistently asking for impact across the board, it is a valid way to cluster academic disciplines. Participants were categorised according to the funding they received at the time of interviewing or had recently received. Where this was more than one, they were grouped according to the discipline they belonged to and it's most likely associated funding body. For example a physicist in receipt of STFC funding and EPSRC funding was grouped in the Physical Sciences subset. I acknowledge that it is possible for the disciplines to increasingly work on cross-council/cross-thematic research areas and feasibly sit across several of these categories. However this is the broad method that seemed to work well for categorising the disciplines for the purposes of answering the research questions. I also acknowledge that this is based on UK funders. In order to classify the Australian interviewees (almost all were funded by ARC with one exception who was funded by NHMRC), I mapped the disciplinary homes of the Australian participants over to their likely equivalent funder in the UK.

I have included two appendices which outline the participants' discipline, their gender and seniority. Appendix 1 outlines the overall discipline group of the participants interviewed and the corresponding funder. Accordingly, the Australian participants were sourced in order to reflect what would be the equivalent funding streams for these participants if they were working in the UK. This comprised the cognate groupings outlined in Appendix 2. This gives detail of participants from Australia and which UK funder would naturally fund their type of research. This rationale is simply a useful way of grouping the participants funded by the ARC and NHMRC. This way of categorising the disciplines is useful for mapping the Australian disciplines over to the UK model. I tried as far as possible to achieve a broad

match in disciplinary profile between the UK and Australian institution. A mapping of the disciplines represented in this study onto Biglan's classification can be found in Table 1. Note this model was not used to group the disciplines in this project.

4.3   The philosophical approach

All research projects are underpinned by philosophical approaches and can be said to belong to certain paradigms (Kuhn, 1962). They provide a "philosophical or conceptual framework for the organised study of that world" (Arthur et al., 2012, p.17) or (they refer to Sparkes, 1992), they offer a "lens for seeing and making sense of the world" which is seen as vital to the research process (Creswell, 2013). In order to understand the philosophical underpinnings of this project, the following sections reflect on the nature of the world (ontology) (Cohen et al., 2007, p.7) and the way in which knowledge is created and acquired within it (epistemology). Ontology can range from realism where reality exists independently, to idealism, which situates humans, human experience and social constructs at the centre of inquiry (Blaikie, 2007, p.16). This research assumes an interpretative epistemological approach and most closely aligns to the philosophical ontological position of idealism and constructivism.

4.3.1   Qualitative ideographic research

This study can be defined as a 'qualitative' research project. An 'umbrella term', 'qualitative' is just a description of methods as opposed to a philosophical position; "superior to the research paradigm or philosophical approach" (Guba & Lincoln, 1994, p.105). Denzin and Lincoln (2003) cite Snape and Spencer who claim there is "no single accepted way of doing qualitative research" (p.12) just that which "locates the observer in the world" (p.2). Qualitative research relies therefore upon ontological and epistemological assumptions that tend to be associated with the interpretative approach.

Like many interpretative approaches, my research relied on interviews and naturalistic methods from which rich and substantial qualitative data was generated. It required me to interpret participants' responses to the phenomenon I was attempting to understand (impact) and locate its meaning in the world. The accounts of academic participants provide a 'reality' and insight into the impact phenomenon. The data generated by this approach may to some extent be affected by the participants' frame of reference of the phenomenon being researched. One might therefore also refer to it as a subjectivist approach. In the context of this study, when a researcher held a certain view of the world and understood the meaning of 'impact' to mean 'economic impact', this could affect the responses they provided during the interviews. This is therefore dictated to some extent by their frame of reference.

Strauss and Corbin (1998) explained that this is one of the reasons why qualitative research doesn't necessarily generate (or lend itself to analysis through) statistics and quantitative data – rather, it provides an in-depth understanding of the social world based on the perspectives of a purposely selected group of participants based on a flexible but desired criteria (i.e. academics, grant history, discipline, experience of impact) (Ritchie, 2003). This allowed me to explore the issues faced by academics towards the impact agenda. An ideographic approach was used allowing me to focus on the attitudes and opinions of academics. In addition, themes emerged using thematic analysis and an inductive approach was used in which I looked for patterns in the data in order to generate my analysis and results. However, given that my interviews were semi-structured and there were themes explored within the interview, they cannot be said to be entirely inductively analysed. Some deduction was therefore used (discussed in Section 4.4).

4.3.2 An interpretivist subjectivist epistemology

Guba and Lincoln (1994) describe epistemological standpoints and suggest that research should address three main questions (p.107); the ontological question – "what is the form and nature of reality and therefore, what is there that can be known about it?" (p.108), the epistemological question; "what is the nature of the relationship between the knower or would-be knower and what can be known?" (p.108) and the methodological question – "how can the inquirer acquire knowledge?" (p.108).

I adopted an interpretative epistemological approach. Positivism, (first described by Descartes, in his *Discourse on Methodology in 1637*, which focused on evidence, objectivity and a search for the truth) was also known as empiricism. Here, knowledge is derived from our senses and is often associated with the 'scientific model'. Interpretivism conversely is based on our understanding of the world, rather than our experience of it. Kant in his 1781 *Critique of Pure Reason[12]* advocated more of a strict interpretivist approach and valued the interpretations of the investigators as well as those of the object being investigated (Kant, 1998).

Interpretivist research, unlike positivist approaches, seeks not to be value-free. The middle ground to these approaches from which interpretivism was born was advocated by Weber

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[12] The original Critique of Pure Reason was published (1781). Referenced version in this thesis: Kant, I. (1998). Critique of Pure Reason (translated and edited by Paul Guyer & Allen W. Wood).

who acknowledged the need for both observation and interpretation. This is because such an interpretation moves certain research paradigms or philosophical approaches away from being 'scientific' or 'unscientific' (associated with positivist and interpretivist approaches) (Bryman, 2001; 2003; Morgan, 2007) and towards an acceptance of qualitative research as being rigorous in analysis and collection of data, adopted by a wide range of fields not just those in the 'soft' social sciences (Glaser & Strauss, 1967). I used an interpretivist approach for this study as it focuses on the individual and relied on how the participants interpret the phenomenon being studied.

4.3.3 The ontological position

This project most closely aligns with idealism as humans are at the centre of the inquiry; it therefore assumes values as subjective and suggests that those values are shaped by subjective experience. Within this idealist ontology, one can also identify constructivism as shaping the knowledge within this project. Guba and Lincoln (1994) noted that constructivist relativism "assumes multiple, apprehendable and sometimes conflicting realities that are the products of human intellects, but that may change as their constructors become more informed and sophisticated" (p.111). It could be argued that this theory of knowledge aligns to the philosophical underpinning of this project in which the reality of impact could alter and change as discourse evolves and becomes better understood. It could also be that these responses are reflective of the broad academic community and the social construct which surrounds it through an 'impact agenda'.

Hammersley (2008) suggests that the "predominant trend" in interpretativist research is to "move further and further into the constructivist cul-de-sac" (p.34). Positions within idealism have been debated in less extreme terms (Ritchie, 2003, p.13). As the purpose of this project was to explore the attitudes of academics towards the impact agenda, constructivist positions of perhaps idiosyncratic views posed by interviewees are deemed as subjective, yet still valid. Within this context, conceptualisations of research impact can be seen to be socially constructed. As a result the methods which follow reflect these assumptions and provide space for the participants to share their views through semi-structured interviews allowing the potential for in-depth insights into subjective perspectives of different individuals and groups (disciplines).

Within the paradigm of idealist ontology, reflexivity is vital as it is located in subjective experience. Reflexivity is when the researcher considers the knowledge and values they have developed through their previous experiences. Practising reflection allows for the subjective, on-going appraisal of knowledge which helps to eliminate the potential for bias (Burrell and Morgan, 1979, p.244). Within this context, I worked hard to maintain an open

and transparent approach to the interviews, aware of my role as the researcher and also of my prior experiences as an employee of a university, whose practice was no doubt formed by values and knowledge received through delivering training and development to staff in similar roles over a period of years (Section 4.2.7). I did this through building a rapport with my participants, giving eye contact, reinforcing that they could provide whatever view they wished and being clear about my role as a researcher.

4.4 Data analysis: thematic coding

In order to analyse the rich amount of information generated by the semi-structured interviews, I used thematic analysis employing a (largely) inductive approach but with some deduction based upon the themes which were raised within the interviews. Table 3 provides a list of concept codes used during thematic analysis of the data. Those which were drawn deductively are marked with an asterisk.

Thematic analysis has been defined as:

> A data reduction and analysis strategy by which qualitative data are segmented, categorized, summarized, and reconstructed in a way that captures the important concepts within the data set.
>
> Ayers, 2008, p.867

Thematic analysis is discussed in the literature by several commentators (Aronson, 1995; Bryman, 1988; Boyatzis, 1998; Braun & Clarke, 2006; Fereday & Muir–Cochrane, 2006). The process of coding in thematic analysis reflects the strategy one adopts in organising the themes according to commonalities and relationships between aspects of the data. This approach allowed me to explore common perceptions across different variables including discipline, gender, national context and even career stage. Analysis was undertaken using NVivo 10 software, the process behind which is discussed later in this section.

Before using NVivo, I invested significant effort in familiarising myself with the characteristics of the data set, initially by listening back to all interviews, printing out and reviewing transcripts by hand. I subsequently marked the transcripts with highlighters and annotated themes that began to emerge. This enabled me to develop broad categories from which I would build further codes (or 'nodes' in the case of NVivo and themes). It is worth noting that the broad themes that emerged were related at first to the research questions, which is why I argue that there is some level of deduction to the analysis. I began thematic coding with a list of themes including; 'types of research', 'discipline observations', 'academic freedom', 'epistemic responsibility', 'value', 'duty', 'challenges', 'attitudes' (positive, negative, mixed and neutral). These then developed over time through thorough analysis of the data and re-

reading in which inductive codes emerged. For example; 'the ivory tower', 'integrity' and 'language'. Ayres (2012) claims this is not uncommon when carrying out semi-structured interviews "when data for thematic analysis are collected through semi-structured interviews, some themes will be anticipated in the data set because those concepts were explicitly included in data collection" (Ayres, 2012, p.2). In my case the initial set of codes were driven by my research questions and the literature.

I uploaded my transcripts into NVivo and grouped them under 'Sources' in a folder structure within which each internal source contained one folder marked 'Interviews Australia' and one marked 'Interviews UK'. Within each source I then had four sub-folders; these were labelled according to the cognate disciplinary grouping to which the interviewee was allocated. Accepting that some disciplines span these broad fields, the interviewees were allocated based on the funding they currently held and the broad discipline group which that funder represented. For example, a languages researcher funded by the UK ESRC was grouped under 'Social Science' and the same for Australia (Appendices 1 and 2).

I began to code each individual transcript, initially working on the coding list I had generated from my research questions, but additionally creating new codes ('nodes'), which I inductively generated from the data. Miles and Huberman (1994) described codes as "tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study" (p.56). Often, codes will also contain 'child nodes' turning that code into the 'parent node'. This reflects interaction between the thematic areas. I paid particular attention to ensuring that the context of the coded section related to the node at which it was coded and additionally added 'memos' for my thoughts as I went along. This allowed me to be reflexive in my analysis, critical for interpretative research.

Miles and Huberman (1994) point out that codes are not just words themselves indicative of themes, rather "they are attached to 'chunks' of varying sizes of words, sentences, etc. which relate to themes" (p.56). For instance, text coded at 'Academic Freedom' was not just text that included the words 'academic freedom'; rather, I was interested in the meaning that one can derive from a chunk of text relating to that theme, for instance the following quote was coded not only under 'academic freedom', but also 'epistemic responsibility' and 'ivory tower' because of the term 'precious':

> I think that's a bit too precious to suggest that's it's an assault on academic freedom. We are not free.

> Languages, Australia, Professor, Male

Here, one is able to infer meaning from the testimony and the process moves from being one of thematic coding to thematic analysis. Table 3 shows the list of parent nodes coded at 'Concepts' (Codes) on NVivo 10 from which I was able to continue my analysis. The indented nodes or 'child nodes' are categorised under a more general node. Table 3 provides a list of concept codes used during thematic analysis of the data. Those which were drawn deductively are marked with an asterisk.

The approach described in (Strauss & Corbin, 1998) suggests that coding takes place from the initial gathering of data, followed by a close reviewing line-by-line with a list of categories emerging from those lines (Miles & Huberman, 1994, p.58). Iteratively, the categories or labels are reviewed and notes are created about the sources and the categories, similar to those in NVivo. This involved an iterative back and forth, checking and re-reading field notes and potentially re-coding for commonalities or regularly occurring themes.

The following section describes how I thematically analysed the data.

Types of research *	Pure	
	Applied	
Ability, skill and personal	Skill	Training
	Personality	Gender
Role of the...	University	
	Academic	
Philosophical and political challenges *	Value of knowledge *	
	Public and private good	
	Ivory tower	
	Instrumentalism and utility *	Reductionism
	Duty *	
	Epistemic responsibility *	
	Predicting impact	
	Academic freedom *	
Language	Observations	
Integrity	Gaming	
	Ethics	
	Embellishment	
	Careerism	
Funding policy	Reviewing	
	Research assessment	REF
		ERA and EIA
	Pathways to impact	
Emotions	Positive	
	Neutral	
	Negative	
	Mixed	
Discipline observations *	Arts/Social/Physical/Life and Earth	Interdisciplinarity
Conceptualisations of impact *	Arts/Social/Physical/Life and Earth	
Characterisations and impact domains *	Public engagement	
	Academic	
	Policy	
	Commercial and economic	
Practical challenges *	Time and timing	
	Stifling creativity/blue skies thinking	
	Burden/hurdle	
	Link to teaching and academic impact	
	Lack of reward	
	Having to predict impact	
	Fear	
	Evidencing impact	
	Building trust and respect	
	Attribution	
Background/career *	Academic	Authoring case studies
	Industry/non-academic background	
	Motivation & values	
Attitudes *	Positive *	Peer perception
	Neutral *	
	Negative *	
	Mixed *	
Consequences for research	Policy recommendations	

Table 3: Table of concepts (codes) used in the study

4.4.1   Thematic analysis

I carried out thematic analysis of the data based on the categories that had been generated inductively during coding and those directly related to the research questions (academic freedom, responsibility, attitudes, challenges, for example). I was particularly interested in ensuring that even if there was only one individual who made a claim, that this point was

coded. Fereday and Muir-Cochrane (2006) claimed that sometimes a single remark "can be considered to be as important as those that were repeated or agreed on" (p.86). This was particularly important given that a) I was not carrying out content analysis, and b) I was looking for responses across a range of variables, of which discipline for instance, was one such variable.

Since academics are not a homogenous group, I was keen to unveil the idiosyncrasies that might be underneath the surface of some of the sweeping statements that accompanied the media coverage of the impact agenda (for instance, the concept that the impact agenda is wholly threatening to freedom to academics of all disciplines, which self-evidently cannot be the case). I was able to create framework matrices of each thematic code in NVivo in order to view summaries of the themes and to also cross reference these in order to make links across themes. I did so by running 'queries' in NVivo – for instance I was able to find out who had described the issue of integrity with respect to impact, I could then isolate this information to discipline or national context, even gender. I could also see how related themes were associated with that theme, exploring any differences and commonalities of the things which were described in the text.

NVivo enabled me to draw commonalities and differences by examining the relationships of different themes. Here, the researcher interprets the connections between themes. Fereday and Muir-Cochrane (2006) pointed out that this is an iterative process. In addition to this process, which relied on NVivo as a tool for analysis, upon creating summaries I ran thematically-based reports and manually printed them out. From this, I would visually mind-map the data. I created themes from which to develop ideas for my chapters as shown in Figure 12 (illustrating the process by which I was able to develop my ideas, refer to verbatim quotation and develop sub fields). Ideas in Figure 12 are grouped with respect to comments made that related to whether academic freedom was seen to be at risk because of the impact agenda. In addition, Figure 13 illustrates the mind-mapping process for Chapter 8 and our publication on integrity (Chubb & Watermeyer, 2016).

It was vital that NVivo was not the only tool I used and that it did not replace *my* role within the analysis process. Bazeley (2007) explained that it is not meant to "supplant time honoured ways of learning from data, rather it supports the connecting of data, but allows for the interpretative nature of the research to be achieved by the researcher themselves, assisted by the programme" (p.7). These figures highlight how Nvivo supported my analysis, but also show how I personally analysed and organised the data.
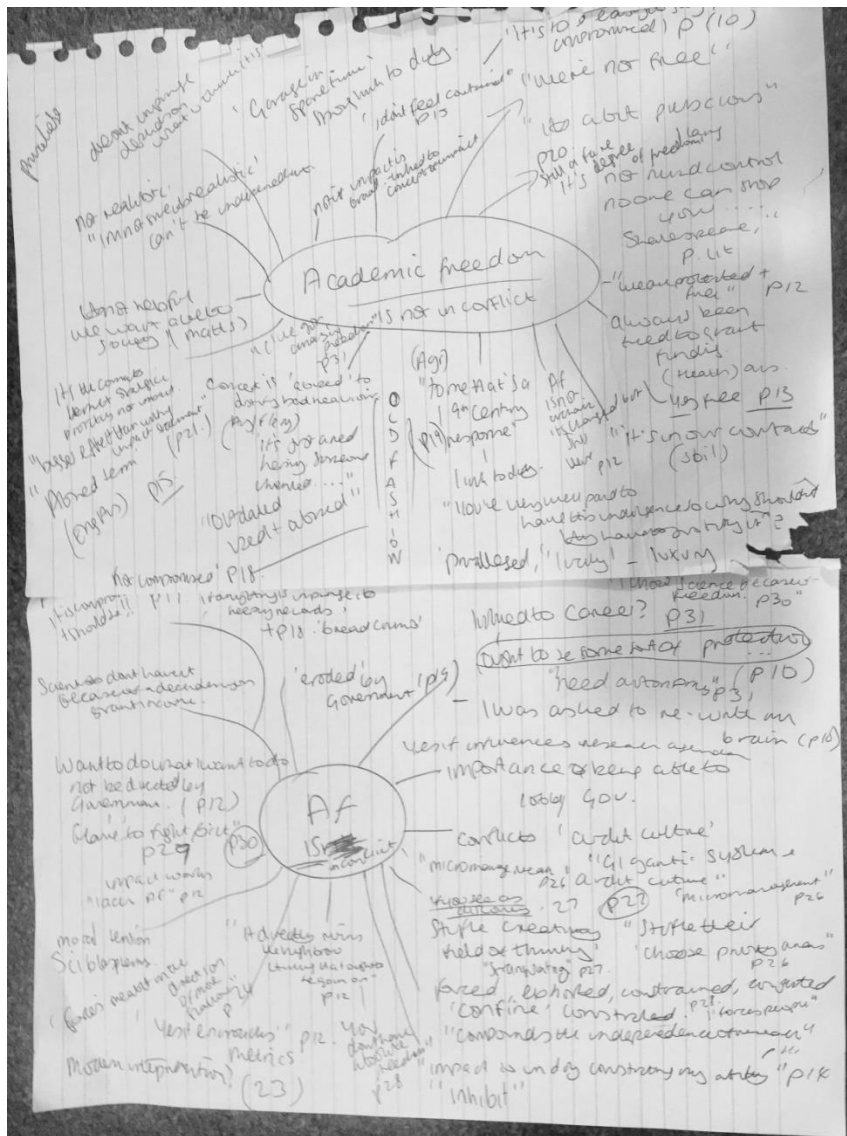
Figure 12: Notional mind-map of ideas during coding and analysis for Chapter 6
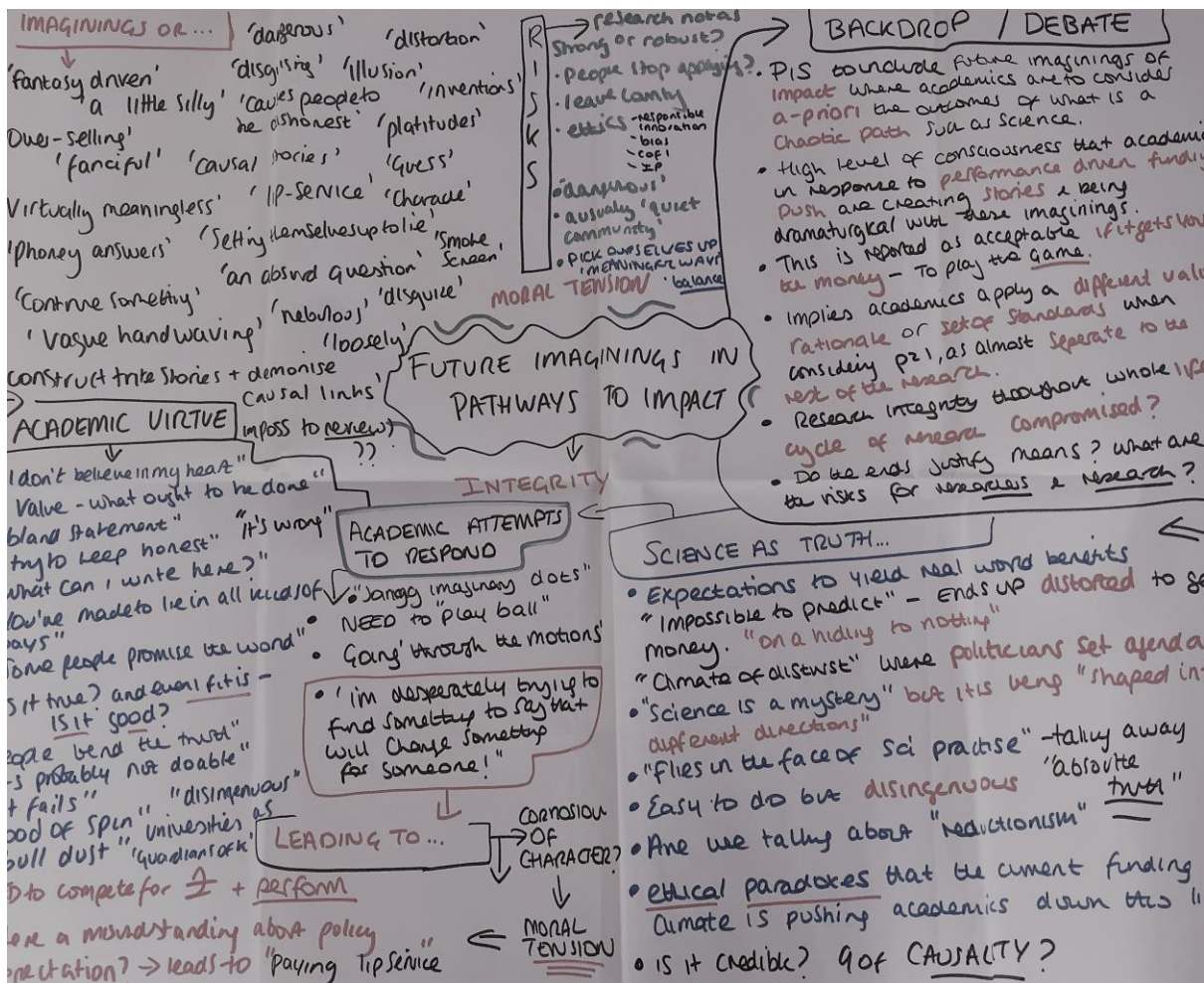
Figure 13: Notional mind-map of ideas during coding and analysis for Chapter 8

Finally, in order to ensure integrity of the findings and rigour in my analysis, I kept detailed notes and with respect to reliability and inter-coder reliability, my data has been shared with co-authors of my two research articles outlined in the declaration following the writing of this thesis. It has therefore been viewed by other academics which adds to the rigour of the analysis.

4.5 Summary

This project used semi-structured interviews in order to yield rich and in-depth qualitative data about the perceptions of academics towards an impact agenda in the UK and Australia. The philosophical approach was one based on idealist ontology where constructivism formed the basis for the approach. The analysis of the data included both deductive and inductive approaches. Throughout the research from the design to the analysis, integrity was maintained through an awareness of researcher bias and reflexivity. This chapter has highlighted my research design and case study approach, detailing my use of thematic analysis. I have shown the levels of seniority explored in this study and gender of the

participants and intend to draw out any pertinent themes as they arise through analysis, accepting that considerations of these variables as research questions may be the subject of future research. I have also detailed my role as the researcher and the potential to be viewed as an insider or management of either university environment. I also acknowledge where this may have affected responses.

In the chapters that follow, I begin my analysis drawing out the key themes relating to my research questions. Chapters 5 – 10 describe the emerging themes most pertinent to this study. I begin with the ways in which interviewees defined and characterised research impact, before introducing the issues which emerged with respect to academic freedom and epistemic responsibility (Chapter 6), instrumentalism (Chapter 7), integrity and affect (Chapter 8) and the disciplinary observations concluded from this research project (Chapter 9). I conclude the thesis in Chapter 10.

5 Definitions and characterisations of research impact

"We should have a great fewer disputes in the world if words were taken for what they are, the signs of our ideas only, and not for things themselves."

John Locke

5.1 Introduction

This chapter focuses on the way interviewees characterised and defined research impact, the activities and 'impact domains' they associated with it and the language they adopted in doing so. In this chapter, I argue that establishing a sense of how impact is characterised and conceptualised by academics who attempt to achieve it is vital to our understanding of the challenges facing academics with respect to an impact agenda. In addition, I suggest that the language of impact (inclusive of the word itself) provokes hyperbolic and heightened emotional responses from interviewees; this creates tension indicative of potential misinterpretation or even dramatization of the official policy guidance. My analysis acknowledges the ways in which some characterisations of impact can be seen to conflict with the fundamental philosophical dispositions of the academics themselves.

I open this chapter by providing a high-level overview of the key findings with respect to the theme of this chapter (Section 5.1.1) followed by some brief context setting in (Section 5.1.2). In Section 5.2 I consider the ways in which academics articulated their understanding of the official definitions of impact, providing what I will refer to as 'participant' definitions of impact. In Section 5.2.1 I consider characterisations and conceptualisations of impact, before exploring any associated connotations in Section 5.3. This includes perceptions that impact activities might be gendered (Section 5.3.1). I will then consider how academics attempt to re-define impact in Section 5.3.2. The differences across national contexts are then outlined in Section 5.3.3, and in Section 5.3.4, I examine what is characterised by interviewees as that which 'counts'-as and contributes-to impact. I will then discuss these activities and disciplinary trends in Section 5.3.5, before summarising the chapter in Section 5.4. Appendices 3-5 provide further context to this chapter.

5.1.1 High-level findings

Analysis showed no clear agreement across interviewees about the meaning of the word impact and a range of interpretations across the disciplines. It seems that whilst it might be helpful for definitions to vary across disciplines, prescriptivism creates academic resistance (as appears to be the case from the point of view of the REF/EIA assessments). However, too little or too vague guidance (as RCUK for example, are accused of by Braben et al.,

2009) may give rise to frustration and disengagement, resulting in adverse behaviours such as embellishment of impact arising from confused interpretations which may lead to the potential corruption of academic virtues or ideals (Chapter 8). It is reasonable to expect that any degree of disagreement with respect to the official guidance on impact may result in confusion, adversely affecting an academic's ability to adapt to and normalise the impact agenda. Such issues can be seen as reinforcing longer standing concerns about value, instrumentality and the broader contribution of knowledge in society, all of which are set out in the forthcoming chapters of this thesis and are representative of both semantic and deeper epistemic and philosophical concerns. Words that dominated the testimonies provided by participants included the repeated occurrence of 'use', references to 'utility', 'direct relevance', 'benefit', the word 'problem' and taking research 'outside'. In general, descriptive words indicative of measurement, such as 'demonstrable' or 'measure' were met with resistance. Instead, concepts more indicative of intrinsic value including betterment, change and difference were favoured without qualification. The very impact of the word 'impact' appears to be associated with weight, power and force for many interviewees. This in turn has connotations (some negative) that it is reflective of a marketised, academic capitalist system, where knowledge is valuable only if it creates economic wealth – concepts which unearth notions of soft and hard disciplines, and even soft and hard impacts which may even be gendered - further explored in Section 5.3.1 and Chapter 9.

Figure 14: Word cloud generated by NVivo – all transcripts, 200 most common words of four letters or more

Figure 14 indicates the 200 most common words of more than four letters associated with impact from all transcripts, generated by NVivo 10 software.

With respect to how impact was characterised by interviewees, I found that there was disparity across the sample and that a range of interpretations and semantic associations were made by the academic community. For instance, Australian interviewees maintained a commitment to the concept of teaching and education as a valid form of impact in and of itself, whilst conceiving of social and economic impact as akin to applied research. So too, they initially referred far more frequently to impact factors and citations than to social impact.

In comparison, whilst UK researchers shared concerns over the potential loss of the concept of impact as an educational good in and of itself, they were seen to ruminate far less on this. Instead, many confused the process of achieving impact (the knowledge exchange activity, such as carrying out a public engagement activity) with the impact itself and had a tendency to associate impact with certain disciplines and certain impact domains or activities. UK interviewees instead made more frequent reference to the 'official' terms provided about impact than those in Australia but still appeared confused by it. This may be seen as unsurprising given the repeated messages from UK research funders, but is suggestive of a deeper resistance to the concept of measurement of something which researchers have always had to do, but have not perhaps until recent times been assessed or measured by. This chapter highlights that at the foundation, the interviewees demonstrated a strong commitment or even duty towards the idea of knowledge as a public good leading to social betterment and change despite a lack of coherent agreement about what impact means.

5.1.2 Understanding impact: a rationale

In order to recognise, locate and explore attitudes towards research impact across different disciplines and the national context, I asked each of my participants from the outset of the interviews what they understood by the term 'impact'. This was important baseline information as it would tell me how my participants characterised and conceptualised this relatively new phenomenon. Previous research has shown that researchers interpret impact in a variety of ways and that this is reflected in the range of practices in which they engage (Oancea, 2011). It was therefore important to recognise that individual perceptions of impact might not necessarily align with definitions set by national bodies responsible for funding and assessing publicly-funded research (I will refer to these as 'official' definitions).

As we saw in Chapter 3, previous studies have shown that conceptualisations of research impact can relate to an academic's field of study as well as other factors including their background experience (for example, coming to academia from industry) or the type of

research in which they engage (Levitt et al., 2010; Salter et al., 2010). This is foreshadowed by the existing literature on disciplinary norms and practices characterised by 'types of research', for example concepts pertaining to applied/basic research (Becher, 1989; Bush, 1945; Snow, 2012; Stokes, 1997) or 'modes of research' (Gibbons et al., 1994), which in-turn result in the common assumption that research that is closer to application will be more likely to generate impact (Oancea & Furlong, 2007; Roll-Hansen, 2009). These kinds of associations potentially reinforce the perception that impact is concerned with economic value or that its conception is based upon a 'scientific model'; problematic for certain disciplines, particularly those within the arts and humanities (Belfiore, 2015; 2016; Briggle, Frodeman and Holbrook, 2015; Oancea, Florez-Petour & Atkinson, 2015).

There are several official positions as to what constitutes research impact which are outlined in Chapter 2. RCUK define impact as "the demonstrable contribution that excellent research makes to society and the economy" (RCUK, 2012, p.1) and the ARC use a similar definition. Despite this (perhaps deliberately) broad definition, the literature suggests that impact has been described as 'ill-defined' (Denicolo, 2013) and research is starting to emerge about how an individual's interpretation of impact might affect the related practices and behaviours of academics themselves such as embellishment or gaming (Chubb & Watermeyer, 2016; Wilsdon et al., 2015). For example, recent research has shown that academics commonly perceive the requirement to build impact into funding proposals as a request to 'predict' the impact of their research. This interpretation has been shown to cause academics to 'embellish' their work in cases where the impact is not immediately obvious, raising questions about scholarly integrity, described in Chapter 8. It was therefore crucial to seek an understanding of how academics interpreted existing policy so as to explore whether challenges associated with impact were linked to the language and terms used to define it. Was the issue a linguistic/semantic one or was it more systemic and deep-rooted? Analysis of my participants' use of language when talking about the contribution of their work to society served to illustrate academics' preferred discourse, it also uncovered and highlighted misconceptions or misinterpretations of actual policy and revealed the extent to which the etymology of a word like impact proved to be problematic.

I begin by discussing the ways in which my participants referred to impact, including the issues they perceived with respect to the official definitions such as those provided by HEFCE, ARC and RCUK, focusing in particular on the language they used in doing so.

5.2   Official and participant definitions of impact

In Chapter 2, I introduced the UK and Australian impact policies and included definitions of impact as stipulated by key funders of research in both contexts. However, in light of previous research it would have been presumptuous and perhaps even naïve to assume that all my participants were fully aware of these definitions, or that their interpretation would necessarily reflect the official perspective.

When asked to describe and define research impact it was common for participants to respond with what they perceived to be the official definitions of impact before embellishing its meaning further with their own preferred lexicon. Official definitions of impact vary and analysis revealed that participants often drew from a range of different official perspectives when they talked about the concept.

In order to show the scope of definitions researchers might be aware of with respect to research impact, Appendix 6 provides a range of stakeholder definitions of impact in the UK and Australia. Although not exhaustive or representative of all funders, the list serves to illustrate the variety of definitions that might have formed my participants' official points of reference. It is important to note that whilst it details definitions from UK major research funding bodies (RCUK and HEFCE) and Australian research funders (ARC and NHMRC), it also includes the definition of 'impact' factors (journal citation) because in several cases, Australian participants in particular appeared to conflate non-academic impact with impact factors. This perhaps illustrates the propensity for Australian participants to characterise research impact as something that was associated with academic citations. This observation could potentially be attributed to the fact that the ARC was yet to fully implement impact statements in grant applications and the assessment of research impact was in its infancy at the time of interviewing in 2013 (see Figure 1).

The lack of consistent agreement regarding the official definition of impact expressed by interviewees was perhaps surprising, since I outlined the focus of the study to the participants as being predominantly on future, non-academic impact in funding applications in the pre-interview crib sheet (Appendix 11). Participants would frequently drift between describing future and past impact, and their related official terms with relative ease, often confusing the two; this was particularly the case in the UK where the REF's impact component is so keenly debated.

For the purposes of fully understanding the range of official definitions of impact, I provide the definition for academic impact as stipulated by RCUK in Appendix 6. I do so to highlight the differences between academic and non-academic impact stressed by funders, but also

because the distinction between academic and non-academic impact was not so easily or readily made by my participants, particularly those in Australia.

5.2.1 Characterisations and conceptualisations

I was interested in the language participants used to describe impact. I analysed the data inductively in order to explore the ways in which it was characterised, looking for synonyms and associations.

Analysing the linguistic roots of the word impact, one can see why participants might prefer to adopt an alternative lexicon. 'Impact' is thought to have romantic linguistic / Latin roots, arising in the early 17th century (as a verb in the sense of to 'press closely and fix firmly'). It was since defined as a noun by Hawkins and Le Roux (1987) as "a collision; the force of a collision" and a "strong effect or influence, especially of something new" (p.411). This is similar to the official definition of research impact outlined in Appendix 6. It may be straightforward to see how synonyms for impact attach to certain negative connotations. Consideration of the linguistic connotations may help to explain why participants spoke about impact in a negative or sceptical manner and where confusion or certain associations were made.

Analysis revealed no clear agreement amongst participants over the meaning of an impact agenda - both in terms of the official definitions and the word itself.

> When you say the impact agenda, is there an actual document?
>
> Environment, UK, Senior Lecturer, Male, E1

What was clear from the interviews was that while several participants readily engaged with the rhetoric surrounding impact and its relevance to the discourse pertaining to the public good of knowledge, many expressed concern over the language used to describe it:

> The etymology of a word like impact is interesting. I've always seen what I do as being a more subtle incremental engagement, relevance, a contribution.
>
> Theatre, Film and TV, UK, Professor, Male

Words such as 'social' and 'public good' appeared to resonate with participants, where often the word impact, did not: "I am trying not to use the word impact" (Computer Science, UK Professor, Female). This was particularly the case with academics from the humanities but generally the word 'impact' was deemed to be problematic. In academic and non-specialist articles, authors pay attention to the vocabulary used to describe research impact (Grant & Harris, 2012; Holbrook & Frodeman, 2011). Grant and Harris (2012) describe how a word like impact implies singularity; he claims it is as though researchers should be looking for a

one-off benefit as opposed to acknowledging the 'rippled effect' of engagement leading to impact; "Bang. Done" he states (Grant & Harris, 2012). Grant and Harris (2012) argue that instead of 'impact' we should be focusing on "things such as engagement", use, relevance and appropriateness. Similarly, Briggle et al. (2015) described impact as a "dubious metaphor". Instead they argued that effect or influence was more meaningful at least for the humanities where "there is no F = ma equation to be had" (2015, p.1). This resonates with the findings of this study where the repeated use of words like relevance and engagement dominate the discourse.

Interviewees often sought to re-define and/or clarify the meaning of the word impact, it was a discourse mostly engaged in voluntarily, and thus arose inductively from the data. Here, an academic described how they would prefer to refer to impact:

> Firstly, let it be couched in terms of the social good, let it not be called impact, let it be termed betterment.

Music, UK, Professor, Male

Findings indicate that interviewees perceived the word impact as synonymous with a range of words and meanings such as 'betterment', 'social good', 'contribution', 'change' or even simply, 'good'. These interpretations were heavily associated with broader philosophic debates about knowledge and its value, notions of the public good and further still, types of research, including 'pure' and 'applied' which are explored later in this chapter. For instance, one arts scholar immediately connected the word impact with underlying philosophic questions such as those pertaining to epistemic value and instrumentalism, explored in Chapter 7:

> I think anything that had some concept of value in in it, that's the problem with that language, is it seeks to be value free, whereas the arts and humanities are fundamentally about value for a certain thing for its own sake – knowledge for its intrinsic value, not for its impact – I know that sounds acerbic.

Literature, Australia, Professor, Male

Acerbic or not, analysis of the interviews indicates that the connotations of the word impact often directly correlate with broader discourses pertaining to the value of knowledge and instrumental, utilitarianism in research. It is therefore seen by participants as a potentially loaded word, the connotations of which are varied and diverse according to field of study and possibly even personal opinion.

From close analysis of participants' responses, the repeated use of the words 'public', 'social' and 'use' indicate that academics perceive impact as something which involves taking *good research* / knowledge *outside* to a wider sphere than the academy alone and that such knowledge should be relevant and contribute to society:

> It means relevance and contribution, relevant to a world, a sphere, people, beyond scholars. The contribution might be about helping people understand.

> Theatre, Film and TV, UK, Professor, Male

> It's societal relevance, social development.

> Environment, UK, Professor, Male

As I will discuss in Chapter 7, impact is commonly characterised as something orientated towards use, usefulness and application. The repeated use of the words effect, influence, engagement and change, imply there is some coherence with the official definitions as prescribed by funding bodies of research and there is a sense that impact ought to positively improve or enhance things; this might refer to quality of life, efficiency of products and services, health, policy, the economy or culture. What was also common among these characterisations was the use of the word 'community' or 'communities' in academic and non-academic terms. There was a sense from interviewees that impact should be positive, underpinned by good research, that you could not have impact without good research and, in many cases, the converse was perceived to also be true. Crucially, it was seen to be about doing relevant and significant research academically and socially (if appropriate).

In order to depict and visualise the data, I developed four tables which represent the characterisations made by each individual participant – these can be found in Appendices 3 and 4. Each table outlines the words or phrases that the interviewees associated with the term impact, the interviewees' attributes including country; Australia, (A) or the UK (UK), and an acronym to indicate their field of study a key for which is provided. The characterisations and conceptualisations are presented according to the discipline of the interviewees and grouped in cognate headings as outlined in Chapter 4. The headings comprise responses from the arts and humanities, social sciences, physical science, maths and engineering, and the life and earth sciences. The characterisations in Appendix 3 (Table 7 - Table 10) indicate that participants associated impact with certain types of activity, broadly - academic, public and social, policy and economic. The images in Figure 15 to Figure 18 provide a representation of (Appendix 3) in word clouds, visualising the common words and terms

used by participants by discipline group as coded in NVivo under conceptualisations and characterisations.

Figure 15: Common characterisations of research impact (Arts and Humanities)

Figure 16: Common characterisations of research impact (Life and Earth Sciences)

Figure 17: Common characterisations of research impact (Physical Science, Maths and Engineering)

Figure 18: Common characterisations of research impact (Social Science)

What we see here is repetition of the word 'use' from the arts, humanities and the physical sciences, and words like 'outside', 'beyond', 'practical', 'communicate', 'community' and 'benefit' across all domains. There was a strong sense from participants that any definition needed to be very broad, relating to concepts of knowledge as a social or public good particularly with respect to disciplines from the arts and humanities. Participants from the physical sciences heavily associated the term with use and application – the word 'cultural' does not appear, instead their characterisations are linked mainly to economic and public impacts. These figures do not include descriptive words such as 'demonstrable' which is

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prominent in the official definitions and perhaps indicative of how academics associate their contribution as intrinsically valuable as opposed to that which is tangibly and explicitly valuable. One UK scientist remarked "the demonstrable bit is very difficult unless they're going to give examples" (Biology, UK, Senior Lecturer, Male, B1). This implies that participants did not necessarily feel at ease with trying to measure their impacts, even if impact was re-named something like 'public good.' Arguably, such a term could be said to be even harder to define or to pin down than the word 'impact' with respect to evaluating a change or effect. The ways in which funders have suggested to measure these contributions or impacts was perceived by one participant for example as reductionist "bean counting" (Soil Science, Australia, Research Staff, Female) in order to settle governments' "balance sheets" (Theatre, Film and TV, UK, Professor, Male).

Participants appeared to have less issue with engagement and the term 'knowledge exchange' than impact; "it's the impact bit that's warped it" (Literature, UK, Professor, Female). There was also confusion about how universities could talk about social impact without including the education of their students as something '*that counts*' as impact. 'Education' was cited by several participants as an important part of the definition of any social impact - the education of society. This is not currently included in the official definition of social impact but it does emerge as a recurring theme, particularly seen in Chapter 8.

5.3   Connotations of impact

I previously described how funders of research suggest that impact is synonymous with an 'influence or effect' outside the academic environment. However, analysis indicates that the word impact is perceived by many as problematic, bound with linguistic connotations and those imposed by the official definitions, which in many cases are perceived as negative or maybe even gendered.

Participants associated the word 'impact' with hard-ness, weight and force; "anything that sorts of hits you" (Languages, UK, Senior Lecturer, Female). One participant suggested that impact "sounds kind of aggressive, the poor consumer!" (History, Australia, Professor, Female). The language used here is not unlike the tongue-in-cheek '*Poppletonian*' column in *Times Higher Education* (THE) and stories of Head of Research Impact 'Mr Gerald Thudd,' whose name is no doubt derived from this troublesome term. This may have led participants to draw comparisons with the type of research they undertake. Talking about her own research in the performing arts, one Australian participant commented:

> It's such a pain in the arse because the Arts don't fit the model. But in a way they do if you look at the impact as being something quite soft.

> Music, Australia, Professor, Female

> My impact case study wasn't submitted mainly because I'm dealing with that slightly on the woolly side of things.

> Mechanical Engineering, Australia, Professor, Female

Some participants referred to their research or others' research as either 'hard' research or as 'soft and woolly'. Those who self-professed that their research was 'soft' or woolly' felt that their research may be less likely to qualify as having 'hard' impact (one might interpret this as meaning 'economic impact'); instead, they claimed their research would impact socially, as opposed to economically; "stuff that's on a flaky edge - it's very much about social engagement" (Languages, Australia, Professor, Male). One participant described impact as "a nasty Treasury idea," comparing it to:

> … a tsunami, crashing over everything which will knock out stuff that is precious.

> Theatre, Film and TV, UK, Professor, Male

This imagery associates the concept of impact with *force* and *weight* (or hardness as mentioned earlier), which in some sense explains why impact is off-putting to researchers, particularly in disciplines where the effect of their research may be far more nuanced and subtle. Using force to depict the impact of teaching was also noted by one participant from Australia who claimed impact was like a footprint, and teaching was "a pretty heavy imprint" (Environment, UK, Professor, Male). Force and weight was also characterised by some participants as masculine. There is therefore a hint at a suggestion that some connotations of impact and the associated activities may be gendered.

5.3.1 The impact a-gender

With respect to connotations and conceptualisations, gender emerged as a potential issue concerning impact-generating activities. Indeed, the language of impact and research as 'soft' or 'hard' appeared to generate comments about gender explored in this section. Difference in engagement with and approaches to impact pathways were evident between the genders, emphasising issues about gender-specific pressures on academic labour as a whole in which impact is one part of the picture. The findings described in this section therefore do not suggest a causal link between these associations and impact, rather, impact is part of the broader HE landscape within the discourse of which, gender issues arose.

Associations were also made concerning power and esteem, echoing concerns elsewhere in the equality and diversity discourse (Bank, 2011; Leathwood and Read, 2008). As outlined in Chapter 4, I sought to achieve a fair gender representation. Figure 8 and Figure 9 give this detail in Chapter 4. This section explores the connotations of impact from the perspective of gender both in broad terms and specifically with respect to the way it is characterised and conceptualised. It will likely be an area for further research as these accounts provide only a snapshot.

Analysis showed some female interviewees describing their working lives as characterised by pressure. Those who did related this to a broader discussion about gender in which high achieving career women might perceive the negative effects this has on their personal lives. Although this may not be in direct response to impact, it can be seen to be symptomatic of the many issues affecting academic labour if we consider that these issues emerged within a broader discourse (Chapter 8).

Some participants felt that the role of family might be seen to be supportive of responding to an impact agenda. One female participant draws on her role as a mother as supportive of her ability to respond to an impact agenda "I have kids that age so..." (Biology, UK, Senior Lecturer, Female). But evidently, the two things do not necessarily follow. Nevertheless, parenthood emerged in comments from both genders with respect to the impact agenda and the academic career. Two male participants spoke positively about the need to transfer knowledge of all kinds to society referencing their role as parents:

> I'm all for that. I want my kids to have a rich culture when they go to school.

> Engineering, Australia, Professor, Male, E2

> My children are the extension of my biological life and my students are an extension of my thoughts.

> Engineering, Australia, Professor, Male, E1

A few participants associated impact as related to gender in subtle, and in some cases overt ways. The data suggests that some male participants felt that female academics might be better at impact. Some male participants suggested that female academics might find it liberating, linked it to a sense of duty or public service, implying it was second nature. In addition, some male participants associated types of impact domains as female-orientated activity and the reverse was the case with female and male-orientated 'types' of impact. For example, at one extreme, a few male participants seemed to perceive public engagement as something which females would be particularly good at, generalising that they are not

competitive "women are better at this! They are less competitive!" (Environment, UK, Professor, Male). Indeed, one male participant suggested that competitiveness actually helps academics have an impact and does not impede it:

> I get a huge buzz from trying to communicate those to a wider audience and winning arguments and seeing them used. It's not the use that motivates me it's the process of winning, I'm competitive!

> Economics, UK, Professor, Male

These connections are speculative and extensive analysis has not been carried out by research funders about the extent to which gender affects funding decisions. Indeed, further research would have to be conducted about these associations more generally. Notwithstanding, some participants were suggestive that gender is a factor in the securing of grant money - certainly this comment reveals a local speculation that 'the big boys' get the grants, in Australia, at least:

> ARC grants? I've had a few but nothing like the *big boys* that get one after the other.

> Chemical Engineering, Australia, Professor, Female

One UK female biologist comments that she indeed enjoys delivering public engagement and outreach and implies a reference to having a family as enabling her ability to do so:

> It's partly being involved with the really well established outreach work.

> Biology, UK, Senior Lecturer, Female

Analysis reveals some evidence that certain impact *activities* had gender connotations for my participants. Some participants implied that public engagement was not something entirely associated with the kinds of impact needed to advance one's career and by a few male participants, this was accordingly associated with female academics. Certain female respondents in the sciences and the arts suggested similarly that there was a strong commitment among women to carry out public engagement, but that this was not necessarily shared by their male counterparts who, they perceived, undervalued this kind of work:

> I think the few of us women in the faculty will grapple with that a lot about *the relevance* of what we're doing and the usefulness, but for the vast majority of people it's not there… [She implies that] …I think there is a huge gender thing there that every woman that you talk to on campus would consider that the role of the university is along the latter statement. The vast majority of men would not consider that's a role of the university. There's a strong gender thing.

> Chemical Engineering, Australia, Professor, Female

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There was a sense from one arts female participant that women might be more interested in getting out there and communicating their work but that crucially, it is not the be-all and end-all of doing research, as this comment shows:

> Women feel that there's something more liberating, I can empathise with that, but that couldn't be the whole job.

Music, Australia, Professor, Female

When this participant, who was very much orientated towards impact, asked me if I had enough interviewees, she added "mind you, you've probably spoken to enough men in lab coats". This could imply that inward-facing roles are associated with male orientated activity and outward facing roles as perceived as more female orientated. Such sentiments perhaps relate to a binary delineation of women as more caring, subjective, applied and of men as harder, scientific and theoretical/rational. This links to a broader characterisation of HE as marketised and potentially, more 'male' or at least masculinised - where increasing competitiveness, marketisation and performativity can be seen as linked to an increasingly macho way of doing business (Blackmore, 2002; Deem, 1998; Grummell, Devine & Lynch, 2008; Reay, 2004) . The data is also suggestive of the attitude that communication is a 'soft' skill and the interpersonal, is seen as a less masculine trait.

> This is a huge generalisation but I still say that the profession is so dominated by men, undergraduates are so dominated by men and most of those boys will come into engineering because they're much more comfortable dealing with a computer than with people.

Chemical Engineering, Australia, Professor, Female

Again, discipline plays a role here. For instance, research concerning STEM subjects suggests women are more likely to pursue those scientific subjects which will make a difference or contribute to society (such as nursing or environmental research, certainly those subjects that would be perceived as less 'hard' science domains). Despite women's prevalence in these science subjects, the fact that engineering for example as an obvious choice is dominated by men, contributes to this perception.

Linked to my previous discussion earlier in this chapter is the sense that impact activity, namely in this case public engagement and community work was associated with women more than men by some participants. However, public engagement and certain social impact domains appeared to have a lower status and intellectual worth in the eyes of some participants. Some inferred that social and 'soft' impacts are generally seen as associated

with females. They in turn may be held in low esteem. Some of the accounts suggest that soft impacts are perceived by women as not 'counting' as impact:

> At least two out of the four of us who are female are doing community service and that doesn't count, we get zero credit, actually I would say it gets negative credit because it takes time away from everything else.

Education Engineering, Australia, Professor, Female

This was intimated again by another female UK computer scientist who claimed that since her work was on the "woolly side" of things, and her impacts were predominantly in the social and public domain, she would not be taken seriously enough to qualify as a REF impact case study, despite having won an award for her work:

> I don't think it helps that if I were a male professor doing the same work I might be taken more seriously. It's interesting, why recently? Because I've never felt that I've not been taken seriously because I'm a woman, but something happened recently and I thought, oh, you're not taking me seriously because I'm a woman. So I think it's a part.

Computer Science, UK, Professor, Female

It seems therefore that the 'hard' and 'soft' associations with impact I described earlier in this chapter are also perceived by my participants as at least loosely connected to male and female attributes. There is therefore certainly cause to consider how impact and its associated activities are perceived.

Largely, gender related comments hailed from the science and the arts and humanities participants. Social scientists for example, did not bring it up as much, and indeed, one levelled that perhaps it was less a matter of gender, and more a matter of ability:

> It's about being articulate! Both guys and women who are very articulate and communicate well are outward looking on all of these things.

Engineering Education, Australia, Professor, Female

The relationship between impact and gender is therefore little understood and it is not clear how much these issues are directly relatable to impact or more symptomatic of the broader picture in HE. It remains an interesting and emerging consideration – one which is potentially the subject of a larger research project. I will now discuss the difficulties my participants had in defining impact and their attempts to re-shape and make sense of its definitions.

5.3.2   Re-defining impact

Participants generally shared a desire to deliver positive change and described impact as something which is concerned with change, effect and making a difference: "impact for me normally would mean changing behaviour" (Soil Science, Australia, Research Staff, Female).

> We do want to be able to say why we're doing something, but for me the first question I ask about impact is am I having an impact, the second question is who says what an impact is and impact outside, what you're doing now, what is that impact?

> Languages, Australia Professor, Male

I noticed that when they were talking about impact, participants would often invoke the notion of duty, claiming that "*real" impact* (inferring that the official definitions do not reflect 'real' impact) *should,* or <u>*ought*</u> *to* be something which "brings communities together", "builds bridges", and is "relevant and contributes to a world, a sphere beyond scholars" (Philosophy, UK, Professor, Male). Participants tended to agree that impact was something that involved the public and society and that it was about taking research out, beyond the reach of scholars. Participants also associated the official meaning of impact with short termism and many therefore perceived that impact needed to be immediate in order to satisfy funders, which was problematic.

Participant interpretations of the official definitions highlighted some widespread confusion and in several cases, suspicion as to how to define impact; "I'm not sure it's the word; I think it's the definition" (Biology, UK, Senior Lecturer, Female).

> I think there's also confusion about what impact means – how you demonstrate it, the different groups that you can engage with outside the academic and justifiably and legitimately say yes this is having an impact.

> Politics, UK, Senior Lecturer, Male

> We've got away with saying fairly fuzzy things around impact.

> Soil Science, Australia, Research Staff, Female

There appear to be several potential reasons for this confusion. Firstly, many participants said that the definition of impact was too subjective. Secondly, participants felt that the definitions were either 'too vague and nebulous' or 'too prescriptive and contorted'. My analysis indicates that many academics feel that this is the result of a lack of clarity from the funders themselves:

> It is hardly defined at all, there are lots of words involved, long sentences, and if you encounter long sentences in English it means the people that have written that didn't really know what they wanted to say… we have these over complex definitions of what impact is supposed to be and as a result no one really knows what is meant anymore.
>
> Physics, UK, Senior Lecturer, Male

> I think people just think it's a bit open ended, nebulous and we're all scientists and so we all know that they don't know what they want.
>
> Biology, UK, Senior Lecturer, Male, B2

Many participants repeatedly asked the question "what does it mean?" whilst UK participants often acknowledged that they were influenced by the official definitions: "the word impact is loaded with REF interpretation so I can't help but be steered by the definitions I see" (Chemistry, UK, Senior Lecturer, Male). This was not the only instance; when another participant was asked to discuss impact they claimed "well, that depends what you think making an impact is" (Philosophy, UK, Professor, Male).

It is important to note therefore that the most common reference point for many UK participants was the REF definition of impact. Comments about the definition of REF impact included that it was "prescriptive", "narrow", "constricting", "odd and contorted". This contrasts with many UK participants' views of the RCUK definition which many perceived as 'too vague'. Analysis highlighted that UK academics in particular conflated the two definitions which may to some extent account for the confusion:

> Look, the whole thing is misconceived, if people can't define what it is, how can they take it seriously?
>
> Psychology, UK, Senior Lecturer, Male

Impact was therefore perceived by several participants as "massively open to subjective opinion" which made it "free to misinterpretation" (Chemistry, UK, Professor, Male). Many participants stated that funders have given "mixed messages" about impact and as a result academics were confused and frustrated with it.

> I think what seems to be lacking in a lot of people that are giving out the money is that reassurance about what impact is as far as they are concerned.
>
> Biology, UK, Senior Lecturer, Male, B1

Several interviewees commented that the definition of impact was entirely down to the interpretation of the researcher. For example, one participant commented that RCUK

pathways to impact were so subjective that "everybody can define impact the way he or she would like and as a result no one can show you a good example of a pathways to impact – it's all just opinion" (Physics, UK, Senior Lecturer, Male).

This of course might be deliberate. The research councils in the UK claim to have intentionally defined impact in its broadest sense so as to reflect the "myriad of ways research can contribute to society and the economy" (RCUK, 2016) in order to ensure that academics interpret it as project specific. However, analysis indicates that this tactic may have back-fired as instead many academics perceived the broad definition as "vague" and "nebulous". This could be said to have implications for their practice, resulting in equally vague "hand-waving" (Psychology, UK, Senior Lecturer, Male) in the articulation of future impact or embellishments as they feel compelled to make unrealistic predictions about impact because they think that is what is being asked for. Evidence of this is provided in Chapter 7 and in recent publications arising from this research (Chubb & Watermeyer, 2016). One scientist criticised the impact agenda because they felt it was open to subjective opinion that was not associated with scientific practice:

> I think the problem for us scientists is that we're usually being very careful to tread on firm thick ice, firm ground, and I think when you start to talk about what you might do, you kind of know you might be extending things beyond what you're really likely to do.

> Biology, UK, Senior Lecturer, Male, B1

This sentiment is echoed by a life and earth scientist in Australia, who commented:

> Well yeah, you're used to going on pretty hard data before you say stuff. You have to go out and put your neck on the line, people won't measure it, it's a bit like planting truffle spore, you won't know for 20 years the results. I'll be dead and gone!

> Agriculture, Australia, Professor, Male, A1

For many scientists, in particular those from the life and earth sciences, physical sciences, maths and engineering, the concept of impact appeared to lack objectivity, which may explain why much of the resistance found in social media and elsewhere originates from the sciences. One scientist commented that impact required social science skills, not the skills of a 'real' scientist, revealing of attitudes towards other disciplines explored in Chapter 9.

5.3.3 Conceptualisations and national context

It is important to highlight that Australian participants did not reference official research funding definitions as much as UK participants. Instead their responses were perhaps less

prescribed by official documents and their descriptions became more about what they would expect funders to count as impact; "as long as it includes enrichment of cultural knowledge etc., I suppose we can live with research impact" commented one Australian literature scholar. However, another suggested that any such definitions would have to pay specific attention to the language in order for it to work for them - "if the language is 'quantify' then forget it" (Mechanical Engineering, Australia, Professor, Female). There was a clear sense that awareness of impact was lower in Australia than in the UK:

> When you say to somebody 'an impact pathway' they may or may not know what you're talking about and they may think they've got to measure the numbers of mouths that are fed or they don't realize they could also be charting the number of people that came to that meeting that they're actually going to change what they do in research when they go home or you can do this in so many different ways, if you're flexible about it. Yeah I think awareness is important.

> Agriculture, Australia, Professor, Male, A2

Another theme was the tendency of some Australian participants to conflate the concepts of social and academic impact, using terms interchangeably, talking generally about how academic impact (their students, graduates and their teaching) was their primary impact more frequently than participants in the UK.

> So who defines what the impact agenda is going to be and what counts as impact, because one thing that we sometimes forget to say is that primary impact, the work we do, is how it affects the teaching we do of those thousands of students who graduate every year.

> Languages, Australia, Professor, Male

This is not to say that UK participants did not consider teaching as a key impact, evidently they did. Rather, it suggests that UK participants were more cognisant that simply, in official terms, teaching does not necessarily 'count' as social impact. The delineation between academic and social impact was largely viewed as problematic and many participants argued that academic impact was being side-lined by social impact. I discuss this in Chapter 9. In the next section, I will explore the types of activities interviewees associated with their research.

5.3.4   What counts? Typologies and associated activities

Interviews were coded according to the number of references interviewees made to the types of impact-generating activities they associated with research impact. RCUK published a typology of impacts in 2011. This document separated academic impact 'types' and economic and social impacts - an adaption of which can be found in Appendix 5. Analysis of

the data reveals that, similar to the typology of impacts above, researchers identify different 'types' of impact-generating activity and that these correlate with five specific types of engagement. These activities can then be further categorised under four broad headings, which I will refer to as 'impact domains', outlined below. Against each domain are some examples of the kinds of activities which would be coded at nodes labelled public, economic, academic, policy and social. This list of activities is not exhaustive but reflects some examples as provided in Appendix 4.

Impact domains and their associated activities:

1. **Academic domain: knowledge capabilities.** Activities include graduate employment, training of highly skilled researchers, and teaching.
2. **Public domain: public engagement.** Activities include public engagement, media engagement, social media, public lectures, and exhibitions.
3. **Policy and social domain: policy and social.** Activities include responding to government consultations, policy briefings, meetings with policy makers. This might also include strategic consultation/involvement. For example, Patient Public Involvement (PPI), involving research users in research design and co-production.
4. **Economic domain: commercial and industrial engagement.** Activities include, through patents, spinouts, new technologies, products and services and CPD.

Participants strongly associated the concept of impact as something which is concerned with what I refer to above as 'academic impact'. For example, Australian researchers in particular referred to graduate employment when talking about impact, and described how their work was going to have an impact through their graduates. Importantly, unless participants self-identified as 'applied researchers', there was a common tendency for researchers to refer to academic impact as their 'primary impact' and something which was held in high regard.

Capacity building and the training of highly skilled researchers was something participants from Australia were generally very passionate about and many UK participants cited teaching as highly important. One participant exclaimed "how teaching students isn't socio economic I can't understand" (Electronics, UK, Research Staff, Female). The fact that teaching was mentioned more by Australian participants arguably reflects the policy landscape in the UK, where participants were aware that academic impact is not the intended focus of pathways to impact or a HEFCE case study. The UK/Australian differences suggest that British impact policy has framed respondents' discussion considerably. UK participants therefore tended not to define impact with respect to teaching and education as much as their Australian counterparts. Academic impact (such as capacity building and the employment of graduates) more broadly however, though vital, was not viewed by all

participants as of primary importance. Indeed, some researchers felt that social impact and academic impact were equally as important, and crucially, there was a general consensus that you could not have one without the other:

> Otherwise the university doesn't have a footprint - they produce wonderful graduates but at the end of the day the university should have a very strong influence on policy matters socio economic side of things, applied side of things and the medical is a good example – translating good science into applied outcome.

> Agriculture, Australia, Professor, Male, A3

It is important to note that in some cases participants viewed academic impact as less important than socio-economic impact. This was particularly the case for participants who self-identified as applied researchers. For example, one UK participant stated how "the academic side is secondary for me" (Politics, UK, Senior Lecturer, Male). This indicates that certain disciplines are more naturally attuned towards impact. Impact appears to be more implicit and more embedded into the conduct of research from its design through to its translation for certain disciplines. For others this may be almost impossible, such as those conducting pure research. I suggest that typologies of impact therefore could be connected with the type of research being carried out. I will explore the themes which emerge across types of research in Chapter 9.

5.3.5 Activities and impact domains

In this section, I present an analysis of interviewees' responses in which the frequency of references to particular activities is examined as a means of identifying and exploring systematic trends in the alignment between disciplines and impact domains. Appendix 4 details the ways in which participants characterised impact and the activities they described. From these descriptions, I was able to analyse the kinds of activities and impact domains common across the discipline groups. The narrative that follows presents a broad analysis of the data. From this, I am able to draw-out clear themes that provide useful insights into the relationships between impact domains and disciplines.

The charts that follow capture the number of times particular impact domains were mentioned during interviews. I provide the raw numbers of mentions and in brackets I present the percentage of the total number of mentions of all impact domains within each grouping. Each segment of each pie chart is annotated with two figures – the raw (total) number of mentions, and the proportion (shown as a percentage for the total for that discipline) of overall mentions of each impact domain.

Analysis reveals that interviewees representing the arts and humanities mentioned types of activities they might engage with as being those predominantly in the public domain. This is illustrated in Figure 19 and Figure 20, in which references to public-facing research impact by the Australian and the UK cohorts comprise 79% and 48% of total references to impact domains respectively. Interviewees in this group focused on activities such as education and outreach programmes in schools, workshops for children, media, TV, radio, film, documentaries, magazines, talking to the public, events and workshops as well as public lectures, exhibitions, community festivals.

Arts and humanities interviewees also generally described activities that fall within the commercial and economic domain more so than they described policy and social impact generating activities. The policy and social activities they described included advising policy makers, MPs and local authorities, working on European policy, legalisation, providing evidence etc. However, they also presented a large number of examples of their engagement with industry via ad-hoc meetings, presentations and membership of advisory boards, more associated with commercial and economic impacts. Several arts and humanities interviewees described an increased focus on the use of social media and digital humanities outputs, including technologies. Entrenched in much of the discourse created by arts and humanities interviewees was the continued reference to the notion of value as something which was tangible and economic as opposed to something that is deemed to be intrinsically *valuable*. Such matters are discussed in depth in Chapter 7 in which I examine attitudes towards impact with respect to the value of knowledge and its utility.

Figure 19: Types of impact as mentioned by interviewees: arts and humanities – Australia
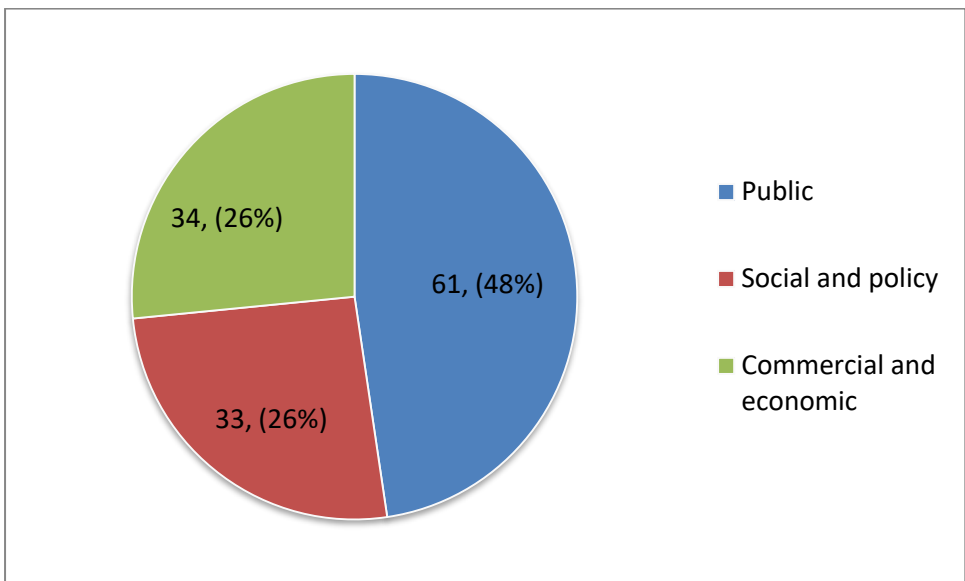
Figure 20: Types of impact as mentioned by interviewees: arts and humanities - UK

There are clear and somewhat unsurprising references to the economic and commercial domain across interviewees representing the physical sciences, maths and engineering. Many described working with private sector organisations and business as one of their main

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[13] Each segment of each pie chart is annotated with two figures – the raw (total) number of mentions, and the proportion (shown as a percentage for the total for that discipline) of overall mentions of each impact domain.

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routes to impact. This group commonly described how their routes to impact would predominantly include forming strategic partnerships and long-term work with industrial end users (e.g. the oil and gas industry).

Figure 21: Types of impact as mentioned by interviewees: physical science, engineering and maths – Australia
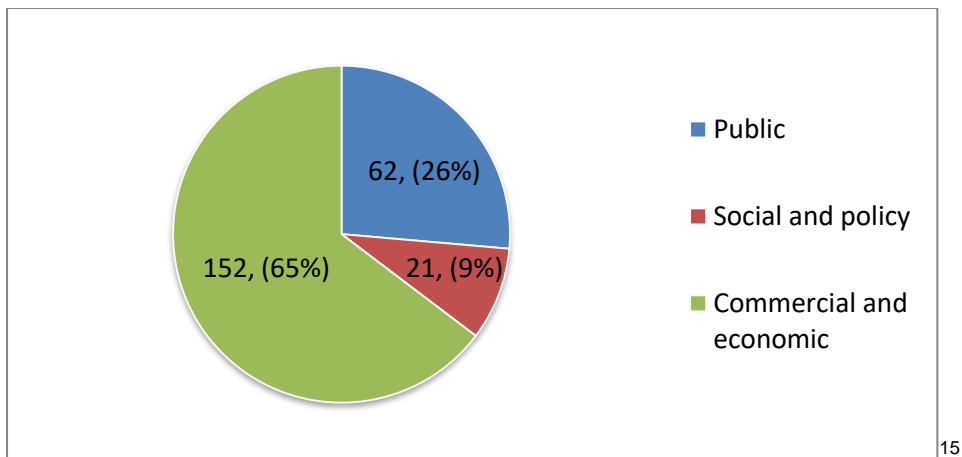
Figure 22: Types of impact as mentioned by interviewees: physical science, engineering and maths - UK.

This trend is illustrated in Figure 21 and Figure 22 in which references to commercial and economic impact comprise 52% and 65% of the overall total in Australia and the UK respectively.

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[14] Each segment of each pie chart is annotated with two figures – the raw (total) number of mentions, and the proportion (shown as a percentage for the total for that discipline) of overall mentions of each impact domain.
[15] Each segment of each pie chart is annotated with two figures – the raw (total) number of mentions, and the proportion (shown as a percentage for the total for that discipline) of overall mentions of each impact domain.

Interviewees often identified a cross-disciplinary approach with the objective of developing new products and services, creating new technologies and intellectual property, forming commercial enterprises and contributing to the development of industry standards. Whilst several referenced working with policy makers or developing links within the policy sphere, the second main domain they referred to with reference to impact was the public domain.

Unlike the majority of the arts and humanities participants, interviewees from the physical sciences, maths and engineering referred to working with schools (and activities that those representing other disciplines might call public engagement), as outreach. This was associated with a broader duty to communicate science, in its broadest sense, (crucially, not directly related to their research) to a public audience. There was also a sense that public engagement did not 'count' towards impact and that many would use it in their pathways to impact as an aside rather than a core activity. This theme was raised by several arts and humanities scholars who were working on theoretical research such as those from philosophy and literature. It therefore does indicate that the public domain is dependent upon the type of research being conducted (Chapter 9). However, physical science, maths and engineering interviewees and arts and humanities interviewees share a common concern about evidencing the underpinning research with respect to public engagement:

> What I think philosophers want and are keen to do, is to talk about their subject to a larger audience, they will do this at drop of a hat, and effectively it's more public engagement. It's a form of teaching, a form of education. Maybe it makes a difference, maybe not, but education is for public good.

> Philosophy, UK, Professor, Male

Notwithstanding, public engagement of a broader subject area to a wide audience (though not necessarily directly relatable to an interviewees' research), was perceived as generally part of an academic's role or duty. I will discuss attitudes towards public accountability and epistemic responsibility in Chapter 6.

Figure 23 and Figure 24 illustrate that the range of activities associated with impact for the social sciences appears to be in the policy, social and public domain, where there is less mention of commercial or economic domain based activities in comparison to physical science. However, where this was mentioned it was mostly with reference to the development or interest in developing new learning technologies, or working and developing links with businesses. In particular, social scientists along with the life and earth scientists were the only group to reference working with the third sector and social enterprises.
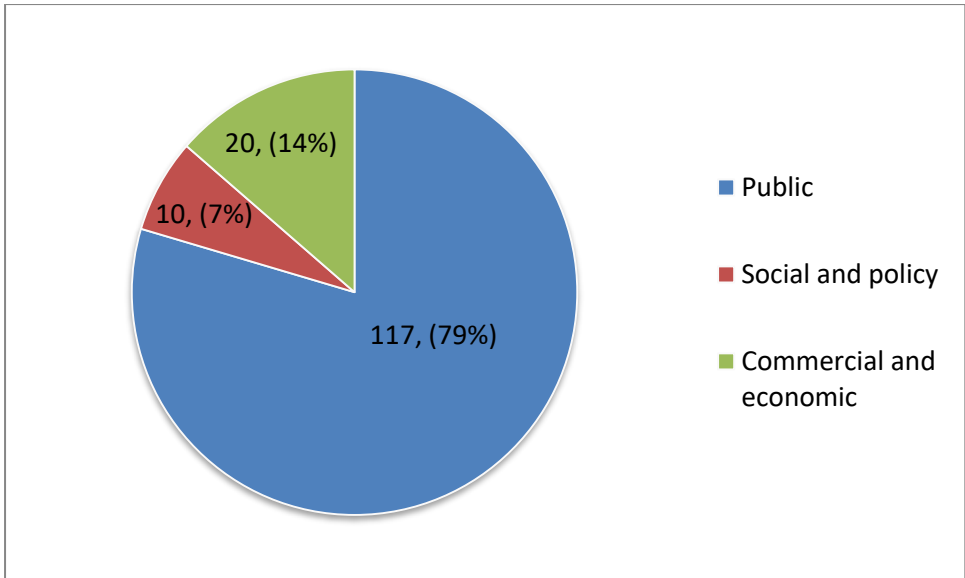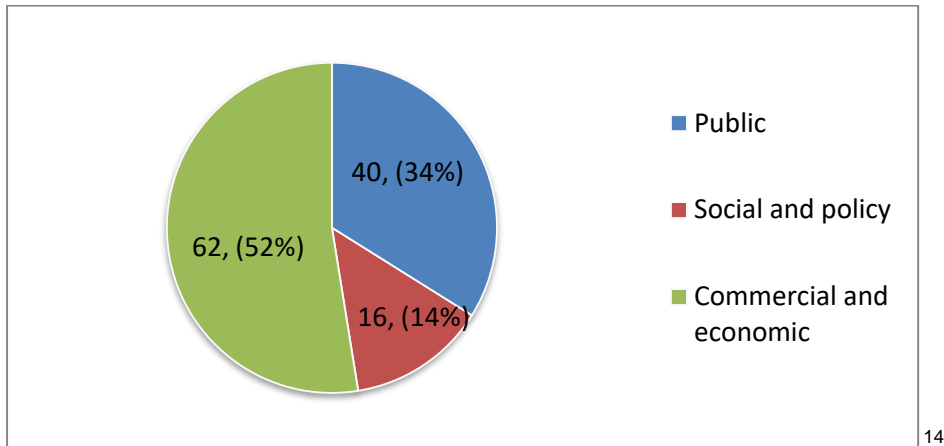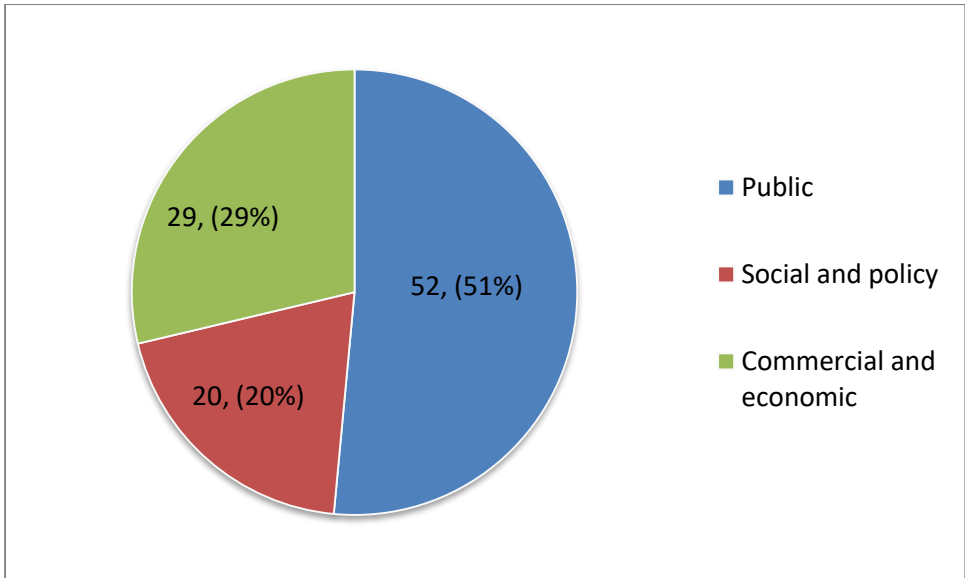
Figure 23: Types of impact as mentioned by interviewees: social science – Australia
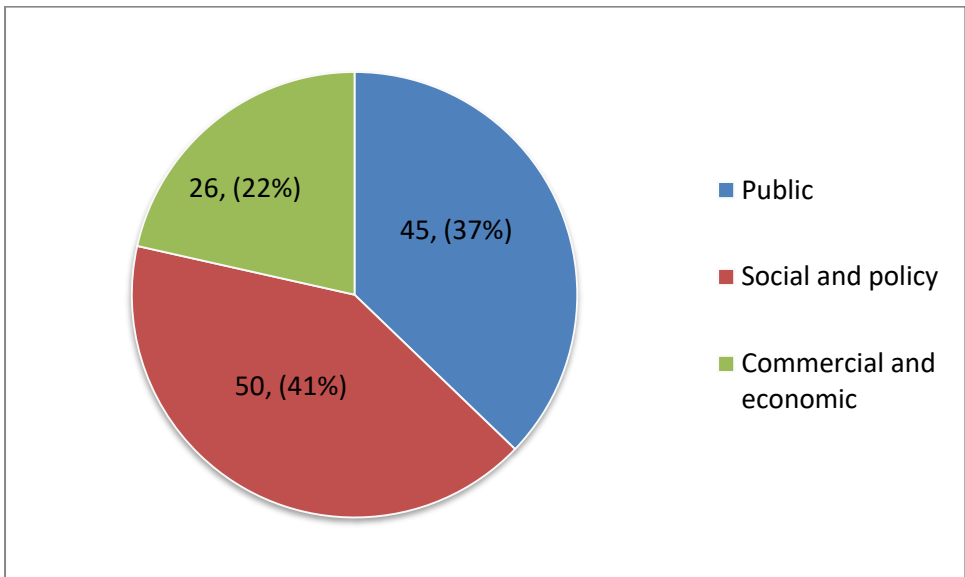
Figure 24: Types of impact as mentioned by interviewees: social science - UK

The social science participant responses exhibit significant national differences in emphasis, with references to public domain impact dominating the response of Australian academics (51% of references) and the strongest response in the social and policy domain in the UK (41% of responses). In both national groups, the social scientist participants referenced the policy domain more than any other cognate grouping alongside references to the public domain including media engagement. Activities in the public domain included media coverage, articles, interviews, TV, radio, *The Conversation*, working with communities in vulnerable populations, meetings etc., public speaking, symposiums, lectures, books, public engagement/schools dissemination i.e. science shop, artists creating works of art about

research, exhibitions, theatre production about a particular issue (for example; homelessness), programme development for schools, teaching products and the development of educational materials.

With respect to policy development, social science participants referenced work with government departments, providing evidence to policy makers and practitioners, giving consultative opinions on legislation and law reform, working with government departments and writing reports for public bodies. Social science participants spoke proactively about forming engagement with end users of research, they described how they would extend their networks and consult with end users regularly, almost as a matter of course, and there was an element of cold-calling to this, using email and personal contacts to generate new links and collaborations. This was less common in other disciplines, for example one arts and humanities participant spoke of how the public ought to seek out university research.

Finally, the life and earth science participants demonstrate the most balance across the impact domains mentioned in interviews, presented in Figure 25 and Figure 26. Here, there is little variation between the frequency of mentions across all domains and both national contexts. Pathways to impact in this cognate group involved the public domain, with many references to community work, school and education programmes, outreach or 'extension' activity, vehicles such as citizen science, 'I'm a scientist get me out of here!' and media press releases. However, several described very clear pathways to impact in both the policy and social and economic domain as well reflecting a range of activities detailed in Appendix 4.

In particular, life and earth scientists described policy activities such as workshops with stakeholders, forums, meetings with consumers and governing authorities, social enterprises, local charities, think tanks, NGO's and drafting policy evidence. This kind of activity was seen by most life and earth scientists as "part and parcel – bread and butter stuff - it's a natural alliance" (Environment, UK, Senior Lecturer, Male, E1). This is similar to the view of the social science interviewees who also referred in this way to impact as being something which is embedded in the research. Finally, life and earth scientists made reference to the commercial domain when describing their work with industry, the development of new technologies and their links with tourism.

For a large majority of respondents, their work was match-funded by industry or at least industry and application was at the heart of the funding they had received. This was very different to the arts and humanities participants and academics from other theoretical areas where impact in whatever domain, seemed rather more 'tacked–on'.

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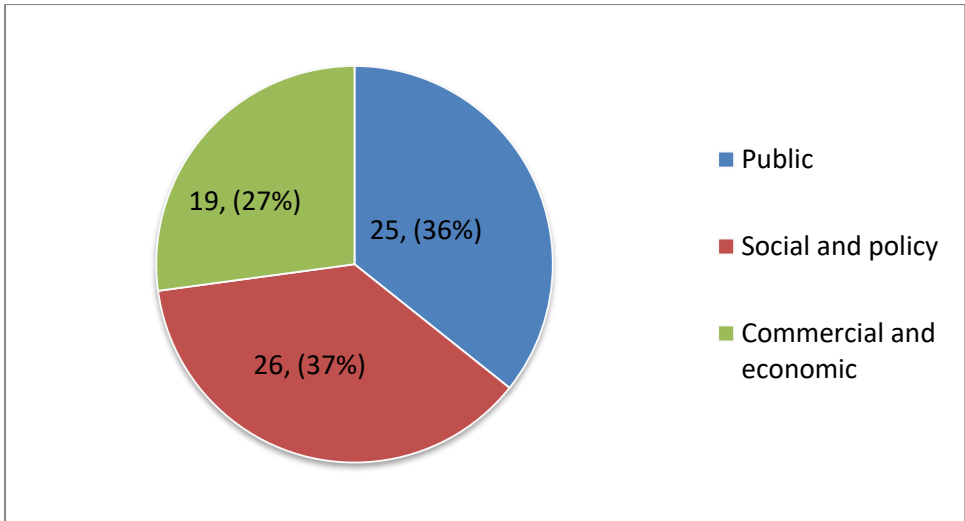
Figure 25: Types of impact as mentioned by interviewees: life and earth sciences - Australia
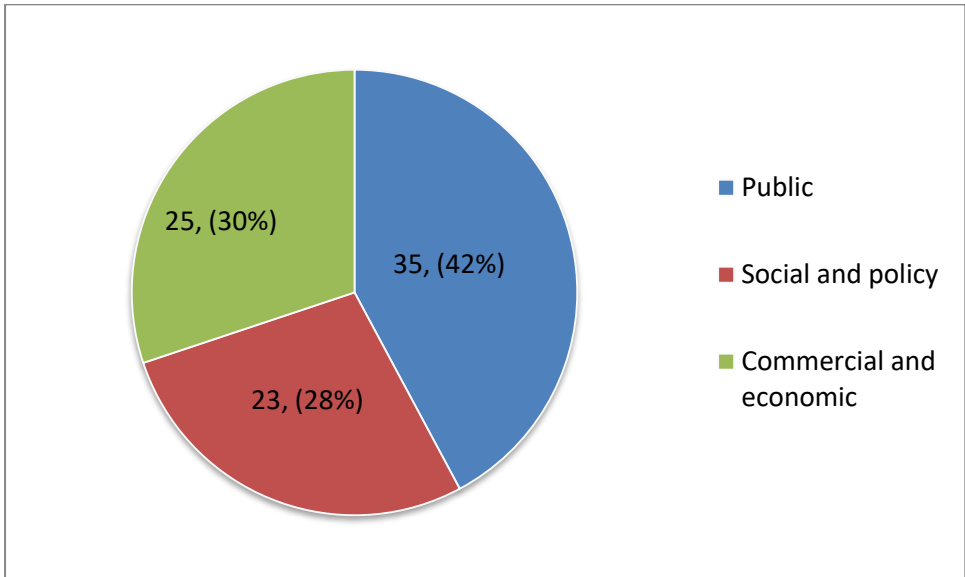
Figure 26: Types of impact as mentioned by interviewees: life and earth sciences – UK

The social and life and earth scientists appear to share commonalities in the amount they discussed all domains, with a preference for policy and public domains, whereas the arts and physical sciences and maths appear to have more in common than perhaps Snow's 'two cultures' might have first implied. Impact may actually unite them, I propose instead a 'Two by Two Cultures of Research Impact' matrix which is fully explored and described in Chapter 9.

5.4 Summary

Analysis suggests that the way impact is characterised by participants may be linked to how impact is conceptualised, which may then influence how participants can respond to the impact agenda in practice. For instance, if impact was conceptualised by participants as a prediction of real world change, then academics working in a more theoretical field claimed they would struggle to articulate impact more so than those closest to application.

The findings described in this chapter indicate that language plays a key role when unpacking the issues associated with the impact agenda. Indeed, the word itself can be seen as problematic to many interviewees – with participants interpreting impact as a short term, one-off 'hard–hitting' event, in the manner of a technology that is developed and then sold to a company. This might be appropriate for some kinds of research, but for others where, for example, the end goal of research is to enrich lives and culture, this way of defining impact was seen to be off-putting and unhelpful by interviewees. Whilst those responsible for setting research policy may have kept the policy purposefully vague in order to ensure a broad range of interpretations and therefore impacts, analysis reveals that there is still some confusion as to what actually counts as impact and a range of interpretations as to what the word means.

The lack of clear agreement about the interpretation of impact as a term in and of itself could have implications for policy and indeed practice. Funders ought to consider clarifying that a pathway to impact is an articulation of the activities an academic will engage in, not the end product itself. Interviewees acknowledged that impact is concerned with translating research along with some connotations of utility and direct relevance to society. Indeed, analysis in this chapter shows that the way in which impact is conceptualised may be to some extent linked to an academics' primary discipline (this may be fluid for some researchers). The data also identifies the kinds of impact domains in which certain cognate groups of disciplines might more readily associate their research (that is not to say these cannot change or cross into other domains as this is only representative of this sample). For example, my analysis indicates that arguments concerning the public good and value, cultural enrichment and engagement come mainly from the arts and humanities communities, whereas for the physical sciences, impact appears more readily associated with application, social and economic utility. For the social sciences, impact is again associated with society, use and policy, and the life and earth sciences again associate impact as being applied, practical and policy focused.

These trends perhaps indicate that whilst a one-size-fits-all definition of impact would not be appropriate, there may still be a need for institutions and funders to firm-up definitions or

improve impact literacy of academics so that confusion lessens. In addition, improving literacy about the differences between impact for assessment and impact for funding (prospective and retrospective) is required in order to lessen the concern that when academics are applying for grants, their impact has to be firmly pinned down and measured a-priori.

The language of impact can also be seen to be closely resonant of a marketised HE sector. Participants feared that ideas about the 'public good' had dropped out of the discourse and instead, adopted words associated with new managerialism such as market, consumer, investment, economic return, and so on. This is suggestive of a creeping shift from public to private where the university is yet another market and the academics are knowledge workers.

Despite this, the idea of communicating research and bettering society was strongly upheld by interviewees as an important role in academic life. What was difficult (and very often absent) within their conceptualisations and indeed characterisations of impact was a confident understanding of the concept of having demonstrable impact. Particularly difficult for less instrumental forms of knowledge, this created further frustration and confusion and gave rise to tensions concerning themes, which are discussed in later chapters including academic freedom, epistemic responsibility, instrumentalism (Chapters 6 and 7).

The connotations associated with the word impact could also be said to be distracting to participants, with the emergence of different definitions, which create confusion and possibly fuel resistance. For example, the concepts of soft and hard research could be seen to relate to rehearsed debates about the value of certain disciplines. So too, the connotations of hard impact are identified by some participants as indicative of a marketised, even masculinised HE as we saw in 5.3.2. Issues linking gender and impact are highlighted as considerations for further research in Chapter 10. Analysis has also shown that national context shows variance in the ways in which academics conceptualise impact, such as the fact that Australian academics tended not to refer to official definitions but instead referred to more traditional academic interpretations of impact. This reflects the relative infancy of impact at the time of interviewing but also reveals anxiety regarding the future measurement of impact in Australia. It also perhaps reflects that participants from the UK sample were at the time of interviewing a little more tuned-in to, or more cynically, indoctrinated by the impact agenda.

Overall, we can see that there appears to be four impact domains articulated by interviewees broadly comprising: public, social and policy, economic and of course, academic. The prominence of the latter in the thinking of interviewees was stark, with many interviewees making reference to impact as something that was inherently academic. In fact, several

linked this to the argument for the public good and education as an impact in and of itself. I discuss this in Chapter 9.

This analysis reveals that academics' conceptualisations and characterisations of research impact are varied and to some extent linked to discipline and national context. This chapter drew out clear themes about the kinds of impact-related activities interviewees associated with their work. Somewhat unsurprisingly, interviewees representing the arts and humanities expressed more of a tendency towards the public domain with their impact activities, with a second focus being on commercial and economic domain. Participants representing the physical sciences predictably showed a focus on the commercial and economic impact domain, the social science scholars emphasised activity in the policy and social domain, whilst those representing the life and earth sciences displayed the most balance across activities and domains. This could have potential policy and practice implications for funders as well as research offices and institutions when considering their internal support infrastructures.

The findings presented in this chapter also indicate that the arts and humanities appear to have more in common with respect to impact with the physical sciences than perhaps Snow's two-cultures theory might suggest. Similarly the life, earth and social sciences can be seen to share more commonalities (explored in Chapter 9). The role of national context does not appear to be a large factor with respect to impact domains, as we see number of mentions of activities corresponding with certain impact domains in both countries.

By exploring the way in which impact is understood and characterised by this set of participants, and by analysis of how many times certain activities are mentioned, we can see broadly that there are thematic differences in the ways impact is perceived across the disciplines. We can also see that certain connotations may be more or less helpful depending upon the proximity of an academic's research to use or utility. Indeed, the language employed by interviewees reflects their entrenched underpinning philosophies. For instance, where the language of impact implies a one-off end product, this might prompt and provoke concerns that knowledge is being instrumentalised because of impact. With respect to policy for grant applications, analysis indicates that emphasis on engagement as opposed to the end product may be helpful to academics. Clarifying this might avoid the pitfalls and challenges concerning the way academics respond to impact in terms of how they write pathways to impact and indeed, how they feel about impact, explored in Chapter 8.

This chapter has introduced some of the conceptual challenges in understanding and achieving impact and the characterisations that exist across the disciplines. We have seen how language and rhetoric can be seen to influence academic reactions to the impact

agenda. It is pertinent therefore to consider the challenges present in the literature concerning how these conceptualisations of impact map on to views of the academic role in society, including notions of academic freedom and epistemic responsibility. As we have seen in Chapter 3, one of the most prominent criticisms of the impact agenda has been the perceived threat it brings to freedom – this makes freedom an important research question. The next chapter consequently considers interviewees' perceptions of the relationship between impact, epistemic responsibility and academic freedom.

6   Academic freedom and epistemic responsibility

6.1   Introduction

In this chapter, I discuss the ways in which interviewees responded to questions about the philosophical aspects of the impact agenda including academic freedom and epistemic responsibility. In particular, I present findings on how interviewees described whether or not academic freedom can be seen to be compromised by the impact agenda and deconstruct the rationales provided (coded using NVivo at nodes 'academic freedom', 'duty' and 'responsibility' and their associated child nodes). I do so in light of having asked interviewees the following questions, the latter two were deductively coded:

- What does academic freedom mean to you?
- Critics argue that academic freedom is compromised by the impact agenda – do you agree?
- The Royal Society 'Bodmer Report' (1985) stated that academics have a duty to communicate their work, do you agree?

I begin by contextualising the impact agenda and the debate that surrounds its relationship with academic freedom (Section 6.2). I then describe the definitions of academic freedom as provided by my interviewees (Section 6.2.1) and draw out some broad trends (Section 6.2.2). In Section 6.2.3 I consider the potential influence of career level and background on perspectives about academic freedom, before exploring the role that national context played with respect to views on academic freedom and impact (Section 6.2.4).

In Section 6.3, I discuss the ways in which interviewees described a tension between their sense of academic freedom and an impact agenda. These tensions relate to two key themes. The first concerns what many described as governmental interference with research (Section 6.3.1). Here, I describe the views of interviewees who felt that governmental interference with research (influencing direction or themes) risked their freedom. In Section 6.3.2 I present my analysis of accounts concerning epistemic responsibility which links both themes before exploring the second theme; impact as a threat to pure research (Section 6.3.3).

Having discussed the ways in which participants perceived impact to be a threat to freedom; in Section 6.4 I then examine the converse disposition, expressed by around half of the participants. Two key themes favour this position. Firstly, academic freedom is described as outmoded and obsolete by several interviewees. This section explores the views of those who felt academic freedom needed to be reconceptualised in order to account for an impact

agenda (Section 6.4.1). Secondly, I explore how the concepts of privilege and accountability are emphasised by a number of participants (Section 6.4.2) before summarising the chapter in Section 6.5. I will now outline the factors that prompted me to ask questions about the relationship between impact and academic freedom before discussing the range of responses to the questions outlined in this introduction.

6.2 Academic freedom and the impact agenda: contextualising the discussion

Among the most prominent arguments made in opposition to a research impact agenda as outlined in Chapter 3 is that it impedes and impairs the possibility of academic freedom (Braben et al., 2009; Docherty, 2014; Ladyman, 2009a; 2009b; 2009c; Holmwood, 2014; Moriaity, 2016; Gibbs, 2016). Some argue that this is vital for the true process of discovery to take place, though it is perhaps taken for granted by others (Gibbs, 2016, p.175):

> No scientist really begins the true process of scientific discovery with the belief it is going to follow this very smooth path to impact because he or she knows full well that that just doesn't occur so there's a real problem with the impact agenda - and that is it's not true, it's wrong – it flies in the face of scientific practice.

<div align="right">Chemistry, UK, Professor, Male</div>

Academic freedom as a concept (or at least the traditional interpretation thereof), provoked a range of responses from my interviewees - suggesting far from uniform agreement on its specific relationship with the impact agenda. There was a strong sense among interviewees that whilst the impact agenda presented challenges, a prevailing sense of epistemic responsibility was apparent which often over-rode these concerns. Indeed, whilst analysis indicates that participants value the concept of freedom as autonomous agents unconstrained by governmental control, many admitted that this was an idealist position and tempered the discourse with a sense of moral responsibility that those undertaking research funded by the public purse ought to be held accountable.

For many interviewees, the concept of academic freedom was laden with outmoded meaning, the definition of which (like impact itself) appears to be perceived by interviewees as subjective and open to interpretation. Through analysis of the data, the issues appear more complex than to simply suggest that academic freedom is hindered by an impact agenda. I begin therefore by taking a closer look at how interviewees defined and characterised academic freedom in order to better understand their views.

6.2.1 Conceptualisations of academic freedom and its relationship with impact

As discussed in Chapter 3, Hammersley (2016) stated that whilst it is generally felt that academic freedom is 'under threat' because of a range of pressures on universities, "there is also considerable dispute about the meaning of the term" itself (p.108). Like Fish (2014), who offers a variety of views on the term, Hammersley states that academic freedom is "open to conflicting interpretations" (p.108). Broadly, academic freedom is said to refer to some kind of professional autonomy of academics (Hammersley, 2016; Fish, 2014), a sentiment echoed by my participants, several of whom indicated that a degree of independence (from government especially) was central to any meaningful definition.

A review of the literature focused on the debate surrounding the notion of academic freedom and its modern day conceptualisations (Fish, 2014; Gibbs, 2016; Hammersley, 2016; Post, 2012) is outlined in Chapter 3. Pertinent to this discussion, Post (2012) claimed academic freedom was vital for what he called "democratic competence" and "decision-making". Post therefore assumed a link between academic freedom and some kind of contribution to society. This connection, Hammersley (2016) and Fish (2014) warned, could disadvantage researchers whose work is less application-orientated, for example, those working in theoretical branches of the humanities or science. Nevertheless, a common theme across these debates is that academic freedom in some sense ought to be preserved in order to overcome the negative effects of managerialism (discussed in Chapters 1 - 3). I explore how my interviewees responded in the next section. First, it is pertinent to consider how participants conceptualised academic freedom.

Interviewees' perceptions of the relationship between freedom and impact were influenced by their conceptions of these terms. We have seen in Chapter 5 that there participants did not find unanimous agreement about the meaning of the term impact, and likewise, analysis indicates that academics also interpret academic freedom in a range of ways. This reflects Gibbs' (2016) view that academic freedom is "notoriously difficult to pin down" (p.175). Analysis revealed that participants tended to associate academic freedom with five dimensions (labelled a-e). The first three (a-c) concern the concept of autonomy, the latter two (d-e); responsibility: Freedom to speak and disseminate ideas (a), freedom to think (b), freedom from the constraints of funders (c), bound by ethics (d), and for an academic reason (e). It appears that academic freedom is conceptualised as inclusive of, not distinct from responsibility, which accounts for some of the tensions associated with impact. I will explore each aspect individually.

a) Freedom to speak/disseminate ideas

Over half of the references concerning academic freedom related to the word 'speech' and variations of this and other stemmed words. Participants noted the importance of speech and communication in their role as academics. In particular, participants described the importance of being able to "speak out" even if what they had to say went against convention or prevailing beliefs or values of stakeholders. In most cases, participants linked this to a perceived level of duty or responsibility - part of an academic's role:

> I think it's a good thing to lobby politicians with the sorts of evidence we find. It's our responsibility to lobby that.
>
> Archaeology, Australia, Professor, Female

> Where academics have the freedom to speak out. To say anything. My understanding is you cannot be stopped from saying something that you have found to be true, a whistle-blower thing; your government cannot squash your speech.
>
> Engineering, Australia, Professor, Male, E1

> The ability to question things: without losing your job.
>
> Literature, UK, Professor, Female

b) Freedom to think

Coupled with the concept of speech and communication, almost all interviewees described academic freedom as something which enabled freedom of thought and readily associated academic freedom with discovery. Participants felt it was vital that researchers were free to pursue ideas "whatever path it takes" (Australia, Education, Male, Professor).

> Being allowed to come up with ideas for myself and not being told what to do.
>
> Social Policy, UK, Senior Lecturer, Male

> It is the freedom to initiate and develop projects.
>
> Music, UK, Professor, Male

> It means that I can investigate what I am curious about and publish my results to anyone.
>
> Maths, Australia, Professor, Female

c) Freedom from constraints from government and funders

Participants specifically suggested that freedom was about being free from government control. For example, many challenged the RCUK initiative concerning 'Grand Challenges', designed to fund research in particular thematic areas.[16] One interviewee described how being "beholden to grant holding bodies" implies a threat to freedom:

> I want to do what I want to do, not research that I'm told to do by government.

> Archaeology, UK, Professor, Male

A level of independence appears to be associated with academic freedom by participants (Hammersley, 2016). However, it is important to note that many of those who defined academic freedom this way also intimated that to do research was a privilege.

d) Bound by ethics

Academic freedom was also understood as reliant upon and subject to a moral code of conduct; several interviewees expressed concern over the potential abuse of academic freedom. Academic freedom was perceived as something that ought to be carefully navigated so as not to become a justification for bad behaviour. A conceptualisation of academic freedom should therefore, be maintained by integrity and ethics according to my participants.

> Academic freedom is always bound by something. It should be bound by ethics above all. Because I have academic freedom does not give me the right to practice vivisection on living humans or animals.

> Music, UK, Professor, Male

Freedom, participants claimed, ought to reflect a moral code:

> I believe the concept of academic freedom is abused all the time. So to allow academics to do what they want both in terms of behaviour, in terms of research and in terms of teaching, all manner of things… [She goes on] …What does it mean? It means I can do and say what I want when I want? That can include poor behaviour as well!

> Chemical Engineering, Australia, Professor, Female

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[16] http://www.rcuk.ac.uk/research/xrcprogrammes/

e) For an academic reason

Interviewees compared academic freedom to a distinct duty, luxury or privilege afforded by academics for an academic justification alone. Decisions, several interviewees claimed, about what to research and disseminate should be made on academic grounds alone, a principle closely linked to integrity.

> As scientists, it's important to put what you do within a bigger picture and the bigger picture is in lots of different fields, scientific, artistic, it's to do with business and how people fund it etc. I need to be guiding that, and to have autonomy over what I do, rather than be guided by what the media might like.

> Psychology, UK, Senior Lecturer, Male

> Freedom to pursue research interests on their own intellectual merit for the purpose that they contribute to the cumulative wealth of knowledge of human kind.

> Politics, UK, Senior Lecturer, Male

> Where people feel that their expertise is actually accepted, where they can develop their own ideas and go out and try to convince people to collaborate or write papers - a kind of freedom that means also a degree of independence.

> Physics, UK, Senior Lecturer, Male

Another participant suggested that academic freedom was linked to excellence, rigour and the ability to succeed, which in this case was defined by winning funding:

> I think the bottom line is you have academic freedom if you are able to be successful in terms of producing excellent outcomes and getting funding for it. It's the bottom line. Nobody is going to stop you doing anything if you're successful.

> Physics, UK, Professor, Female

Academic freedom was conceptualised by participants as the ability to have freedom of thought to explore new ideas and disseminate and speak out about those ideas, unconstrained by governments and external parties, in a rigorous, ethical way for an academic reason.

Fuller (2003) defined freedom as being underpinned by academic credibility and reason; "academic freedom isn't simply the right to speak within your expertise: it is the right to speak about anything - but in a way that involves an appeal to reason, argument and evidence" (Fuller cited in Corybn, 2010). This conceptualisation is similar to Kenny (1985), and one participant who emphasised the importance of academic credibility:

> The freedom to decide what we write - what we teach and what we publish on academic grounds.

> Philosophy, UK, Professor, Male

Despite these examples, it is important to note that not all participants offered up definitive conceptualisations of academic freedom. Some participants claimed that they did not know what academic freedom was or how they would define it, whilst others rhetorically questioned its meaning, preferring instead to redefine it. Indeed, some responses were neither in agreement with the idea that impact impaired the possibility of academic freedom or opposed to it, instead searching for a better rationale:

> I think it's too easy to go on the academic freedom vs. the applied industry economic benefits - those two ends of the spectrum which a lot of academics might talk about are very simplistic and don't get into the meat of the matter.

> Engineering Education, Australia, Professor, Female

Relevant to the discussion concerning the disciplines, academic freedom was seen by participants to relate to discipline and the dependence upon grant income. In particular, the sciences were deemed less 'free' by some interviewees because of this reliance.

> Sciences don't have it because of their dependence on grant income. They have to do the research that the funding bodies want. That seems an example of giving up academic freedom.

> Philosophy, UK, Professor, Male

> I've never really been funded in a way that has given me academic freedom, so you are always beholden to the grant holding bodies to producing the results.

> Health Science, Australia, Professor, Female

In addition to the reliance on grant funding, which I will explore later in this chapter, almost half of the participants expressed an opinion that the term required a new conceptualisation and because of this, tended toward taking the position that academic freedom as it is broadly conceived was not entirely threatened by the impact agenda. The minority claimed not to have a full understanding of the term:

> I don't really know what academic freedom is, but nobody's ever tried to stop me doing anything.

> Social Policy, UK, Senior Lecturer, Male

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Freedom emerges as an important discourse concerning academic roles and responsibilities. Much of this is shown to relate to the norms of disciplines and national context explored in Section (6.2.2). Following this, I explore the two main perspectives on academic freedom, where impact is seen to impair freedom, and conversely where it is viewed as an important aspect of the academic role.

6.2.2   Relation of discipline and national context with academic freedom

As I outlined at the beginning of this chapter, during the interviews I asked my participants specific questions about academic freedom. In this section I present my findings regarding this particular question: 'Critics argue that academic freedom is compromised by the impact agenda – what do you think?' (Appendices 7 and 8 provide granular detail on these responses across the disciplines and national context. Nb. It is important to acknowledge that the 'n' is very small (51) so the proportions shown are not intended to be indicative of a wider population).

The analysis in this section was developed through close interrogation of all transcripts by hand and by the use of code in NVivo at node 'academic freedom', to show how academic freedom was viewed with respect to an impact agenda. Analysis, shown in Figure 27 and Figure 28 and summarised in Figure 40 at Appendix 7, indicates that out of 51 interviewees, 19 felt their academic freedom was compromised by the impact agenda. Around half of the interviewees (25) stated that they did not feel that this was the case, and seven stated that they did not feel sure about their position on this point. In the few cases where participants claimed ambivalence or uncertainty, their reasons were largely attributed to two issues.

Firstly, participants felt that the biggest threat to freedom was funder priorities set by government such as thematic funding and other initiatives threatening to silence researchers challenging government (such as the recent, somewhat contradictory, UK anti-lobbying clause which threatened freedom of speech, now rejected[17]).

> The potentially poorer science that is emerging is not coming from pathways to impact, it's coming from other ways in which priorities are targeted – certainly in NERC the thematic funding it is just appalling.

> Biology, UK, Senior Lecturer, Female

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[17] UK government announced an 'anti-lobbying clause' to be included in grant agreements in Feb 2016 – this was rejected in April 2016. https://www.gov.uk/government/news/government-announces-new-clause-to-be-inserted-into-grant-agreements.

Secondly, several participants expressed concerns that the impact agenda fundamentally compromised the principles of science, such as the 1918 Haldane Principle (Chapter 2), stifling blue-skies thinking. Although almost half the participants claimed to feel uncompromised by the impact agenda, those in this set provided the disclaimer that the same could not be said for research funded by industry or government, which was likely to come at the cost of academic independence and freedom.

Across cognate groups of disciplines, a number of trends became apparent. The life and earth science participants appeared relatively balanced in their views regarding this subject across both national contexts, with the majority view being that their academic freedom was not in conflict with an impact agenda. This can be seen to be reflective of the natural alliance highlighted in Chapter 3 that the life and earth sciences appear to share with application and utility. For many in this set, impact was central to their work. Discipline trends are explored in Chapter 9.

Those who were less convinced or 'not sure' about the conflict between impact and freedom tended to represent the arts and humanities and social sciences, with the exception of one participant (Soil Science, Australia, Research Fellow, Female) who stated that they simply had not thought about it because they did contract research and didn't see it as relevant. Another science interviewee, when asked whether she possessed academic freedom replied "personally no, I get to do what I get funded to do: I don't have time to do anything else" (Electronics, UK, Research Staff, Female).

The next section explores the potential influence of career level with respect to the comment above. I note this as a future avenue for further research (Chapter 10).

6.2.3 The potential influence of career level

Although not one of the research questions specifically explored in this project, one of the inductive findings was that career stage and other aspects of an academic's professional life could potentially influence their response to an impact agenda and/or academic freedom.

Figures 10 and 11 show that all but one of the participants from Australia were professors. In the UK there was more variation with 17 (57%) participants holding professorial roles, 11 (37%) in senior lectureship/reader roles and two participants (7%) held research staff roles. The majority of the total number of interviewees held professorial roles (n=37) or 73%. Analysis suggests that career stage may be a factor with respect to both a researcher's sense of freedom and their attitudes towards impact. Professors in both contexts commented that they felt less affected or concerned about their academic freedom and the evolving academic environment because they were well-established within academia:

It's easy for me to say that - I'm at a point in my career where I don't face these challenges. I don't worry about my next grant application. I don't have to be thinking, for me it's in the abstract.

Languages, Australia, Professor, Male

There were comments from professors that 'younger' or newer researchers would not be able to take this stance so readily as a result of the need to secure professional advantage:

I think for younger academics coming in, the audit culture does control a lot more for them because you know they're thinking I've got to do this i.e. evaluative teaching portfolio, I've got to teach all these courses I didn't write I've got to get a good mark in the research audit, I've got to get a grant, if I don't get a grant I won't get tenure[18]…

Literature, Australia, Professor, Male

Many felt that there was a role for the universities in supporting younger researchers to respond to the impact agenda both in terms of funding and assessing impact:

There were some questions (in the EIA assessment) about junior researchers just starting out and how they could possibly demonstrate impact, they haven't done anything yet, so they can only talk about it in potential terms rather than real terms, and you don't want somebody to say the rich get richer and the new researchers never get anything…

Health Science, Australia, Professor, Female

However, there were also comments from professors that younger researchers would likely be 'better at impact' because the expectation is not so new:

You can probably learn how to do it better when you're starting than when you're an old codger like me. So as you start out if this is what the expectation is then you should get into the swing of it a whole lot more.

Languages, Australia, Professor, Male

Indeed, one professor claimed "in my long career there wasn't any of this going on" (Agriculture, Australia, Professor, Male, A2) as justification for his concerns about impact.

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[18] 'Tenure' is a term used at the Australian case institution, but this does not equate to the US model, it is instead very similar to the system of probation in place at the UK case study institution. Generally, an academic is appointed to a tenurable position in the first instance. This means that the appointment is intended to be tenured (or *on-going*), however employees are required to successfully complete a probationary period first. Once a probationary period is successfully completed, an employee's appointment status is changed to 'tenured'. It is not expected to have affected responses. Source: Australian case study institution HR department personnel.

Many professors suggested that newer researchers might acclimatise better to an audit culture. Interestingly, the three research staff interviewees were all scientists. Their accounts indicate that there was less of an expectation of freedom, owing to their contractual arrangements. They mentioned the need for reporting and interpreted impact from a policy/practical perspective, rather than attempting to contextualise the agenda:

> We have to write down how many hours of work we've done each week on which area. That's it, we get paid for that.

> Electronics, UK, Research Staff, Female

> I think there are degrees of freedom, but I don't think you have absolute freedom, I suppose it depends how you write the proposal in the first place.

> Computer Science, UK, Research Staff, Female

Notwithstanding, analysis shows that commonalities persist between the professors and newer researchers in this sample with respect to their attitudes towards impact. These include a shared sense of the need for freedom to carry out blue skies research, with newer researchers exhibiting a slightly raised sense of accountability and compliance. There was not however a significant difference between the attitudes of professors and those in senior research roles (lecturer/readers) that can be substantiated through this research, indicating the need for further investigation.

Finally, another consideration is researcher background. Participants who had previously held roles in industry remarked on the ease at which they might approach the impact agenda because of having worked in a marketised environment. They also suggested they might adapt better to change:

> I did my PhD after an 11-year gap. This has advantages so I have other life skills. There are PhD students now that won't get hired unless they can talk this talk, they will get snapped up if they can do impact stuff. Yet their supervisors are trying to work out what impact is. The younger generation could help us figure it out! There is a huge education thing to happen. Impact was never mentioned in my PhD in 2006.

> Languages, UK, Senior Lecturer, Female

> I actually came to academia quite late after ten years in industry. So I am idiosyncratic in my views I suspect but I find that my views resonate very well with senior people at the university.

> Mechanical Engineering, Australia, Professor, Female

Many professors and senior lecturers remarked that PhD students were likely to be more adaptable when it came to the impact agenda because they were not "not set in their ways

like most academics" (Environment, UK, Professor, Male). Another professor confirmed this and confessed that having only worked in academia; he might present what he referred to as a "narrow view":

> Look, I'm a thoroughbred academic, worked a little bit outside academia but a very tiny amount; I followed a totally academic route…

> Chemistry, UK, Professor, Male

This suggests that an academics' ability or willingness to respond to change might account for some resistance felt towards the agenda. Professors for example, deemed impact to be a new requirement in contrast to the 'business as usual' attitude that might be accommodated by those entering academia. Despite the variations in career stage representation in my dataset there are indications that further research taking a broader cross-section of academic career stages may reveal trends concerning the impact agenda. Research into the differing attitudes of varying career academics would illuminate this further.

6.2.4 National context

Findings indicate that the views of academics towards freedom and impact may depend upon their national context. Figure 27 and Figure 28 explore this effect, revealing that, whilst in both countries, around half of participants felt that their academic freedom was not compromised by impact; the principal difference between respondents in the two countries was in the proportion who felt unsure about this question (five participants in Australia, two in the UK). This could be seen to be reflective of a range of factors. For example, Australian impact policy was in its relative infancy at the time of interviewing, both in terms of funding and assessment - as a result, and as we saw in Chapter 5, many Australian interviewees struggled not only with the definition of impact, but also its characterisation. One could also suggest that Australian interviewees who had been EIA case study authors might have been more inclined to favour an impact agenda than those who had not been involved in that process (details of this can be found in Chapter 4). Similarly, the UK participants could be said to be dealing with the impact agenda far more routinely than their Australian counterparts. As a result, they may have adjusted their views of what it means to be an academic within today's context. The definition of academic freedom, and the way in which academics view their sense of public accountability and epistemic responsibility can be seen to potentially influence their views on whether or not freedom is and *should* be compromised. This is explored in the sections that follow.
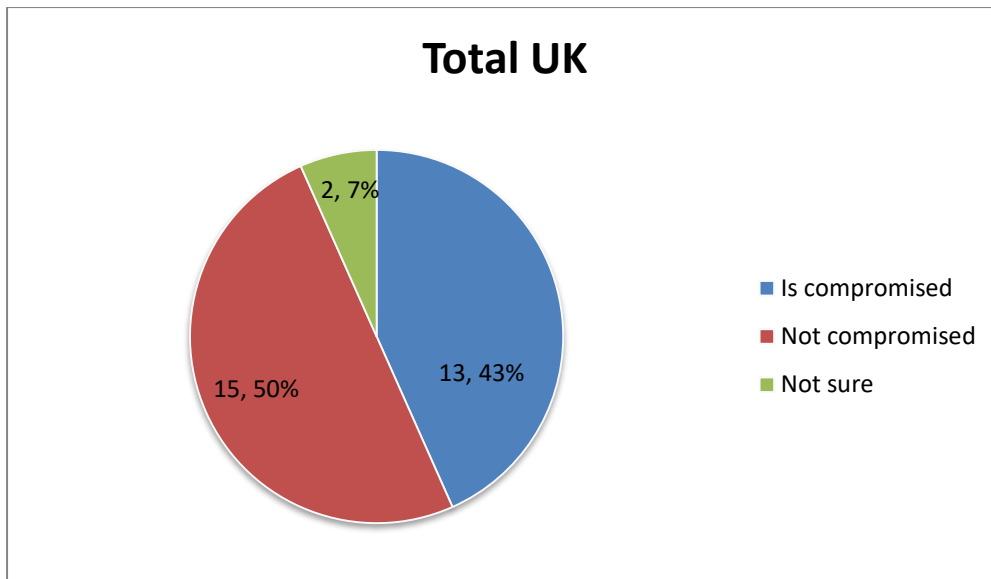
Figure 27: Relation of impact to academic freedom: responses from all interviewees in the UK (n=30).
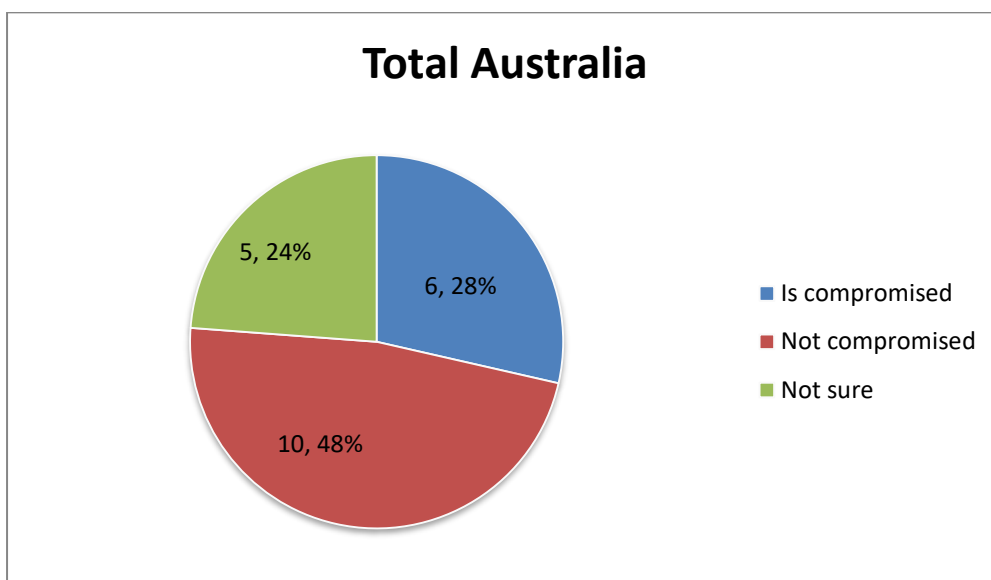
Figure 28: Relation of impact to academic freedom: responses from all interviewees in Australia (n=21).

6.3   Why impact was seen as a threat to academic freedom

When asked to consider whether an impact agenda conflicted with the notion of academic freedom, two key reasons emerged. Firstly, participants perceived the increase in governmental control over research and neoliberalism to be negatively influencing research agendas (6.3.1). Secondly, they felt that impact had the potential to stifle and restrict pure research (6.3.2) and arguably to adversely affect how academics value their own activities and perceive their own identities (Chapter 8).

Impact is unduly restricting my ability to do things.

Music, UK, Professor, Male

Importantly, links were evident between an interviewee's perception of what funders were looking for with respect to impact and their views on issues such as academic freedom. For example, where the impact requirement was interpreted as driving a directive, prescriptive and instrumentalist agenda, interviewees had a tendency to express concern about their academic freedom. In this context, several interviewees described how they viewed the impact agenda as reducing academic control, compromising autonomy as a result of a 'neoliberal' regime. This was particularly the case for interviewees who perceived a need to predict impact a-priori in research grant applications. The following excerpts exemplify that many Australian participants were less clear how to define impact – possibly affecting their views about academic freedom:

It depends what's acceptable. If I'm allowed to say, and it's true that the sorts of symmetrical networks I study, help one to understand the nature of symmetrical networks then and the use of symmetry is really important in searching the internet, but it's not my work that's going to be directly applicable to search engines and Google. But if I'm allowed to say the first things, which is true, that's fine, but I can't say the second one that what I'm working on right now is a bigger better search engine.

Maths, Australia, Professor, Female

If that's the case in the UK then that's really good, you can ask the question honestly, what constitutes impact in an area like arts, if you can ask that question honestly and openly, that's great because that means it's not set, that there's no secret agenda.

Literature, Australia, Professor, Male

Analysis suggests that participants' conceptualisations of impact may shape their response to questions about freedom and autonomy. I now explore the extent to which perceived governmental control of research agendas was seen by my interviewees as a threat to freedom before considering how impact was viewed by some interviewees as a corrupting force, impeding the core values and principles of science.

6.3.1   Governmental control over research

Over two thirds of interviewees described how an impact agenda was "strangulating" research and used words such as "confine", "constrict", "force" and "inhibit" when describing the effects of the agenda on their freedom. This was largely attributed to a perception that government was in control of the research agenda.

You've got to give freedom to researchers.

<div align="right">Chemistry, UK, Senior Lecturer, Male</div>

I understand power; I've never been under any illusion. I do fight for it though. I defend academic freedom. We work for the X, they would tell us to take things out of reports, always have and always will.

<div align="right">Health Science, UK, Professor, Male</div>

A UK biologist remarked that "academic freedom has been eroded" because of government having to assert control over research to justify the use of public funds. He concedes that this is inevitable and claims "I don't think this is happening in a malign way", but others felt differently. A music professor clearly articulated the negative effects on his ability to do research by repeated use of the word 'constrict', and others claimed that such pressure from government was "abhorrent" (Law, Australia, Professor, Female) and "morally incomprehensible" (Chemistry, UK, Professor, Male).

Interviewees who felt their academic freedom was compromised attributed this to a growing "audit culture" and one respondent described the research environment as a "system of micro-management" (Literature, Australia, Professor, Male). Participants with this view perceived this to be happening 'to' them, as opposed to being shaped 'by' and 'with them', (as one might understand the term 'neoliberalism'). Indeed, references to 'neoliberalism', 'capitalism' and 'audit' appeared in several testimonies.

There has been a palpable and total failure of capitalism and the private sector to take on these discoveries and translate them to something new – what has happened is that now the universities are being asked to do this, but wait for it, with less money.

<div align="right">Chemistry, UK, Professor, Male</div>

Several participants referred to the 'Haldane Principle' (1918) first described in Chapter 2, which suggests that researchers ought to dictate how research is funded, not politicians. There was therefore a strong connection made between politics and the impact agenda, for what might be obvious reasons.

The agendas are set, the politics are in motion - the information is just washing over… so what's the role of the academic in society?

<div align="right">Literature, Australia, Professor, Male</div>

A few interviewees referenced the fact that the impact agenda was being developed and shaped by politicians who did not have the expertise to understand the process of research or the needs of a university "the reason we have arrived at this point is the people making the decisions are not scientists" (Chemistry, UK, Professor, Male). Others claimed that having to think about impact reduces the quality of the research, claiming it "encroaches" on what you are trying to do, ultimately driving out good science and driving down quality:

> So if we do what is happening in politics, has happened in politics, is you're looking for short term impact and reward so you're playing a game to get yourself cited as soon as possible and that might not be as deep research as you would be pursuing if you didn't care about this impact.

<div align="right">Education, Australia, Professor, Male</div>

It directly ruins the highbrow thinking that ought to be going on

<div align="right">Law, Australia, Professor Female</div>

Comments about having to keep records to prove impact were made when interviewees described how their freedom was affected by impact. Here, impact was seen to impair autonomy "if anything is impinged upon it's us having to keep records" (Biology, UK, Senior Lecturer, Male, B1). Several interviewees stressed the importance of autonomy and being able to choose their own research direction and how the impact agenda was another policy directive interrupting the process of science:

It could easily be just allowing politics rather than excellence to drive the agenda.

<div align="right">Maths, Australia, Professor, Female</div>

I'm doing shit research because I thought that's what they wanted.

<div align="right">Psychology, UK, Senior Lecturer, Male</div>

Unsurprisingly, most participants talked about how much they valued their freedom. The same participant went on to cite freedom as a motivating factor in choosing a career in academia and that the impact agenda directly challenged that decision "I chose science because of freedom – now I am being asked to re-write my brain" (Psychology, UK, Senior Lecturer, Male). This might indicate that those who value freedom the most could perhaps risk construing the agenda in such a way as to believe they have to alter their research design as indicated above. Another participant warned how increased governmental interference with research challenges the very identity of what it means to be an academic claiming that impact could alter the face of academia altogether: "John Paul Sartre never taught at a university – I think you're going to have more of an intellectual life outside the

university" (Philosophy, Australia, Professor, Male). When asked whether impact would influence research design, one humanities scholar confirmed he would have to rethink his research in order to ensure it had an outcome:

> Absolutely - because I'll need to think about what they want - the end product.

> Literature, Australia, Professor, Male

Despite this kind of testimony, there remains a lack of evidence in the literature to confirm or deny whether impact is unduly influencing research agendas (Holbrook & Frodeman, 2011) and further investigation of this question could be the subject of future research arising from this study. Analysis certainly reveals that there is a clear *perception* among academics that funders favour applied research as a result of the agenda. It is particularly this perception that pervades the discourse with respect to fundamental or theoretical research.

It is important to note that many academics conducting applied research in the life and earth sciences category, the physical sciences and engineering and certain social scientists fully *expected* interference from their funders - comments like the one which follows exemplifies this:

> Maybe academic freedom in the sciences is a bit different to academic freedom in philosophy or politics and I think academic freedom is just as much there as it ever was; there just aren't the people who choose to exploit it quite so much.

> Biology, UK, Senior Lecturer, Male, B1

As highlighted by Figure 35 at Appendix 7, academics from within the life and earth sciences in Australia for example, almost unanimously rejected the claim that their freedom was compromised by having to think about the end result of their research. Largely, this could be because of the nature of their work, but it might also reflect research policy in Australia where there is a less formalised impact agenda:

> In terms of impact, it's always been important for me because I work in applied research so the people that are funding my work are wanting my findings to have some immediate effect on their industry, because either their industry is directly funding it or indirectly funding it. So impact is important in terms of meeting contractual agreements and in terms of how you're perceived and how you might be funded in the future.

> Soil Science, Australia, Research Staff, Female

Participants from the life and earth sciences in the UK held broadly similar views and the idea of academics being responsible to their funders is present amongst other disciplines as well:

> A lot of academics do research that is almost like a contract and we're almost like consultants except maybe we have facilities and consultants do not.

<div align="center">Mechanical Engineering, Australia, Professor, Female</div>

6.3.2 Epistemic responsibility and duty

Freedom was not overly *valued or expected* in all cases by participants. Participants conducting applied work seemed to have a lesser expectation for absolute autonomy and freedom. This sentiment can be seen as one part of the argument for the public accountability of researchers. Many researchers recognise the need to justify spend of public money on research by demonstrating public benefit through non-academic, societal economic or cultural impact:

> Academic freedom *is* compromised and so it *should* be!

<div align="center">Education, UK, Professor, Female</div>

This kind of moral positioning was posited by a number of interviewees when they described the tension between freedom and an impact agenda. Interviewees were asked to consider whether or not 'academics' had a 'duty to communicate their work', which the Royal Society Bodmer Report (1985) endorsed. Figures depicting these findings in charts can be found in Appendix 8 and the analysis is explored in this section.

What emerged was a clear sense that alongside concerns about academic freedom were convictions that over half the total number of respondents (30 of 51) felt that they did have a duty to communicate their work.

> I think you have a duty as an academic to notice that something may be of use and to set in motion a pathway that enables it to be useful.

<div align="center">Physics, UK, Professor, Female</div>

Analysis of the responses to this question suggests that the broad pattern across the two national contexts was similar, with slightly more respondents in the UK (63% or 19 of 30) responding positively than in Australia (52% or 11 of 21). It is important to note that a number of respondents - 8 UK participants (27%) and 9 Australian participants (43%), agreed that they did have a duty to communicate, but provided some degree of caveat to

their response. Some of the reasons given were that the word duty was a bit strong but that there should nevertheless be a level of visibility to research, many preferred 'responsibility':

> Duty is a strong word, but we are publicly-funded and so the public should know what we were doing. Most academics will talk to any one that will listen. I do. You want to enthuse people in your area.

> Electronics, UK, Professor, Male

Others felt that communication was important as long as the time and effort spent was proportionate and it was meaningful to do so "well as far as it is helpful, yes" commented one Australian professor of maths who seemed a little concerned about explaining pure maths to the public. Other caveats included the idea that it should not be the responsibility of every academic, rather it was a broader role of the university, or those more adept at communication:

> I think it's a bit hard to put the duty wholly on the researcher. I think I'd say it was a responsibility rather than a duty. Yes, I think we do have to assume/hope that we can present what we do to the public.

> History, Australia, Professor, Female

> Yes, well as a community we have a duty and so we need people who are able to do it. That doesn't mean we all need to do it.

> Biology, UK, Lecturer, Male, B2

Respondents also remarked that academics 'duties' were no different to any other group of society and that as a community, researchers ought to communicate. From this viewpoint, academics were not seen as a special elite group who had particular moral duty to work in this way:

> I feel that everyone in the world should be devoted to making the world a better place. That's a religious assertion if you wish, or an ethical one, academics are no different, but they have no special duties beyond that. Their duties are the same as everyone else. We should all be citizens.

> Music, UK, Professor, Male

This is not unlike Barnett (2000) who argued that there is nothing specific about academics and an academic career that means they should possess and argue for their own academic freedom. A final caveat was around incentive and training/skill as the following accounts exemplify:

> Yes, we do because we're taking government money. We do have a duty to communicate but we are not rewarded.
>
> Archaeology, Australia, Professor, Female

> Duty? Says who? I think as a basic understanding, of course the work we do in the university is of value, socially and culturally, and the communication may not be good between university and people who benefit from it, so it probably is a good basis, and yet it's something that no academic is trained in.
>
> Gender Studies, Australia, Professor, Female

Across discipline groups, the only evidence of significant disagreement with this statement came from the physical sciences and engineering group, where in both cases a significant minority (two respondents in the UK and one respondent in Australia) stated that they did not feel they had a duty to communicate their work.

> Does anyone have a duty to anything? At present no, because my funding is all from Europe I have a time sheet to say exactly what I've done. I get paid for a number of hours, also the university charges them for the number of hours I've done. There is no overhead for me to do anything else.
>
> Electronics, UK, Research Staff, Female

In both national contexts, half of the academics representing the social sciences stated that they did feel a sense of duty towards communication of their research, with the remainder in each case providing a positive response, but with some degree of caveat. Finally, across both the arts and humanities and life and earth science groups, all respondents agreed that they did have a duty to communicate, articulating varying degrees of caveat to this statement. The strongest positive responses came from the UK-based arts and humanities and the Australian life and earth science groups, where in both cases only one respondent provided some level of caveat to their response.

One could argue that as duty and freedom were discussed in tandem; responsibility could be seen to over-ride or off-set notions or threats to academic freedom for a large section of the interviewees. Charts depicting finding relating to academic freedom can be found in Appendix 7. It appears that when freedom is discussed in the context of an impact agenda, issues concerning accountability in an environment where funds are scarce and competitive affect academics' responses: "I'm still confident in my ability to assert academic freedom, but I am employed and funded by public money. So I am accountable" (Sociology, UK, Professor, Male).

Self-evidently, one might argue that one can possess academic freedom as well as being accountable – a view which corresponds with that expressed by the UK education interviewee above. The relationship between impact and epistemic responsibility as perceived by participants will be examined further in Section 6.4 after exploring how interviewees perceived pure research to be at risk because of an impact agenda.

6.3.3 Impact as a threat to pure research

The second reason why almost half the number of participants felt that the impact agenda had the potential to threaten freedom was the perception that impact reduced the activity of research down to a linear model from idea to outcome, robbing researchers of the freedom to pursue ideas for their own sake. Pure research, 'blue-skies', curiosity-driven or non-instrumental, as opposed to challenge/problem-led or instrumental research was deemed to be at risk. Participants also used the terms fundamental or theoretical research in this context, which were introduced in Chapter 3.

Almost all participants were keen to defend pure research and several described it as "precious". Pure research was deemed by some participants as being of a higher intellectual value than applied research:

> One's best work is not the applied work.

> Sociology, UK, Professor, Male

> The fact that it's close to being application slightly detracts from its academic and intellectual worth.

> Biology, UK, Senior Lecturer, Male, B2

Analysis revealed an accompanying sense from some participants that to apply or use research in a way that was not entirely focused on academic ends was distasteful:

> I've just started working with some statisticians and they would be frankly appalled that their stuff might be useful!

> Mechanical Engineering, Australia, Professor, Female

These comments reflect a certain kind of 'academic snobbery' perceived by some participants, but nevertheless, pure/basic research[19] was held in high esteem and was seen as quite distinct from impact. Regardless of discipline, the majority of participants felt that pure or blue skies research ought to be preserved, for its own sake, instrumentally, for the sake of society and for the careers of the researchers involved:

> I think that the business of academic freedom, there ought to be some sort of protection so that people can question things without losing their jobs.

> Mechanical Engineering, Australia, Professor, Female

The ability (or the 'right', as some expressed it) to question and push scientific boundaries was valued by all participants; several argued that it did not make sense to apply the same criteria for impact across all disciplines - to do so was perceived as "anti-science". Many referenced the history of science when justifying this position. Several pointed out that on-going investment in pure research has led serendipitously to long-term impacts, reflecting the "chaotic path that science takes" (Chemistry, UK, Professor, Male). The following accounts from a sociologist and a historian reflect a level of empathy expressed by the social sciences and the arts - both of whom share a respect for pure research and appear to be trying to contextualise impact:

> If you look at the work of Fleming or the discovery of electricity etc. those scientists, then didn't know the impact yet but they have been fundamental. I don't think that's how science works; usually science finds something puzzling, unresolved. Yesterday they reported results from the Hadron Collider that were predicted mathematically 30 years ago. That's how science works.

> Sociology, UK, Professor, Male

> Lasers are a big example. When lasers were first discovered as far as I can see researchers had no idea that they could be put to any use at all they were just an interesting property of light that could be constructed and now billion dollar impacts all over the place in electronics, medicine, all sorts of fields well if you'd asked what their research impact would be when they were invented, you wouldn't have got a thing.

> History, Australia, Professor, Female

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[19] This includes disciplines in the sciences such as pockets of maths, physics and pockets of the arts and humanities such as philosophy and literature.

A clear theme was that impact should not drive research - instead impact should be a consequence:

> You don't want it driving the research. It should be a consequence of the research; you don't want it to guide it.

<div align="center">Computer Science, UK, Research Staff, Female</div>

The argument that serendipity is vital for research impact dominates public debate (Braben, 2010; Collini, 2011). Impact was described by one participant as a directive attempting to do away with blue skies thinking, tantamount to "scientific blasphemy" (Chemistry, UK, Professor, Male). It was felt that impact would create a reductionist "instrumental culture" of research, favouring empiricism over objectivism. Also, impact was described as "encroaching" (Law, Australia, Professor, Female) on freedom and many warned it would have "grave" consequences for research (Chapter 10). One participant vitally points out how "some of the impact is unsung" and that it was happening anyway without an impact agenda (Health Science, UK, Professor, Male).

In advance of the interviews, the policy on impact with respect to RCUK funding was outlined to interviewees in an information sheet including the fact that the policy states that where no route to impact is perceived, an applicant can simply articulate their reasoning as to why no impact can be foreseen. Some interviewees from theoretical backgrounds claimed they would be too afraid to rule themselves out of having impact in a grant application because funding was so scarce. Instead, where the impact was not obvious several academics intimated that they might feel forced to embellish the claims of potential funding in order to secure professional advantage describing it as "smoke and mirrors" (Music, Australia, Professor, Female) (Chubb & Watermeyer, 2016) (Chapter 8):

> I'd feel that I was reducing my chances of it being funded if I didn't put something in.

<div align="center">Computer Science, UK, Research Staff, Female</div>

Participants described how having to consider impact 'forced' their ideas into more pragmatic or practical moulds, and others - a 'straitjacket' which did not allow for serendipity. Creative, tangential and free-thinking emerged from the data as an important component of research, valued by participants and closely linked to their conceptualisation of academic freedom:

Academic freedom provides a very important role in creating a background for creativity. It (impact) is choking every type of creativity.

Physics, UK, Senior Lecturer, Male

Impact was seen by some participants to narrow and constrict intellectual thinking to that which yielded only instrumental output:

You don't want to stifle their field of thinking – tangential thinking is important, so it is interesting.

Health Science, Australia, Professor, Female

Impact is dampening down creativity.

Literature, UK, Professor, Female

Those who valued creative and free thought tended to describe their motivations for conducting research as a result of being 'curious'. It is perhaps little surprise therefore that curious researchers felt threatened by a directive that directly appeared to challenge this inherent trait. Some also perceived that it might adversely affect research proposal application rates – suggesting that this could demotivate academics when applying for research funds (there is scope for more research into whether this is actually the case):

This is my fear that people will stop trying.

Languages, Australia, Professor, Male

It would be a tragedy if those people who don't fit into this just get cut loose.

Theatre, Film and TV, UK, Professor, Male

Another consequence identified by some participants was that it could have a detrimental effect on the quality of research in the UK or Australia and ultimately its competitiveness on the global stage:

There's a danger that when scientists are made to do things they don't want to do, because of chasing funding, and this is a danger with the REF, that what you get is people doing it for a source of income. The quality of the work goes down.

Archaeology, UK, Professor, Male

I think you will stifle creativity which is going to result in a much smaller scientific base with a very limited training skills subset and I think it doesn't do the country any good…[He goes on] …This is the gravest threat I've ever seen to science in this country. The gravest.

Chemistry, UK, Professor, Male

In the event that research was 'narrowed down' or 'compromised', some interviewees felt that whole disciplines were potentially at risk; "in a way it is undermining the progression of the discipline itself" (Philosophy, Australia, Professor, Male). Several participants referenced the arts and humanities or pure disciplines within the physical sciences when describing such threats – fearing for the survival of these disciplines:

I certainly wouldn't like to see those arts and humanities disciplines shut down, no question about that.

Chemical Engineering, Australia, Professor, Female

Many participants felt that the impact agenda favoured short termism, where research impact implied a linear process of innovation (Chapter 3) resulting in a low level of investment in pure research. Several participants warned of how this would potentially affect researchers, whole disciplines and nations:

Now you have these moments where things are done for expediency sake, but then you regret it. It'll be potentially devastating if this just simply becomes the only show in town.

Music, UK, Professor, Male

I think this is going to result in a much smaller scientific base with a very limited training skills subset and I think it doesn't do the country any good.

Chemistry, UK, Senior Lecturer, Male

Others commented that impact was a passing phase and that for other countries there would likely be similar concerns. Participants with this opinion intimated that this might even affect academic careers and reduce the overall attractiveness of the academic career:

There is a sense that this might drive people out of academia.

Physics, UK, Senior Lecturer, Male

We're already losing many of the best and brightest that would have at one time thought of a career in the humanities, thought of a career in philosophy.

Philosophy, Australia, Professor, Male

In the following section, I explore the responses provided by interviewees who claim that impact is not a threat to academic freedom. I reflect on the testimonies of the majority view of my participants – this suggests the biggest challenge posed by the impact agenda is not necessarily how impact threatens academic freedom in its tradition sense, contrary to what its critics (outlined in Chapter 3) have suggested.

6.4   Why impact was not perceived as a threat to academic freedom

As illustrated in Figure 27 and Figure 28 and summarised in Figure 40 at Appendix 7, a majority view expressed by interviewees was that impact was not viewed as a threat to academic freedom (25 respondents vs. 19 respondents who felt that freedom was compromised). In addition, there were also a small number of academics (7) who said they did not know whether it was or not.

When asked to consider whether the impact agenda compromised their freedom, interviewees drew a conceptual distinction between traditional notions of academic freedom and the impact of their research. Interviewees who did not perceive an inherent threat to their freedom had a tendency to frame their responses by characterising academic freedom as a nostalgic and perhaps outdated concept, or at least one they tried to redefine. In turn, they also characterised their own positions as academics as ones of privilege. Those who held this view perceived impact as a (perhaps) regrettable but necessary 'tax' and articulated a strong sense of responsibility. To be entirely free was by many viewed as a luxury and an unrealistic position, considering the ways in which their research was directly supported by taxpayers' money.

I described how those who most fiercely defended their freedom did so with the view that the impact agenda signalled political overregulation of research, where the principles of science were disrespected. In this section I discuss how this set of academics had a tendency to conceptualise academic freedom as a somewhat nostalgic notion. I then discuss notions of privilege as articulated by the interviewees later in the chapter.

Importantly, a small number of interviewees, particularly from the applied sciences, did not feel they had academic freedom at all:

> Because of the nature of my funding – gone are the days when applied funding bodies give you money and let you go squirrel away in your office.

> Soil Science, Australia, Research Staff, Female

Around half of my interviewees felt that academic freedom is therefore not lost through the experience of an impact agenda. In fact, some interviewees felt that to claim the opposite was a narrow, shallow response to the deeper ethical responsibilities of the academic role: "It's too easy to say academic freedom is compromised" (Mechanical Engineering, Australia, Female, Professor). She goes on:

> Academic freedom is rolled out to excuse all sorts of stuff.

> Mechanical Engineering, Australia, Professor, Female

> Freedom? That's wide open to abuse.

> Maths, Australia, Professor, Female

Conversely, those who felt they possessed academic freedom celebrated and enjoyed it, interestingly both accounts come from the non-sciences:

> I've never been restricted in what I wanted to research – I see it as an opportunity to work in cross-disciplinary teams.

> History, Australia, Professor, Female

> Impact doesn't compromise my intellectual freedom.

> Sociology, UK, Professor, Male

To assume a total attack on freedom as depicted by the critics of impact, perhaps tells a one-sided if not blinkered view. I will now discuss issues concerning the currency of the term 'academic freedom' (6.4.1), and the notions of privilege and accountability (6.4.2). Both these themes provide evidence of the justification given by interviewees for the viewpoint that impact is not at odds with freedom.

6.4.1 Towards a new conceptualisation: nostalgia and academic freedom

The idea that academics are entirely free to do whatever they want, despite being in receipt of public funding, was viewed by many participants as ideological and in some cases even

seen as morally irresponsible. Several interviewees who felt their freedom was not at risk actually dismissed the notion of academic freedom altogether as nostalgic. Absolute academic freedom in its traditional sense, though upheld as a key component of academic life was characterised by a significant number of interviewees as "out-dated", "obsolete", "used and abused", "unrealistic" and "a bit precious":

> There's a Victorian notion of what it means to be an academic and I think we are having our bluff called actually. You can have what freedom you want; you just don't have the freedom to take other people's money to do it. Give us the money and don't impede on my academic freedom - those days have gone.

> Computer Science, UK, Professor, Male

Described by several interviewees as an old fashioned concept, when asked whether impact impeded freedom the response came; "to me that's a 19th Century response" (Law, Australia, Professor, Female). Others expressed similar attitudes where the words 'old' and 'historic' were repeatedly used:

> I think it's a red herring. Someone invented that concept a long time ago … You're dreaming if you think you can do as you want once you've attended your lectures in this day and age. The tax payer pays your salary. I'm not sure it's realistic to have old style academia like Greek thinkers.

> Chemical Engineering, Australia, Professor, Female

Some participants cited today's hyper-competitive research environment when explaining why they felt that to possess total academic freedom might be unrealistic:

> Because we're not one magic repository of competing universities, we're funded to do research in different things and if those things flourish there's more funding for us to support them.

> Engineering, Australia, Professor, Male, E1

> The world is different to how it was in the 60s and 70s when I suppose academic freedom was at its highest when people liked to knock things off pedestals, I don't think people have such a need now.

> Biology, UK, Senior Lecturer, Male, B2

Interviewees also offered dispassionate views on academic freedom and impact. Some suggested that accepting some level of accountability and restriction on freedom was simply an economic reality, affecting research culture more generally rather than personally:

> Depends if getting money belongs to freedom – so I've got academic freedom to do what I want to do but it's difficult to get the money to get other people to do it too, so I can ride my hobby horse as much as I like I just can't necessarily get post docs and students to share it with.

> Maths, UK, Senior Lecturer, Male

Broader concerns about the effects of hyper competitiveness in research funding were reflected in many accounts in which several academics claimed that bigger threats included RCUK thematic-led funding and other pressures such as research quality assessment (UK REF), teaching standards and expectations:

> You can't teach what you want, there are syllabuses/standards. That stopped total freedom of teaching, and it's the same with research. Researchers have to fit in. So this is all a bigger effect on academic freedom than writing an impact statement.

> Electronics, UK, Professor, Male

Perhaps those who did not perceive impact as a threat to their freedom had more of a 'flexian' (Smith, 2012) attitude towards impact. That is to say, many of this set of interviewees appeared to acknowledge the economic reality facing the sector. For those interviewees, this was accompanied by a sense of responsibility to ensure that whatever freedoms they had were not abused or taken lightly. This relates to the theme of privilege.

6.4.2 Privilege vs. accountability

The reasons why academics did not feel their personal academic freedom was compromised by the impact agenda largely related to the fact that the majority perceived a sense of duty and responsibility in justifying the use of public funding.

Indeed, there were several occurrences of the word "protected", "privileged" and "lucky" when describing the academic role. This indicates that the concept of total academic freedom, though highly valued and desired in order to preserve certain types of research, was also recognised as somewhat of a "luxury". To speak therefore of academic freedom as a right above all other moral imperatives was seen by some participants to assume total unaccountability and autonomy outside of moral constructs.

The issue of privilege emerged as prevalent in higher education - compared to many sectors where there was perceived to be far less autonomy; "I think we are in an incredibly privileged position" (Mechanical Engineering, Australia, Professor, Female).

> After all it's a privilege to come to university - we are privileged, we are using tax payer's money.

<div align="right">

Engineering, Australia, Professor, Male, E1

</div>

Several participants linked a sense of moral responsibility with their freedom suggesting they were not mutually exclusive:

> You're paid very well to have this indulgence so why shouldn't you have to justify that?

<div align="right">

Agriculture, Australia, Professor, Male, A1

</div>

> If you think you can just do research on the thing that interests you without having to explain it someone then go for it, but do it in your garage in your spare time!

<div align="right">

Engineering, Australia, Professor, Male, E2

</div>

Academic freedom was in many cases upheld alongside notions of accountability by participants, in this instance by a social scientist and summarised to follow:

> I've got amazing freedom. To me pitching impact is a worthwhile thing to do and that isn't going to cramp your style or academic freedom - to me it's a reasonable relationship - if someone gives you money, you actually tell them how you spent it.

<div align="right">

Social Policy, UK, Lecturer, Male

</div>

Overall, interviewees who perceived that impact was not a threat to freedom also described a deep moral sense of accountability which counteracted any grave concerns for the loss of freedom. This is not to say that only those who held this viewpoint felt accountable; clearly the two are not mutually exclusive. However, an undercurrent of apathy and in some cases defensiveness indicates that whilst many acknowledge the need to sacrifice elements of their academic freedom, some do so with a heavy heart, in particular those whose research is more theoretical. Perhaps the concerns about freedom articulated by academics occupying those disciplines represent a frustration that the type of research they do means that their route to impact is less clear, rather than being reflective of a lack of moral imperative on their part to sacrifice their freedom. Underpinning this are different academic identities - many accounts resonate with the notion of academic capitalism, whilst others perceive tension and feel they have to make a compromise. I explore the perceived effects on academic identity in Chapter 8.

6.5 Summary

Contrary to the debate generated by impact critics outlined in the introductory chapters, analysis indicates that participants claim resistance is, but cannot be wholly attributed to, a threat to freedom. Several participants considered impact to be less of an overall threat to freedom than some other pressures, such as initiatives for assessing research quality (REF/ERA) and thematic funding initiatives, to name a few examples.

Impact can be seen to challenge participants within certain disciplines slightly more than those in other discipline groups, noted by their proximity to application. For example, participants that represent the arts and humanities, theoretical physical sciences and maths appeared to make more reference to governmental interference as something which was unwelcome and challenging to autonomy. In line with the arguments rehearsed in public debate, impact is seen to impair and impede the possibility of academic freedom, threatening theoretical or blue-skies thinking.

Analysis indicates that 19 of 51 interviewees perceived their academic freedom to be in some way compromised by the impact agenda, whilst almost half (25) reported that it was not at threat from the impact agenda. A very small minority (7) remained ambivalent or unsure towards any connection between freedom and impact.

Participants tended towards arguments of public accountability in their responses to questions about their freedom and the issue as to whether total freedom could be justified in today's hyper competitive research funding environment revealed a tension from a community largely morally invested and in touch with their sense of epistemic responsibility.

Over half the number of total interviewees felt that they had a duty to communicate their work but provided some level of caveat. Importantly, I distinguish that a duty to communicate to the public is not the same as the conceptualisation of an impact agenda introduced in this thesis; rather it is the vehicle by which one might achieve impact. Notwithstanding, it does help to provide some indication about the level of accountability felt by participants and responses show that impact is heavily associated with a moral code or responsibility - if not of individuals, then of 'the university' as a whole. This reinforces the idea that interviewees are concerned with the preservation of the notion that the university is a public good, and suggests that compliance with so-called neo-liberal regimes is not a favoured position. That all of my interviewees were experienced in grant writing and many had authored 'pathways to impact' or impact statements, may provide a justification for a pre-disposition to comply with funding bodies. A larger sample without these conditions might indicate variation in further research.

The notion of privilege combined with responsibility appears to counterbalance the opposing view that freedom is at risk for my participants. These findings can be said to be linked to how impact and freedom are conceptualised (Chapter 5). For instance, interviewees' reactions towards impact as a threat to freedom appear to be in some ways linked to how they conceptualised academic freedom, impact and the discipline they belonged to. When an academic's conceptualisation of impact was that funders were asking for a-priori predictions of impact, they would likely go on to describe that this had the potential to interrupt their autonomy and freedom. If, however an academic perceived the agenda as preserving a space for pure research, they tended towards saying that their freedom was not threatened. For those reliant on grant funding, academic freedom in the traditional sense did not appear to be an *expectation*.

Many participants claimed they had a moral imperative to justify the use of public funding. This perhaps signals that although impact might interfere with freedom, moral accountability may take preference to a defence of freedom. Indeed, academic freedom might encompass moral accountability, rather than be usurped by it.

These findings demonstrate that the picture is more complex than to suggest that all academics feel compromised by the impact agenda. Indeed, over half of the overall number of participants reflected positive attitudes towards impact as something that one *ought* to try to achieve. Here, the two concepts; academic freedom and impact remain intertwined, but for those whose freedom was not perceived to be at risk, a strong theme concerning responsibility runs through the majority of these responses. This finding will be explored further in subsequent chapters.

If impact is seen to impede academic freedom, then my participants appear to perceive this to be a necessary sacrifice in order to maintain their moral obligations to the public (Chapter 8). The next chapter considers the theme of instrumentalism and how participants conceived of the value of their knowledge within this context.

7   Instrumentalism and the value of knowledge

"There is more social pressure to compel a man to live in a way that his neighbours think useful."

Russell, 1996, p.20

7.1   Introduction

The impact agenda is often referred to as synonymous with a utilitarian, instrumentalised conception of research favouring knowledge that leads to a distinct outcome of direct causal utility to society and the economy. As a consequence, academics who struggle to align their work with an instrumental outcome could be seen to be disadvantaged in the context of a heavily marketised and increasingly hyper-competitive funding environment. This is amplified by the displacement of alternative and perhaps richer educational ideals eroded by market-driven education discussed in previous chapters (Smith, 2012). We have seen in Chapters 3, 5 and 6 how those critical of the impact agenda have argued that such a fixation on utility can lead to an unduly narrow conception of knowledge. This is particularly threatening for non-instrumental research where the utility of the knowledge produced may be indirect, yet arguably still *very useful* and worthwhile (Russell, 1996, p. 18). I consider how interviewees associated the discourse of impact with questions about the value of knowledge (epistemic value) and its purpose or utility (Dewey, 1939; Joas, 2000). The idea of knowledge as having intrinsic or instrumental value is long-standing and a defence for 'useless knowledge' (knowledge without an obvious instrumental outcome), is made by many interviewees in the accounts that follow.

This chapter seeks to explore these themes and their connection further by elucidating the responses of my interviewees towards a long standing yet timely philosophical discourse detailed in Section 3.4. I explore how interviewees exercise their thoughts on whether knowledge should be of direct use to society or whether one can justify its use or '*telos'* for its own sake as the Ancient Greek thinkers once argued (Aristotle, 1976). In addition, I consider participant views on whether the knowledge regimes set by governments render defence of intrinsic epistemic value an increasingly impossible and ideological position, or indeed, whether there is a middle ground.

In this chapter, I will introduce the discourse of utility as one linked to the politicisation of knowledge policies (Section 7.2) alongside notions of private and public good as described by my participants (Section 7.2.1), followed by providing an exploration of the concept of the 'ivory tower' (Section 7.2.2) and the implications that the impact agenda is seen to have for

non-instrumental types of knowledge (Section 7.2.3). I will then explore how interviewees appeared to link instrumentalism to notions concerning the value of knowledge in Section 7.3 and consider the perspectives of my interviewees towards the utility of knowledge. The chapter is summarised in Section 7.4. This chapter foreshadows what is to come in Chapter 8 in which I investigate the implications for academic behaviour, integrity and practice (Kinser, 1998) in Section 8.2 and ultimately, how academic personhood and identity is affected through an exploration of the emotional reaction to an impact agenda (Section 8.3). Disciplinary differences are then explored in Chapter 9.

7.2   A quest for utility

Most interviewees remarked that the impact agenda was the result of the emergence of an increased market–logic in research (Etzkowitz & Leydesdorff, 2000; Marginson & Considine, 2000; Palfreyman & Tapper, 2014; Tapper & Salter, 2004). Characterised by one participant as a "symptom of the times" (Literature, Australia, Male, Professor), I coded repeated references to 'utility' in the academic testimonies including words such as 'use', 'usefulness', 'useless' and 'application', 'end', 'results', 'outcome' and 'product' when analysing the interviews. The prevalence of these terms arguably signals a shift away from the traditional focus on the intrinsic and implicit value of knowledge for its own sake towards a view that knowledge must yield something more tangible and explicitly instrumental - implying that the impact agenda is associated with utility by many participants (Chapter 5). Amidst overt characterisations of utility, it seems unsurprising that disciplines more naturally attuned to instrumental research (for example, health and engineering) would fear an impact agenda far less than those operating in less instrumental research areas (for example, theoretical research: aspects of mathematics and philosophy). Just because subsets of interviewees were united in their contextual framing of an impact agenda by discipline however is not to say that they were unanimously in support of it. As we have seen and will continue to discuss, attitudes towards the impact agenda from this set of interviewees appear largely defined by their disciplinary background as well as their personal disposition towards impact (Chapter 8).

Notwithstanding, many participants referred to impact as a political trend, part of the zeitgeist and the latest attempt from policy makers to get better visibility on research and a greater (economic) return - the near neoliberal accounts of those interviewees who appeared to accommodate the impact agenda as an economic reality appeared less conflicted by the agenda. Taken together, these appear to imply that there is some resistance but that there is an attempt to abstain from actively resisting the agenda. Concomitantly, a significant proportion of interviewees referred to an instrumentalised research culture with moral

concern in negative accounts because they felt the impact agenda signalled some kind of assault on the fundamental notion of universities further discussed in (7.2.1). However, irrespective of their feelings towards it, the majority of interviewees generally acknowledged that impact was yet another strain on universities. Here the strain may be both practical insofar as universities have less resources and freedom (arguably) to deliver impact, and/or moral, in that impact can be seen to interfere with core values/ideas of academic integrity (Chubb & Watermeyer, 2016) (Chapters 5 and 8). Although negative accounts were particularly predominant from disciplines less 'instrumental' in nature, managerialism in universities was articulated by interviewees as an omnipresent burden and concern – where impact was seen as symptomatic of an entrenchment of an instrumental research culture valuing economic return, leading to the commodification of knowledge (Naidoo, 2003; Oancea, Florez-Petour & Atkinson, 2015)

Indicative of an alleged shift in universities, interviewees referred to the infrastructure of universities and the added layers of power and hierarchy in their management structures. Here, participants referred to how the management teams at universities and their administrators give rise to a sense of separation between the university (management and administration) and the academics 'tribes' (Becher & Trowler, 2001). For many participants, management increasingly resemble what Macfarlane (2011) referred to as 'para-academics' – or rather, non-academics whose role it is to broker and develop the academic or research role, as opposed to carrying out research and teaching themselves. Many interviewees referred to 'management' or 'the university' as though it was an entirely separate, perhaps even alien entity to the academics. At least three participants for example, likened the university to an Orwellian dystopia (Orwell, 1990), where freedom was diminished and the 'doublespeak of the administrators' and the 'Thought Police' controlled and stifled autonomy (Chapters 6 and 8).

The interviews revealed how an increased focus on impact in universities brings into question broader concerns about its role in society for some participants. Such questions initially point us to a broader and long-standing debate in defence of the idea of the university as a public good, which is how many interviewees subsequently framed their accounts when describing their issues with impact. I will discuss this now in Section (7.2.1). Having examined the link made by academics between the impact agenda and the university as a public or private good, I will then explore how this was seen to relate to another concept of the university as an 'Ivory Tower' (7.2.2) before relating these ideas back to what the interviewees reveal about academics' perceptions of the value of knowledge (7.3) before summarising in Section (7.4).

7.2.1 The role of the university: private vs. public good

As I outlined in Chapters 1 and 2, it was common for participants to refer to broader issues facing universities when asked to describe their experiences of the impact agenda. Many interviewees related their feelings to the idea of the university as a private or public good. Echoing contemporary discourse concerning academic capitalism (Rhoades & Torres, 2006; Slaughter & Rhoades, 2004, p.15), interviewees described the university environment as heavily marketised, and referred to the rhetoric of 'new managerialism' where the university was a private good (Deem et al., 2008, Olsson & Peters, 2005; Peck & Tickhill, 2002). The impact agenda was closely associated with the focus on outputs and measurability and this was repeatedly raised by interviewees, symptomatic of market logic:

> It's part of a gigantic system and audit culture which is auditing you at every point whether it's your number of teaching hours or your grant application numbers or whether you're going to get promoted or how many student evaluations are required for your teaching portfolio and so on, so in that sense the pressure on academics is quite strong.

> Literature, Australia, Professor, Male

Analysis of the interviews revealed consistent use of a certain kind of language characteristic of a 'managed', 'entrepreneurial' university: "we are going to have to operate much more as a business and have a business focus" (Computer Science, UK, Professor, Male). This was reflected in the ways interviewees described the fiscal rationalisation and metrification of universities (Chubb & Watermeyer, 2016) through references to 'student numbers', 'consumers', 'rankings', 'citations', 'metrics', 'money' and 'fee-paying'. Accompanied by terms such as 'employability', 'economics', 'bureaucracy', 'capitalise', 'demonstrate', 'measurable', 'assessment', 'enterprise' and 'audit-culture', reminiscent of the ways in which academic capitalism (the involvement in market-like behaviours) has been characterised in the literature (Shore & Wright, 1999) - this use of language reveals an implicit (and in some cases explicit) capitalistic undertone to the interviews, exemplified by the following accounts:

> The sector is driven more towards 'user pay' and 'market driven' type of operation.

> Engineering, Australia, Professor, Male, E1

> There is a push to make us businesses - to bring in money whichever way.

> Education, Australia, Professor, Male

At times, the university was described by participants mechanistically as 'a machine' a 'business', or 'giant system' and subject to external 'drivers' and 'external control'. In the

case of this sample, my participants worked in research-intensive universities - the tone of a large number of interviews was one in which respondents were defensive of the notion of universities as a place of education not exclusively enterprise and many expressed an inherent frustration that this was not 'valued' or did not 'count' as impact. The last UK REF for instance explicitly excluded impact on teaching thus ruling out the huge impact HE has on its students and graduates, and ultimately the economy and society:

> It is taken for granted that we teach our students but most of our impact I think is exactly there.

> Languages, Australia, Professor, Male

Many claimed that their idea of a university is quite distinct from the business and private world and for many describing it as a business was not comfortable. In some cases this related to the personalities of those interviewed, for others, their research orientation:

> I prefer academics to be further away from business.

> Computer Science, UK, Professor, Female

> There's a danger, we don't want to be too entrepreneurial.

> Economics, UK, Professor, Male

Participants who talked about public good described the modern university as being far away from their conception of its traditional purpose; this was in turn described as somehow running counter to the process of science. Thus, some interviewees referred to pressures on HE as 'anti-science', fuelling 'anti-intellectualism':

> This over-management by government, over-regulation, is very anti-science; it's not compatible with the principles of science or the philosophy of science.

> Engineering, Australia, Professor, Male, E1

This illustrates a specific form of criticism of managerialism, which is the idea that one cannot effectively manage something if one is not fully conversant or an expert in it (Deem et al., 2008). Interviewees had a tendency to associate the idea of a public good with intrinsic epistemic value. Here, both having knowledge and the cultural practices through which one comes to gain knowledge were viewed as vital for culture, society and democracy by some participants:

> It gives one the wherewithal to live a certain kind of life - it has to do with relationships, it has to do with going to the movies and having something interesting to say, it has to do with reading books – these are important things, it has to do with the fundamentals of democratic citizenship.

> Philosophy, Australia, Professor, Male

I will discuss the ways in which participants described an instrumentalised culture of research in Section (7.2.3), but it is clear that the connection between kinds of research activities and their proximity to application emerges as a key theme. In addition, many interviewees argued that certain 'types' of impact *ought* to be acknowledged as equally valid or valuable. For instance; economic impact ought not to be seen as being in some way more valuable than cultural impact (this relates to the previous discussion in Chapter 5 and in Chapter 9). Notwithstanding, analysis suggests that the impact agenda appears to highlight the dichotomies which still exist not only between disciplines but also between types of research and types of impact. Indeed, a large proportion of interviewees from the Australian case commented on the fact that they saw their university as favouring and nurturing 'blue skies' research and theoretical work. Many referenced the fact that if an impact agenda was to emerge in Australia as it has in the UK (indeed it has since the interviews in 2013), that there would be a culture shift for those whose applied work had not been deemed as valuable as 'discovery':

> This university values discovery over everything else.

> Chemical Engineering, Australia, Professor, Female

For instance, even if research does not have impact, one could argue that discoveries and breakthroughs in research can be seen to have a certain kind of PR value for the university itself. The majority of life and earth scientists interviewed in Australia also welcomed the potential that their 'applied' work, once viewed as 'second class' or 'pedestrian research', would potentially be better appreciated by the university. Notwithstanding, the drivers perceived by applied scientists in Australia were nevertheless those which favoured discovery. This is perhaps reflective of the traditions associated with the Australian institution investigated in this study and also the political mechanisms by which ARC funding was at the time governed. For example, at the time of interviewing, the ARC had a competitive 'discovery grants' scheme for more theoretical work, and a 'linkage scheme' for collaborative work, outlined in Chapter 2. For many applied researchers, the 'drivers' in Australian universities were at odds with applied research. It is perhaps no surprise then that the applied researchers interviewed might welcome an impact agenda, as this account from an academic who had previously worked in industry shows:

I had to rethink, but because my interest is in putting food on a plate somewhere, and I've stuck with that and I've done my pubs, grads and grants [publications, graduates and grants] and I continue to help people to produce food. So there was an immediate having to shift gear in order to change to the drivers that bring in the money to the university. And I had to think ok, I've got to play the game, new rules but I better learn them.

Agriculture, Australia, Professor, Male, A1

Perhaps unsurprisingly given the nature of the institutions involved in this study (both research intensive universities), interviewees appeared to feel strongly that in conjunction with the idea of universities as a public good they *ought* still to be held accountable. For instance, in almost all the interviews the words '*justify*' and *'ought'* appear in the context of academics expressing that they perceive an increased pressure to justify the worth and articulate the value of what they do.

For many, despite a variation of views towards impact, the opportunity to discuss the impact agenda appeared to be welcomed as a way to bring the notion of the university as a public good back into the discourse. This was particularly the case for humanities researchers, but also reflected in the views of those representing the sciences, although expressed through a different rhetoric (Oancea, Florez-Petour & Atkinson, 2015; Belfiore & Bennett, 2010). Here, scientists tended to associate the purpose of knowledge as that which contributes to the knowledge economy, technological innovation and progress rather than use the words 'public good'. Nevertheless, the language across the interviewees referenced very clearly the existential nature and purpose of universities and their workers.

Importantly, interviewees simultaneously acknowledged that the role of the university and of academics was to generate, where possible knowledge which could benefit the whole of society not just academia. It was clear from the length of the interviews (interviewees were given between 30 and 60 minutes and almost all ran to 60 and above), that my participants welcomed the opportunity to openly describe their working environment – where the impact agenda was a large component.

Impact was associated with the idea of the university as a private good by several participants. This was seen to go against the core tradition that knowledge is a public good – necessary for democracy (Dewey,1916). The majority of accounts particularly from academics in the arts and pure sciences described how one cannot commodify or financially rationalise knowledge. Many made this argument for political and philosophical reasons:

> There is an anti-neoliberal value that the humanities still stand for that you cannot monetize … [he goes on]

> The only thing that matters is useful knowledge which is what we're going through at the moment, so making the case for the humanities is, you know, a kind of lifestyle choice - so what's the dollar value of poetry, that's the topic.

<div align="right">Literature, Australia, Professor, Male</div>

Here again, we see the ideals of academic life and the realities of politics juxtaposed with moral accountability. The concept of the university as a public good was accompanied by repeated reference in interviewee accounts to the concept of 'ivory towerism'. Specifically, participants were united in associating the impact agenda with the debate about academics who are simply tucked away in their 'quiet enclaves' (Bok, 1984), unanswerable to the rest of the world. The majority revoked the currency of this concept however, referring to it as outdated.

7.2.2 The ivory tower

Interviewees associated the concept of impact as challenging ivory towerism (introduced in Chapter 3). The impact agenda is seen to provoke academics to 'leave their ivory towers', which are traditionally associated with their 'comfort zones' (Zook, 2015) and to engage with the public. The impact agenda undoubtedly provokes dialogue with the 'outside world' which is inherently at odds with a traditional concept of an academic in an ivory tower (Etzkowitz, Webster, Gebhardt & Terra, 2000). For those who maintain that academics have a special right to be separate and distinct from the rest of the world and defend ivory towerism, the impact agenda is problematic. For instance, Oakeshott's defence (1972) of educational institutions as places whose purpose is to 'release' students from the 'surrounding world' rather than draw them deeper into a reclusive world provides a further perspective. However, defence of the ivory tower concept was scarcely seen during the interviews, and where it was present it was often accompanied with a sense of irony or even humour. An overriding sense of epistemic and pragmatic responsibility appeared to dominate interviewee responses who saw the academic role as just as accountable as any other sector:

> Name me a single job in the whole world where you can sit in your little tower and write and not get fired for not doing what you're told. I don't think so.

<div align="right">Law, Australia, Professor, Female</div>

The idea that academics exist in ivory towers was the less dominant perspective revealed throughout the interviews. Indeed, the majority of interviewees felt that the idea of an ivory tower was an unhelpful and outdated notion. However, participants who did not feel

comfortable engaging with non-academics referred to being in an ivory tower on occasion as their reason for not doing so. That is not to say that interviewees indicated that they wanted to work in an isolated environment, but it was, for some daunting to do otherwise. Running directly concurrent with this however was a strong sense of accountability expressed in the testimony of participants – that if research is publicly-funded, it is morally compromising not to share and communicate it. The concept was therefore closely linked to accountability – evident by the repeated use of the word 'justify' or 'justification' when discussing the notion.

I will explore the defence of an ivory tower notion in academia made (albeit) by the minority of my interviewees and attempt to elucidate some of the rationale behind this, before exploring the opposing view that the ivory tower is unhelpful, possibly outdated, and to some, offensive. The ivory tower concept reflected the speaker's relationship with users of their research. That is to say, most associated it with a lack of dialogue between the researcher and society.

Several participants offered the phrase 'ivory tower' to describe their environment and used it as justification for their reluctance (or perceived inability) to engage with the outside world. Participants used the term with some candidness and maintained that it made it hard to communicate their research. Others associated the ivory tower notion with types of knowledge (for example, theoretical/non-instrumental knowledge) – (of course the limitations might also lie with the government advisors, not necessarily the academics):

> I live in a rarefied ivory tower and I would find it difficult to speak to senior government advisors.

> Archaeology, UK, Professor, Male

> I think it has its role, I think this is really interesting in terms of impact that I think you need people who are thinking interesting theoretical ideas that may appear to have no impact but eventually will change the field or change the world whatever. I'm kind of sceptical about all this impact stuff.

> Computer Science, UK, Professor, Female

Indeed, even though those conducting less impact-oriented research denied ivory towerism, many had concerns that the kinds of impact they could generate would be perceived as inaccessible because of the nature of the knowledge they create:

There are contributions that you can't see as impact. I feel like I've been engaged with it all along, but if I'm told I'm not demonstrating how my research has transformed others directly in a big way, then what have I been doing? Here I am thinking I don't inhabit an ivory tower and that there was relevance. The things I do are not about generating more wealth.

Theatre, Film and TV, UK, Professor, Male

The ivory tower was also referenced by less instrumental researchers. The majority of participants referred to it as unwelcome – emblematic of an unhelpful divide between academics and the public. Here, the ivory tower was perceived by some participants as a public perception of academia rather than something invented by academics. With respect to the former, some participants suggested that the ivory tower concept was used in the main by the public to justify their reticence to find out more about universities - whereas for others, it was suggested that it was a term used by the academics themselves to excuse their lack of willingness/ability to engage with the public. Indeed, for many it associated with a sense of privilege or diminished sense of public accountability. One respondent described how the notion of an ivory tower is seen to increase the division between the public and universities, and was imposed by the public who choose to associate academics as separate from society:

Don't start me on the ivory tower theory! No do start me! Yes that is a word often used. The strange thing is that it's often used in a kind of out of context that implies that academics are not human. They're disembodied robots. Just because they work at a university they don't have lives, they don't have families, and they don't have to earn a living or pay their mortgages… Thousands of people flock on to campus and see what we're doing, but if you don't take that opportunity and then you grumble about ivory towers, I'm sorry I have no sympathy.

History, Australia, Professor, Female

In addition to the apparent association with the type of research being conducted, the defence of an ivory tower could be said to relate to the researcher themselves. Many participants described how certain types of researchers might also possess attributes of being 'an ivory tower-type' of person. The attributes of this kind of researcher might imply solitude, introversion, distance from application, and an old-fashioned silo mentality not seen as conducive to a collaboration-friendly, outward facing impact agenda. Sometimes however, one could argue that that might be exactly what research needs at certain stages – when one is conducting data analysis, for example. The problem perhaps develops if academics spend all of their time alone. One participant described how her own preferences were to work collaboratively "I really enjoy working with groups of people", but she felt that this was at odds with the 'old guard' of academics:

> He's the kind of old style academic in that he largely worked by himself with a few people that he knew.

<div align="right">Computer Science, UK, Professor, Female</div>

Ivory towerism perhaps depicts a type of academic – in some cases this could also be seen to relate to an academic's career background. For example, applied researchers and participants who had come from industry appeared to make less reference to an ivory tower than those who were 'thoroughbred' academics, whose entire career had been in academia. As this account exemplifies:

> Reality is most of us are brought up entirely in the university sector and we have a very academic perspective on the world and can be accused of being somewhat insular.

<div align="right">Chemistry, UK, Professor, Male</div>

This kind of discourse suggests a certain conception of what it is to be an academic and perhaps explains why it exists as a notion. The most prominent discourse noted during the interviews however was that ivory towerism was an excuse <u>not</u> to engage with the public and thereby an impact agenda. Interviewees instead appeared to be largely offended by the notion and felt it was an unproductive, ignorant or idealistic position, referring to those who subscribed to these notions as 'old school' or part of the 'old guard'. This suggests that ivory towerism is still a discourse that exists about universities, but generationally this may be changing and is associated to some extent with an emerging impact agenda which might require a more pragmatic and realistic viewpoint. This account makes this point:

> I hate it when people talk about the ivory tower, or say this is useless. That displays ignorance of their importance of expansive thinking to the general cultural wellbeing. It isn't all about money, or about markets etc. It's about being realistic…

<div align="right">Theatre, Film and TV, UK, Professor, Male</div>

> I think it's not always going to work but nor is hiding yourself away in an ivory tower.

<div align="right">Health Science, Australia, Professor, Female</div>

Finally, ivory towerism was closely associated by many participants with the notion of epistemic responsibility, duty and accountability (Chapter 6). The concept was simply not tolerated as appropriate in the contemporary political research environment by many interviewees and instead notions of public accountability and responsibility appeared to override any sense of privilege or expectation for absolute freedom or seclusion away from

the rest of the world. However, it may be that seclusion is a necessary condition of certain forms of academic work and the idea of absolute freedom was not a condition expected by the majority of interviewees. Regardless of many of the interviewees' feelings towards impact, many associated ivory towerism as unfeasible and morally at odds with epistemic responsibility:

> As an academic you're not very keen on it because you think, I just want to be doing research. But as a tax payer and someone who's putting money into this thing, I think there should be some visibility about what you're doing. Otherwise everybody is in an ivory tower doing this research and someone living in XX a few miles away, doesn't have a clue what's going on! There should be some visibility!

> Computer Science, UK, Research Staff, Female

> If there is some sense of duty or responsibility to not be totally content with the ivory tower - that people have that ethic of being an academic, then I think you can encourage people to think a different way about impact.

> Politics, UK, Professor, Male

Once more, moral accountability and visibility of research emerges through the interviewees as an overriding force with respect to an impact agenda. Participants strongly felt that those who were in receipt of public funding ought to be accountable. A sense of academic entitlement or licence was therefore less commonly referenced within this set of interviewees:

> We don't operate in a vacuum – we are paid for by our own or other people's money.

> Biology, UK, Senior Lecturer, Male, B2

> I think it would be extremely arrogant of the physics community to say well, we're just going to work on astronomy and particle physics, both of those are extremely high profile bits of physics and that's all we're going to do, I think that would be very arrogant, extremely selfish and I think the public purse would have a right to say I don't think that's right.

> Physics, UK, Senior Lecturer, Male

However, as we have seen, the question of where that line of accountability is drawn created tensions for several interviewees. One might ask if the line is to be drawn at certain types of research, or certain projects, or whether one must contemplate a broader conceptualisation of visibility and accountability? Again, I revisit how it is perhaps the agenda itself and its prescriptive, instrumentalist approach to research (tying outcomes to singular projects) that is the cause of the tension. Indeed, one might question whether accountability sits not only

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with the academics, but with those who set the agenda as well. I will now focus on the ways in which interviewees described their views on how the impact agenda affected instrumental and non-instrumental knowledge in order to further explore this tension.

7.2.3   Instrumental vs. non-instrumental knowledge

The impact agenda was perceived by most participants as emblematic of a shift towards a more instrumental culture of research and a marketised HE system. This was made evident in both the language they used (as described earlier in this chapter) and the associations they made when articulating these tensions. Somewhat unsurprisingly, interviewees predominantly from less instrumental fields described this shift with more fear and trepidation than those whose work was more readily attuned to utility.

All interviewees perceived pure research to be at risk if instrumentalism led to reductionist funding favouring only applied research. Chapters 2, 3 and 5 explored how the type of research conducted (pure or applied) might influence attitudes towards an impact agenda and these distinctions remain pertinent to the subject of this chapter. Self-evidently, concerns about the ways research is used by communities outside of academia will inevitably create suspicions that what is more *valuable* is that which can yield tangible results. Assuming that to be the case, interviewees whose research's utility was less tangible, appeared to become increasingly uncomfortable with an impact agenda because they felt that the value of their work could not be captured in the current impact discourse.

An emerging theme from the accounts provided by interviewees was that the hyper-competitiveness of the research funding environment favoured less theoretical research, that research was being reduced in relation to its usefulness and that almost the very meaning of knowledge is threatened and redefined by the impact agenda:

> There's no great value in anything except instrumental knowledge.

> Literature, Australia, Professor, Male

> As soon as you cut that off by making everything instrumental you would not make those developments. The key scientific breakthroughs have been speculative. We don't want to destroy that.

> Health Science, UK, Professor, Male

Interviewees particularly from non-instrumental research areas including the majority of academics from the arts and humanities subjects such as literature, music, performance, philosophy, history and English and the theoretical sciences including pure chemistry,

physics and maths for example, felt the need to attempt to legitimise and defend what they were doing in light of the impact agenda.

Interviewees appeared to self-select which 'type' or 'mode' of research/knowledge they conducted (Chapter 5 and Chapter 9, Figure 31: Notional diagrammatic representation) Participants used particular terminology to categorise the kind of research they were doing and in doing so, its utility. For example, most researchers were conversant with the types or modes of research such as 'pure' research and 'applied', none surprisingly referred to strategic or use-inspired research. In Chapter 5 I described how researchers had a tendency towards associating the impact agenda with the latter (applied research). I also described how several participants in conjunction with these labels, referred to their work as soft or hard and the frequency of the words 'use', 'useful' and 'end result'.

> It forces people to think as they're writing the proposal. They are forced to think, well, what is the end result of this?

> Computer Science, UK, Professor, Female

> There is more pressure to have more output.

> Physics, UK, Senior Lecturer, Male

However, the latter may imply that it is important to find ways to make it *look* as if one has or will have impact (Chapter 8); notwithstanding, there was a preoccupation with ends rather than means. Indeed the 'means' discussed in the following chapter may suffer as a result. There appeared to be a flow of connected associations made by most participants with the paradigms 'pure' and 'applied', relevant to the discussion about instrumentalism in research which resulted in questions about the value of certain disciplines.

> It will produce a much more instrumental culture, now maybe that's the aim – is to produce more, to get research that is applied, rather than philosophers just to sit there, which is what they do saying 'I think' – that's what I do, I think.

> Literature, Australia, Professor, Male

The issues came for academics whose research was non-instrumental in having to make judgements and predictions *a priori* and having to measure and pin down a tangible, demonstrable effect or change. Participants explained that having to pre-determine outcomes was too 'prescriptive'. In particular, though not exclusively, these comments came from the arts and humanities participants, the non-instrumental researchers in the sciences, and those in the instrumental sciences when referring to the humanities. Participants from

the humanities felt that to instrumentalise knowledge ran counter to the process of research in many ways:

> The impact agenda is very hard for humanities, it has to grow out of research, yet it pulls us away from research.

> Literature, UK, Professor, Female

> Research is part of a cumulative process that leads to outcomes that wouldn't have materialised had that process not been there. The idea that you can make a utilitarian connection between A and B, that's difficult. It is about the wider conversation and it is about seeing scholarship as a community.

> Theatre, Film and TV, UK, Professor, Male

Oancea (2013) claims that impact in the humanities is cumulative and "slow-burning" in nature, "essential to long term, conceptual, cultural and discursive changes" and that the humanities view "engagement with the public as a core rationale for work in the arts and humanities." Oancea (2013) goes on to report that "the problem relates not with the hypothetical idea of impact as describing public good, but the notion underpinning current frameworks" (p.248). These findings appear in part similar to the concerns expressed by the participants in this study. One UK participant explained:

> … People are delighted to be asked onto 'Start the Week' there's no problem if someone wants to hear about one's research I'll talk about it. The bad thing is trying to measure it. This distorts it.

> Philosophy, UK, Professor, Male

Non-instrumental researchers appeared resigned to the idea that an impact agenda was only concerned with 'useful knowledge'. Some were concerned that there was a lack of public support for the humanities, as this account shows:

> At the moment in Australia it's the idea of what's practical, that's what's at work at the moment, because there's a sense, rightly or wrongly, that at the moment you can only have new knowledge or certain kinds of knowledge if you can report. The only thing that matters is useful knowledge, which is what we're going through at the moment.

> Literature, Australia, Professor, Male

One UK participant claimed that when considering the value of arts and humanities research (Benneworth, 2015) it was important to honour what was valuable for its own sake and to respect differences:

> See that what people do is valuable and make decisions about that. It may be that sometimes it's more valuable than others, it's then about building on the value that's there and it's about getting people to see that there are opportunities to promote themselves as outwardly focused, as engaged and to do that more. To see where possible that it's there already and it's about enhancing what's there rather than inventing new things, which will confuse or demoralise people. Some people won't see this.

Theatre, Film and TV, UK, Professor, Male

Both perhaps suggest that the UK and Australia are moving away from the 'intellectual' to the 'practical'. The difficulties perceived in demonstrating impact in scientific terms as quantifiable/demonstrable pervaded the discourse particularly during the Australian interviews. Participants claimed therefore that an impact agenda was "unhelpful, unwelcome and frustrating" (Literature, UK, Professor, Female), because they felt that the impact of the arts is hard to measure and justify or quantify: "the difficulty is in demonstrating impact" (History, Australia, Professor, Female). One participant felt that if there is a need to respond to the impact agenda by considering economic benefit alone then they would be "a bit stuffed! - don't underestimate it!" (Languages, Australia, Professor, Male). An academic from the sciences describes her interpretation of having to predict impacts in advance of conducting research:

> I don't think you can necessarily predict where the impacts will come from but I think you actually have to look for them.

Biology, UK, Senior Lecturer, Female

Here, she makes a distinction, showing alertness and sensitivity to impact possibilities as opposed to making a promise to predict where impact will occur (Chapter 8). Referring to the impact agenda as tantamount to scientific reductionism, a UK physical scientist who was deeply critical of the agenda, referred to it using this arresting phrase: "suicide beyond compare" – where he felt that the drive was to reduce and prescribe research only to its outcomes. This sentiment was echoed by a social scientist that similarly referred to their impact work as 'analytically reduced' because impact partners were involved in yielding an end result. He claims like many others, that the requirement for impact could reduce the quality of research: "we would have worked harder on a basic piece of research" (Sociology, UK, Professor, Male). The consequences that this agenda might have for the quality of research are discussed in Section 7.3 and in Chapters 9 and 10. Notwithstanding, if an instrumental culture of research is generated through an impact agenda as suggested by participants, one could argue that it could be seen to deepen a divide between 'types of research'. So too, conversely, it could also present an opportunity for academics from both

sides to work together for greater impact through incremental pathways to impact (Chapter 9). Figure 29 depicts the extreme delineations of knowledge types and the associations drawn by participants.
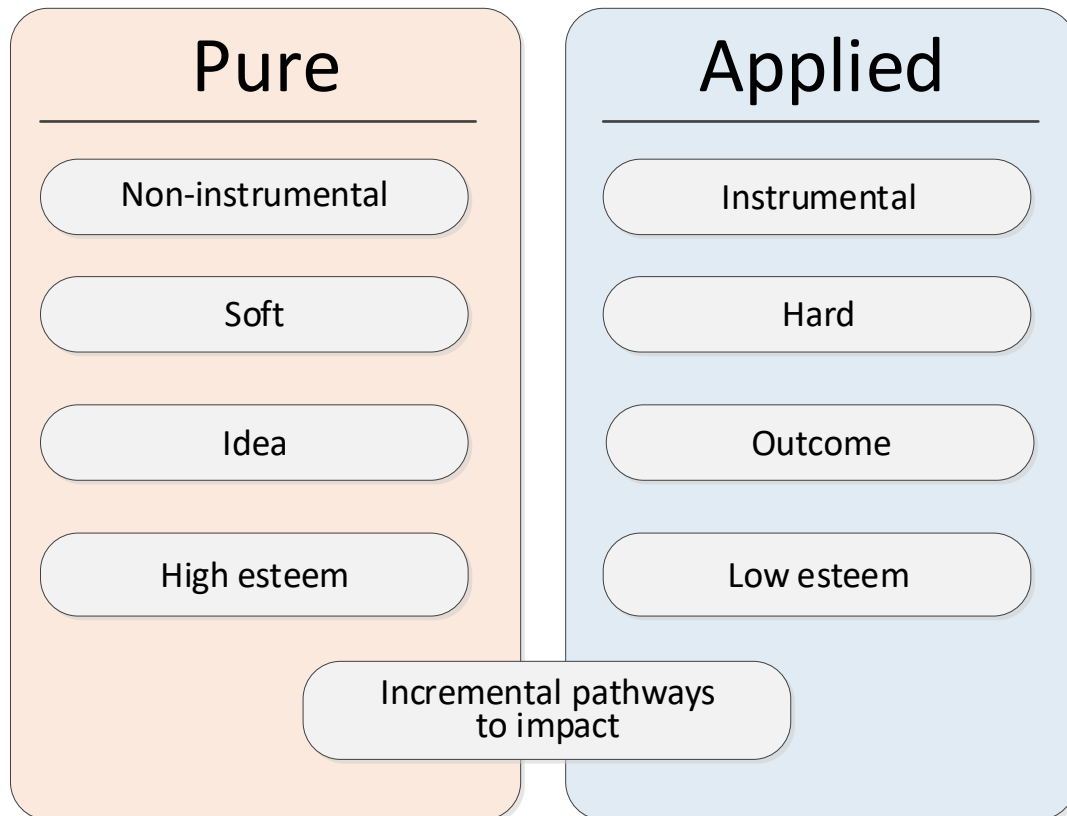
Figure 29: Attitudes towards types of research and their utility

These broad associations may indicate why so many participants struggled with the concept of justifying the value of what they do when faced with the impact agenda - if impact was to imply utility, does seeing no obvious impact imply a lack of utility? If research is seen as lacking in utility, what is its actual value and how/can that be demonstrated?

Inevitably, such questions ultimately led many non-instrumental researchers to internalise this agenda themselves, causing them to question their *own* value or identity. I will now explore how instrumentalism creates questions concerning the value of types of knowledge, particularly referring to the views of those carrying out non-instrumental research search as the arts and humanities and theoretical sciences before discussing the implications this has for the researcher themselves with respect to their identity and integrity (Chapter 8).

7.3 The value of knowledge

> This agenda reinforces the notion that the only valuable thing in life is money. That is deeply worrying.

<div align="center">Theatre, Film and TV, UK, Professor, Male</div>

A resounding concern for over half of the participants, particularly non-instrumental researchers from the arts and humanities and theoretical sciences, was that if impact implies utility and disciplines are assumed to be without obvious utility then the value of their endeavours will inevitably be called into question. Most researchers see an inherent value in their work:

> What's the value of doing it? Oh just because it needs done. The mountain is there so I shall climb it.

<div align="center">Mechanical Engineering, Australia, Professor, Female</div>

> This is part of the problem right with academic research in general – people do it because they are interested, not because they are looking for the next cure!

<div align="center">Biology, UK, Senior Lecturer, Male, B2</div>

Pertinent to this theme we find participants struggling to define their value in light of 'impact' and again, we see hints of what Watermeyer (2012) referred to as the "inescapability of academic capitalism" (p.373). Perhaps, however, it is a relative necessity to consider this 'inescapability'. One participant actually stated that they felt that there was an ethical duty to consider how else public money might be spent, claiming that spend on the arts and humanities was more useful and ethical:

> When I hear some of the extreme rhetoric against funding the humanities, it's always, 'why should public money be spent on this useless stuff?', and I think, why are you so happy for public money to be spent on creating big profits for private industries?

<div align="center">Literature, Australia, Professor, Male</div>

Impact was the cause of great concern for many participants who felt they had to justify the value of what they do in order to continue doing it – an issue long-standing within the cultures of the arts which has long had to defend its intrinsic value. Many participants expressed concern that the impact agenda encouraged only the development of instrumental knowledge and leapt to the defence of more diffuse, less tangible impacts arising from equally valid and valuable research such as that which enriches society culturally:

Look you can't just have a world in which all funding is going to (as important as it is to set up a research for a burn victim or for children who have cancer) those are very important things but we live in a society where other kinds of things are important too and recognise those things for what they are – history, literature, philosophy, the humanities it all addresses a way of, it gives one the wherewithal to live a certain kind of life.

Philosophy, Australia, Professor, Male

It was interesting to note the prominence of the word 'value' and the perception that academics need to 'sell' their research during the interviews. This perhaps reflects the assumption that non-instrumental researchers perceive impact as something that might be associated with the economic, and that cultural value is perhaps an outcome held in lower esteem. It is little surprise that in particular arts and humanities participants were quick to defend their disciplines in this way - this is not a new area of discussion but points to a re-enactment of longer standing concerns about the value of certain disciplines and the potential divides this might create between the disciplines or at least types of research.

There was a recurrent observation that non-instrumental researchers felt the need to defend the nuanced forms of impact and appeared to be unsure as to what constituted 'enough'. One participant anxiously asked "does that count?" – suggesting that she was unsure about the place and value of her professional activities (Literature, UK, Professor, Female). Such questions imply that non-instrumental researchers feel they have a subtle, deeper effect on society and the economy than can be described in the current terms of an impact agenda where what counts is only what can be counted (Wells & Whitworth, 2007):

It's that expansive thing that education has, that pure research has too. The pleasure for people doing academic jobs rather than going into industry with our skills is that ability to do blue sky stuff.

Theatre, Film and TV, UK, Professor, Male

This left a resounding level of despair for many participants carrying out non-instrumental research who felt that within the context of this agenda 'nothing worked', exemplified below. The effects of which are explored in the following Chapter 8.

There is no possible response, nothing works, and that's the issue – so how do you work the issue when they (government) don't believe in the idea of knowledge in some fundamental ways. It's just about what's applicable.

Literature, Australia, Professor, Male

7.4 Summary

This chapter reveals that the changing state of HE, evolving knowledge regimes and the perceptions of an instrumentalised research culture are felt very strongly by this set of academics in both contexts. Effects were felt across all disciplines, although this was to some extent dependent upon whether their research was considered by participants as 'pure' or 'applied'. In particular, the arts and humanities participants engaged most heavily with this discourse. For the majority of interviewees, challenges were felt personally and reflect the views of academics struggling to conform to a system many philosophically perceive themselves to be at odds with. Indeed, the tone of the language used by a large number of interviewees to describe the research environment in both contexts reflects concerns that academic capitalism, whilst characteristic of the culture in HE, is not entirely pervasive.

As we saw in Chapter 5, more interviewees tended to assume that intrinsic epistemic value is in some way better, or more 'valuable' than that which yields instrumental value. Here, instrumental value is seen as associated with applied research and was revealed as having negative connotations. Interviewees who perceived this to be the case viewed utility and application as a lesser pursuit personally and philosophically. Ironically in today's university environment instrumental research is deemed to be of more value politically, economically and publicly in the context of the defence of the value of HE. It is important however to appreciate the deeper underpinnings of what is at work here, the effect this has on academic practice itself, and how this resonates with social theories about knowledge and value in the field where pure is valuable and applied knowledge is vulgar or tainted (Bourdieu, 1998). In addition, the fact that instrumentalism is often associated with 'positivism' and deductive reasoning plays into debates about the value of certain 'types of research' and the respectability or esteem attached to those endeavours (discussed in Chapters 3, 5 and 6).

In addition to these fundamental concerns relating to value, I outlined how participants whose research naturally combines utility often appear less conflicted in terms of their academic freedom. For this group, the value of what they do is more commonly implicitly connected to the knowledge they seek and produce, and as such this forms the basis of their motivation for seeking that knowledge in the first place. For those participants who carried out non-instrumental research (or whose work was more theoretical, pure or 'blue skies' orientated), having to consider the ways in which their work will have utility outside of what they deem to be inherently useful, was seen to create tension (Watermeyer, 2014). It may even be at odds with their initial motivations for doing research, resulting in any rationalisations of knowledge under these constraints being experienced as compromising

integrity, academic virtue (Nixon, 2008) and identity (Chubb & Watermeyer, 2016). Indeed, a further dimension is the struggle to consider ways in which academic work can be *obviously* useful. In fact, many impacts have arisen serendipitously from research which had no such immediate obvious impact orientation.

Participants seemed to welcome the opportunity to reflect on the value of the work they do in the context of today's HE system. This could be seen in many ways as a natural response to an impoverished discourse where meaningful aspects of academic labour and life might normally be restricted in terms of being able to openly and discursively talk about epistemic value (Battaly, 2013). The alleged instrumentalisation of knowledge, seen as a direct consequence of its politicisation emerged as inextricably linked to notions of epistemic value for a number of interviewees and was a dominant theme of discussion across interviewees when reflecting on the value of their work.

As was revealed in Chapter 5, the attitudes of interviewees tended to be split according to the type of research that was being conducted. Participants from the life, earth and applied sciences appear to have gained a currency for the work they do; a new value is perceived in utility quite apart from the old ideologies of what is traditionally valued by the academy. It also appears that my participants characterised and associated the impact agenda with utility, provoking a concern across academics about whether knowledge with little or no tangible, explicit and direct impact on society can be seen as useless. This inference is similar to the media backlash from those academics who found themselves having to defend their work despite its obvious value (academic or cultural) and is reflected in the frustrated and anxious accounts of many of my participants who reject the instrumentalisation of knowledge.

It is therefore important that attention is paid to the natural synergies and associations made by participants, which in some cases appear to revisit deeply entrenched philosophies of science and traditional arguments and theories of knowledge. In addition, concerns about the value of certain kinds of impacts emerge in this chapter, specifically some participants fear that knowledge is only valuable if it delivers economic benefit or national security, for instance. This implies that there is still more work to be done to encourage and foster support for different types of impact domains. The emotional reactions to the impact agenda and implications for academic practice are discussed in detail in Chapter 8.

In addition, analysis revealed that interviewees perceived there to be a close relationship between epistemic value and the notion of utility. In particular, this was made apparent by the defensive position adopted by many academics whose work did not naturally align to an impact agenda, where the impact of their work would be more composite. Awareness

amongst academics that the university environment is becoming more entrepreneurial through its management structures and staff was also apparent. This appears to undermine and threaten certain participants and their ideals about what it means to be an academic, reminiscent of previous chapters and entrenched ideas about academic 'tribes' (Chapter 9).

The alleged instrumentalisation of research was seen to destabilise and threaten 'blue skies' research, something which was deemed to be 'precious' and intrinsically valuable by many participants. Here, we see enlightenment norms playing out in the attitudes of these academics, some of whom argued that certain types of research ought to be preserved, valued and respected regardless of political demands, reflecting a defence of academic ideals. There is however a clear sense that whilst many participants and their institutions appear to value discovery, interviewees in this sample accord with the idea of accountability and responsibility in research. The accounts of interviewees also convey a deep sense that the political demands of governments in both the UK and Australian contexts act to destabilise notions of autonomy and freedom in academia, in practice and in principle. Despite these misgivings, the research also revealed a community with a strong moral sense of responsibility to contribute towards society.

Related to this, participants were united in their association of the notion of the ivory tower with the impact agenda. This concept, on the whole rejected as outdated, was seen to work against academics developing a meaningful relationship with the public and society, which hindered an impact agenda. Defence of the ivory tower was limited, but where it was seen as valid it was because it was perceived as enabling a divide between the public and academics either to further the idea of academics as an elite group (more prevalent a perspective of pure or non-instrumental researchers) or to provide excuse as to why academics might not engage with society, possibly masking their personal reasons for not doing so.

An ivory tower notion appears to still exist but is dampened, if not nearly stamped out, by an overriding sense of moral accountability across participants. These findings provoke questions about how certain kinds of knowledge can be sustained under neoliberal knowledge regimes. Indeed, a shift from the intellectual to what is practical emerges as an increasing trend for both national contexts and there are signs that we are perhaps seeing a re-emergence of 'anti-intellectualism'. Here, the differentiation of social, cultural and economic capital and its relationship to education can be seen as pivotal to our understanding of why anti-intellectualism persists (Savage, 2015).

I argue that through an impact agenda we see a re-enactment of traditional epistemological debate about the nature and purpose of knowledge. The impact agenda unearths moral

questions about epistemic value and the interviews reveal a curious tension between this ideal standard where intrinsic value is defended, and the moral imperative that knowledge *ought* to be useful – both deeply entrenched positions which at first appear at odds and dichotomous but which must be reconciled in order to respond to the impact agenda. I argue that these positions are dependent upon personal and disciplinary differences, explored in Chapter 9, and that these differences have strong implications for the behaviours of academics (Chapter 8).

What these accounts appear to share is a concern about measurement and the ability to demonstrate impact. This agenda can be seen to promote the commodification of knowledge, and a '*what counts is what can be counted'* mentality. This potentially brings us back to what Watermeyer (2012) referred to as the "inescapability of academic capitalism" (p.373). If indeed such a culture exists, it will self-evidently create challenges and problems for the practice and behaviours of those who attempt to conform to it. Policy that pays little heed to these assumptions will perhaps fail to convince those who must respond to it.

I therefore now turn my attention to the effects of the impact agenda with respect to scholarly integrity and identity in order to highlight these effects, before discussing the relationship between impact and the disciplines in Chapter 9.

8 Integrity and affect: implications for the academic role

"Virtue is twofold, intellectual and moral"

Aristotle, The Nicomachean Ethics, 1976

8.1 Introduction

This chapter focuses on the ways in which interviewees described the moral and personal consequences of the impact agenda in the UK and Australia and the potential implications for the academic role. Central to it are two main themes: integrity (Section 8.2) and affect/emotion (Section 8.3). Firstly, I consider the accounts of participants which imply that impact can be seen to be affecting scholarly integrity (by which I mean possessing of good character traits such as those outlined by UUK in the Concordat to Support Research Integrity, 2012) including honesty, transparency, rigour and respect. I may also refer to these as 'virtues' as outlined by Nixon (2008) and Battaly (2013). I begin by exploring the idea that the integrity and moral virtues of academics may be under threat from the impact agenda. I then consider how impact was seen to incite emotion across my participants. Integrity and emotion, which may be inextricably linked, promote discussion about how morality and emotion shape academics' reactions towards the impact agenda. Notwithstanding, it may be that emotions are rooted in the moral positions asserted by many interviewees.

In order to understand why and how these themes relate to impact, I firstly explore them as separate concerns in Sections 8.2 and 8.3 before considering how the conflicting moral imperatives of integrity and responsibility might prompt a reconceptualization of the 'academic role', summarised in Section 8.4.

8.2 Integrity

Analysis indicates that many participants admit that they themselves or their fellow researchers risk having to embellish the impact of their research in order to compete for depleting governmental research funds. Several participants also suggest that this may result in game-playing within academia, at least for researchers for whom there seems to be no immediate or obvious route to impact from their research. As previously indicated in Chapter 6, this results in tension for a community that has a strong sense of responsibility associated with their academic role, to contribute and 'make a difference' where appropriate (Chubb & Watermeyer, 2016; Lucas, 2006). Indeed, it appears the broader burdens of academic labour (such as the REF/ERA) also contribute towards the academic response to this directive as a whole.

In Section (8.2.1) I describe how the consideration of impact *a priori* in funding applications appears problematic for a majority of interviewees, specifically those who perceive impact to be far removed from their research. I then describe how this can be said to culminate in what Chubb and Watermeyer (2016) refer to as 'impact sensationalism' (p.5) in (Section 8.2.2), before discussing how this is rationalised by interviewees as a means to end, despite concerns about game-playing and lost integrity. Here, conformism appears unavoidable in order to survive the systemic and localised causes of impact sensationalism. I summarise these findings in (Section 8.2.4).

8.2.1 The creation of impact narratives: a-priori predictions

Analysis indicates that the requirement to consider impact in research funding applications can create moral tensions for academics whose research does not have immediately obvious potential for impact. Several interviewees claimed that it was perhaps necessary to embellish claims of future impact or even lie in order to stand a chance of winning funding if the immediate impact of their research was not straightforwardly identifiable. Table 4 outlines both the identified systemic and localised causes for this drawn inductively from the data.

Systemic	Localised
Hyper-competition	Susceptibility to impact inflation
Uncertainty of evaluative value	Separation of impact from research
Academic capitalism	Weakness in signposting causality

Table 4: Causes of impact sensationalism (Chubb & Watermeyer, 2016. p.5)

Considering hyper-competition as a systemic cause, a large proportion of interviewees, particularly (though not exclusively) from disciplines of a more theoretical orientation, expressed concern that they were being "forced" to exaggerate the claims of prospective research impact for the purpose of securing competitive funding:

> People try to bend so they can get money, but it certainly influences what research is actually done because of course it's the funded research that gets done.

> Maths, UK, Senior Lecturer, Male

The requirement to make causal links between research and impacts and to show attribution created concern for some interviewees, creating instead often disconnected or inflated narratives in order to convince funders of the value of their work. This was a concern about

impact with respect to both funding and assessment and as such the uncertainty of evaluative value is considered a further systemic cause:

> Trying to force people to tell a causal story is really tight, it's going to restrict impact to narrow immediate stuff, rather than the big stuff, and force people to be dishonest.

> Economics, UK, Professor, Male

Many interviewees felt that having to build impact into funding proposals *a priori* was bound to involve some level of aspiration or embellishment. Interviewees reported difficulty in describing *a priori* impact because many claimed it was not always possible to 'predict'. This concern, well documented in the literature, accounts considerably for why there has been so much academic resistance towards impact, particularly from 'non-instrumental' research areas (Braben et al., 2009; Cuthill et al., 2014):

> It is impossible to predict the outcome of a scientific piece of work and no matter what framework it is that you want to apply it will be artificial and come out with the wrong answer because if you try to predict things you are on a hiding to nothing.

> Chemistry, UK, Professor, Male

The consideration of impact as a precursor to carrying out research was reported as 'dumb' and 'illogical' by some interviewees, even joked about by some. Many commented that the whole concept was designed by policymakers who do not understand the research process and do not have the requisite credentials or understanding of science/research to be directing research policy:

> I don't know what you're supposed to say, something like I'm Columbus, I'm going to discover the West Indies?!

> Finance, Australia, Professor, Male

For the majority of interviewees, particularly from less instrumental research areas, a pre-determined question of impact was seen as nonsensical. Conversely, impact was very much core to the research practices of some interviewees and, as such, did not pose the same issues - this was made apparent by comments such as "I've always been interested in doing work that I feel is significant in a way and has some genuine outcomes" (Philosophy, Australia, Professor, Male). These kinds of accounts were more common across environmental, health and social research where interviewees appeared to be implicitly motivated to make a difference and produce a useful outcome from their research:

> Everything I do I do it because it might make a difference to children's health and wellbeing so…

> Health Science, Australia, Professor, Female

> Research without the impact is not really research.

> Engineering, Australia, Professor, Male, E2

Also in contrast to some of the systemic causes listed in Table 4, applied researchers particularly noted their dependence upon industry funding where impact was a contractual requirement:

> In terms of impact, it's always been important for me because I work in applied research, so the people that are funding my work are wanting my findings to have some immediate effect on their industry, because either their industry is directly funding it, or indirectly funding it. So, impact is important in terms of meeting contractual agreements, but it's also important in terms of how you're perceived and how you might be funded in the future.

> Soil Science, Australia, Research Staff, Female

More 'applied' researchers in particular, had a tendency to reference the difficulties that their peers in non-applied subjects would be likely to have with respect to the notion of impact, and identified that integrity could well be at risk as a result:

> I don't blame the basic scientists... because then it becomes a word game, of them trying to justify impact that is going to be so fantasy driven, and it's just a little silly to do that.

> Education, UK, Professor, Female

Here, almost all participants expressed the view that research policy ought to preserve a space for blue skies and theoretical research, many referring to impact policy as 'unfair' and calling for 'balance' about the way impact policy was weighted across disciplines in funding applications (the implications for research policy are explored in Chapter 10 and Chapter 9 discusses discipline differences). However, with the exception of those carrying out applied research, almost all interviewees felt that where the impact was not immediately obvious (Chubb & Watermeyer, 2016b), the integrity of the author would be at risk. This account however shows the extent to which virtue and integrity are seen to be threatened by directives such as the impact agenda:

> It's really virtually impossible to write an [Australian Research Council] grant now without lying and this is the kind of issue that they should be looking at.
>
> Philosophy, Australia, Professor, Male

Importantly, interviewees were often quick to assume that funders require evidence of *actual impact* rather than the incremental contribution made by the planned research. As we have seen in Chapters 3 and 5, RCUK for example, emphasise that they require only the potential contribution of impact of a project as opposed to the actual impact (which REF emphasises). One might characterise this logic as constructing a straw man, in that this appears to be a misrepresented or at least misunderstood interpretation of research impact policy. However, the counter-position provided by some of the interviewees was that being directly asked to explain who will benefit from the research and how they will benefit amounts to the same thing as being asked to predict the actual impact.

Impact was nevertheless seen to conflict with the integrity of the scientific process itself particularly that of blue skies and pure research. It was suggested that unrealistic claims were made in order to preserve theoretical research: "if I want to do basic science, I have to tell you lies" (Chemistry, UK, Professor, Male), a concern echoed by a humanities professor in Australia who claimed that when writing a proposal "you're made to lie in all kinds of ways" (Philosophy, Australia, Professor, Male). This relates back to Chapter 7 and the epistemic value rationales provided by interviewees and the notion of research as 'precious' and personal (to be explored later in this chapter in Section 8.3).

Concerns regarding prerequisite questions of impact were echoed by an Australian mathematician who revealed that whilst they might have a problem in mind they wished to solve, they were in fact "several steps removed from it". Indeed, as I outline in Section 8.3, this kind of perceived short termism associated with the impact agenda created a level of anxiety in researchers: "I don't know how we'd do it in pure maths" (Maths, Australia, Professor, Female). One UK participant expressed a similar concern over his perceived inability to respond to funder requirements. He suggested that it would not be easy for them to think about impact by virtue of the nature of their work "because we don't believe that the contact is so close that it's even a good idea to start thinking about it" (Maths, UK, Senior Lecturer, Male). Another interviewee despairingly suggested that they could write "nebulous statements" but that this would just be "going through the motions" and was not backed up by anything credible (Psychology, UK, Senior Lecturer, Male). In fact, as indicated in Chapter 5, many interviewees expressed that they were not clear about what was being asked of them, as such their impression of the impact agenda was that it was meaningless

and absurd. Given this level of uncertainty, it is not entirely surprising that academics admitted to sensationalising their impact, further explored in the following section.

> I don't know what this agenda is. It varies. Maybe it's easy for people who do applied research, but I'm trying to find out how the brain works, and it's so hard to know what the impact is. I feel it's an absurd question to ask.

> Psychology, UK, Senior Lecturer, Male

8.2.2 Impact sensationalism

Words such as lying, lies, stories, disguise, hoodwink, game - playing, distorting, fear, distrust, over- engineering, flower-up, bull-dust, disconnected, narrowing and the recurrence of the word 'problem' (including different synonyms) characterised participants' perceptions and experiences of writing about future impact imaginings for the purposes of funding. Some concern was felt therefore about the challenges this might potentially pose for academic integrity and truthfulness (Chubb & Watermeyer, 2016. p.6).

> Let me tell you, we've moved a long way from it (integrity). You can't, it's virtually impossible to write one of these grants and be fully frank and honest in what it is you're writing about.

> Philosophy, Australia, Professor, Male

The majority of interviewees seemed unperturbed by the idea of having to exaggerate in a funding proposal: "I finally got the feedback and they said something about the impact statement being a bit exaggerated" (Biology, UK, Senior Lecturer, Male, B2). Many interviewees expressed that they did not expect impact statements to be truthful or valid "I don't know how genuine they are when they are writing them" (Environment, UK, Senior Lecturer, Male, E2). This appears to be an issue at the level of peer-review – indeed, similar concerns were raised by one participant who suggested that a pathway to impact would likely either be ignored or exaggerated:

> The two things I see, one; the people who ignore this and just talk about how their stuff is going to influence their colleagues, and then there are the ones that write something that I don't believe!

> Languages, UK, Senior Lecturer, Female

Some accounts reflect the personal experiences of interviewees who have had to write an impact statement, whereas others referred to the practices of others as seen through the lens of peer review. This account, indicative of the latter, exemplifies how academics are not

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only felt to be embellishing in their applications, but that it is often difficult to assess the appropriateness of another academic's route to impact:

> Now with permanent self-justification you get a very messy picture and people start to come up with things and you think can you be sure about that? They come up with things that they probably don't mean, and even if you say this will show up, I don't know exactly whether this is true but even if it is true, I think it is not necessarily good!

Physics, UK, Senior Lecturer, Male

Described as "virtually meaningless" and "made-up stories" (Philosophy, Australia, Professor, Male) at its most extreme, the requirement to predict or foresee impact for the purposes of winning funding was described by several interviewees as being "pretty desperate" (Literature, UK, Professor, Female) because many interviewees perceived they had to make very tangible and firm claims based on future projections in order to justify their work. Several interviewees described the risk of being asked to write impact narratives as this might lead to the depiction of "falsehoods" and "untruths". Future imaginings of impact were characterised as 'charades' and 'illusions'; "It's taking away from the absolute truth about what should be done" (Chemistry, UK, Professor, Male). The embellishment of impact narratives was justified by the hyper-competitive nature of research funding; the UK Chemistry professor goes on: "would I believe it? No, would it help me get the money – yes".

Additionally, as indicated in Table 4, many academics drew a distinction between research and impact in which impact was 'separate' from research. In doing so, some interviewees suggested that a deviation from normal moral standards with regards to impact was distinct from scholarly integrity itself. This potentially indicates that researchers are therefore less concerned with having to create stories or embellish in grant applications, because impact isn't even perceived as part of research. Perhaps, one can therefore argue that because of this distinction, fundamental academic integrity is not at risk from the impact agenda. The following account exemplifies the localised cause of the separation of impact from research:

> It's interesting because I think of it as two quite separate things and I think there's integrity in the research that you're doing and then to what extent do you feel that the pathways to impact is really part of that research or is it something separate.

Computer Science, UK, Professor, Female

In some cases, impact activities were tokenistic because impact appeared to run counter to the personal values of interviewees. This was seen to ultimately threaten the integrity of the research:

> Then I've got this bit that's tacked on… That might be sexy enough to get funded but I don't believe in my heart that there's any correlation whatsoever, that's not the way languages work. There's a risk that you end up tacking bits on for fear of the agenda and expectations when it's not really where your heart is and so the project probably won't be as strong.

<div align="right">Languages, Australia, Professor, Male</div>

Several interviewees expressed sadness at this acknowledgement; explaining that they had no problem with disseminating to wider audiences, in fact, many enjoyed doing so, but that it was the way in which 'impact' was perceived of and evaluated by funders that raised concern.

> It's unwelcome because it's measuring and distorting things that people were happy to do. Like public engagement, most people felt they had an obligation to that sort of thing.

<div align="right">Philosophy, UK, Professor, Male</div>

A less extreme diagnosis of what happens when academics write Pathways to Impact is that they are not lying to get grants, just telling 'good stories':

> I'm thinking in the arts and even pure maths. Although they can probably just spin some yarn! – Not in terms of telling lies, they're telling a good story as to how this might fit into the bigger picture. That's what I'm talking about. It might require a bit of imagination; it's not telling lies. It's just maybe being imaginative.

<div align="right">Soil Science, Australia, Research Staff, Female</div>

The notion of 'spinning some yarn' was echoed by another participant whose view was that any embellishment was not tantamount to lying, rather it was about 'selling' their research in the best light in order to stand the best chance of being funded:

> People might, well not lie but I think they'd push the boundaries a bit and maybe exaggerate!

<div align="right">Computer Science, UK, Professor, Female</div>

The perceived need to be imaginative and conjure up potential impacts was viewed as a direct response to the pressure to 'sell their research' or rather, as I have described, the direct systemic effect of academic capitalism, through which academics are increasingly expected to make their research more interesting, compelling and marketable to all audiences:

> For a fundamental researcher who is faced with that requirement they can either say very little or more likely what they say will be bull-dust.

Soil Science, Australia, Research Staff, Female

Talking 'bull-dust' in an attempt to win governmental research funding (a phrase used by an Australian researcher - roughly translatable to 'nonsense', 'rubbish' or perhaps worse, 'bullshit' in the UK), was acknowledged as a consequence of the impact agenda. Interestingly, 'to bull-shit' seemed to be interpreted on the whole as less morally problematic than outright lying by interviewees. The Philosopher Frankfurt (2005, p.67) distinguished between lying and bullshitting and claimed that the difference was that a liar at least respects the distinction between truth and falsity, since they strategically exploit it to deceive people. For Frankfurt, an individual who 'bullshits' is indifferent to the truth or falsity of what they say – similar to the stereotyped 'dodgy salesperson' who will say whatever they think they need to in order to advance their interests. Frankfurt claimed that bullshitting is worse than lying for it reflects a fundamental indifference to the very idea of truth. Interviewees' perceptions of research as divorced from its impact, coupled with a sense of an indifference to the truth (by Frankfurt's distinction), perhaps suggests a greater entrenchment of academic capitalism and an even more worrying departure from 'integrity'.

It appears that guess-work, window-dressing and impact sensationalism are largely seen as a regrettable but necessary aspect of academic life by many participants, the justifications of which are further explored in the next section (8.2.3).

8.2.3 Over-selling and game-playing

We have seen how embellishing impact in applications was viewed by a large number of interviewees as an unavoidable means to an end in order to win funding. Participants claimed that a reason for embellishment might preserve investment in their disciplinary field. In that case one might "conjure up something that doesn't exist" so as to "preserve what people think is valuable in the face of attack" (Music, UK, Professor, Male). Several interviewees expressed that some researchers were making unattainable claims, which watered down the credibility of the research proposal "it's probably not doable at all so does that mean that it's not credible?" (Physics, UK, Senior Lecturer, Male). Several claimed that embellishment of impact was only part of the story. Rather, many expected academics to have to embellish in general in order to get funding: "there's a general overselling of yourself as opposed to specific claims" (Computer Science, UK, Professor, Female). She goes on to state that this was an inevitable means to an end "they're going to make the best predictions they can to get the money". As such, several interviewees claimed that introduction of impact

in funding applications would result in game-playing because of increased pressure to win research funding:

> They're just playing games – I mean, I think it's a whole load of nonsense, you're looking for short term impact and reward so you're playing a game… it's over inflated stuff.

Education, Australia, Professor, Male

'Gaming' was a word used by several interviewees across the disciplines and countries to describe the process of winning funding and more generally the direction of travel of science policy: "it's going to be a game you know" (Finance, Australia, Professor, Male). Reminiscent of Goodhart's Law mentioned in Chapter 3 "when a measure becomes a target, it ceases to be a good measure" (Royal Society, 2015, p.14), the idea that academics have to pursue goals and be measured upon demonstrable impact could be said to force the hand of those who struggle to align their work in this way. This is exemplified by one interviewee who claimed that universities, through their growing audit culture, will lose sight of what is good for their own sake (Chapter 7):

> Once you get so embedded in rules of the game rather than the value of research, then the metrics have gone wrong. But I think whatever metric rules you come up with they will go wrong because universities will easily lose sight of the fact that they're there to measure fairly and squarely the research and simply play the game for its own sake.

Law, Australia, Professor, Female

A recent publication from the Royal Society in 2015 reports on game-playing in research. It states that the pressures on academics to publish and make and impact do not drive or incentivise good research, rather, they stimulate a direct gaming of the grant writing process for superficial rewards:

> Not only are we failing to provide the right incentives, we are actually providing perverse ones.

Royal Society, 2015, p.7

Importantly, there is a growing concern about the use of metrics in research and of measurement more broadly. In the UK emerging commentary about responsible metrics through headline reports such as 'The Metric Tide' aim to positively harness the power of metrics to support the "values, identities and livelihoods" of the academic community (Wilsdon et al., 2015, p.1). What emerges here through the testimonies of the interviewees

depicts metrics as being at odds with research, particularly problematic for certain disciplines (Chapter 9).

The art of gamesmanship was well practised by one participant who reported regrettably that they were "very practised at connecting up possible impacts with scientific activity and joining imaginary dots between one thing and another". They go on to emphatically express that the notion of impact was "massively open to subjective opinion. Close to scientific blasphemy" (Chemistry, UK, Professor, Male).

One interviewee described the ARC's requirement to include a statement on 'National Benefit' as "pretty desperate" (Archaeology, Australia, Professor, Female) and suggested that attempts to make rhetorical moves to write something convincing about impact could only result in embellishment: "these are creative people, clever people – and sometimes they go a little bit too far" (Literature, Australia, Professor, Male). Again, it was argued that discipline was a factor when it came to embellishing impact, this was particularly the case for non-instrumental researchers (Chapter 9): "I say look, just be straight, national benefit is very difficult for the humanities" (Literature, Australia, Professor, Male).

Analysis revealed that some academics view peer-review as a route to preserving integrity. Here, it was suggested that other academics would "sniff out" embellished claims, helping to maintain good academic practice and integrity:

> So I think that the peer review of the grant still has integrity and that some of the stuff that you might put on to flower it up, if you think that academics who are assessing it are academics, they aren't going to be impressed by the stuff that management wants, so there's an irony there – so there's some integrity to it.

> Education, Australia, Professor, Male

Finally, the data revealed that it was not just academics that might embellish impact in grants or attempt to game the system. Indeed, the interviews revealed that institutional support staff who develop an impact narrative for or in conjunction with an academic might also be tempted to be more 'creative' with the implications of the research. One participant explained that the EIA impact trial (Australia) had not been managed effectively and expressed concerns about the process, aggrieved about the low mark she had received from reviewers:

> The lady that helped coordinate it from our faculty said mine was the clearest and most honest package put together, but it's not the cure for cancer! [She goes on]…the university didn't know what they were doing, whilst I did the original draft they polished, worked and manipulated it as well.

> Soil Science, Australia, Research Staff, Female

Reminiscent of an earlier discourse concerning new managerialism and the divide between academics and non-academic staff (Smith, 2012), the implication of these testimonies is that there may be a question about the integrity of institutions and their staff who in turn might feel compelled to manipulate stories in order to respond to a performance driven culture. This begs the question as to whether integrity is lost or whether academics and their managers are just doing their job?

Several interviewees explained that impact sensationalism was simply a means of 'survival' in academic life and a growing part of academic labour:

> If you can find me a single academic who hasn't had to bullshit or bluff or lie or embellish in order to get grants then I will find you an academic who is in trouble with his [*sic*] Head of Department (HOD). If you don't play the game, you don't do well by your university. So anyone that's so ethical that they won't bend the rules in order to play the game is going to be in trouble, which is deplorable.

> Law, Australia, Professor, Female

When interviewees spoke of survival, it was with reference to their jobs and sustaining funding for their discipline. In particular, researchers from disciplines where funding has been particularly scarce or at risk in recent times (for example, the arts and humanities), or whose research was further removed from tangible research impacts, were more inclined to defend not just their jobs but their field as well. On the one hand, many were resigned to this reality: "I don't think we can be too worried about it. It's survival…people write fiction all the time, it's just a bit worse" (Finance, Australia, Professor, Male). Others, whilst compliant, expressed exasperation and claimed to be morally compromised:

> We'll just find some way of disguising it, no we'll come out of it alright, we always bloody do, it's not that, it's the moral tension it places people under.

> Chemistry, UK, Professor, Male

A number of interviewees noted that a subject like impact was inevitably going to cause a heightened reaction amongst the academic community (explored in the following sections):

> The response to these changes is often over the top. Academics can be a tad precious about what they do. There is a growing antagonism though…

> Theatre, Film and TV, UK, Professor, Male

Over the top or not, several if not all interviewees articulated an overarching concern that this kind of policy could have grave consequences for research and the way it is viewed, particularly by the public if academics over-promise and under-deliver:

It puts people on the back foot and fuels a climate of distrust.

Chemistry, UK, Professor, Male

The further political and social implications of an impact agenda are discussed in Chapter 10. I will now summarise the themes which emerged with respect to integrity.

8.2.4 Integrity – a brief summary

The testimonies contained in the first half of this chapter indicate that aspects of the impact agenda may threaten the integrity of academics as authors of funding applications, perhaps even authors of case studies. Analysis indicates that interviewees consistently expressed concerns that the impact agenda would inevitably lead to sensationalism, exaggeration or even lying, particularly if the impact was not immediately obvious (for example through delivery of applied or instrumentally–led research). In this way, the theme of integrity as a concern inductively emerged as an issue through this study.

Whilst it would appear that integrity is at risk in this context, analysis indicates that we cannot speculate that the research community has lost its integrity altogether. The backdrop however, is far from straightforward with respect to the politicisation of knowledge policies leading academics to testify to the contrary and in many cases, to *confess.* Disciplinary trends are acknowledged in this chapter and will be explored fully in Chapter 9.

The interviews clearly reveal that the causes for impact sensationalism are both systemic and localised (Table 4) (Chubb & Watermeyer, 2016, p.5). Hyper competition, uncertainty of the evaluative value of impact and academic capitalism appear to be at the root of the issue, alongside interpretation about the susceptibility to impact inflation, a perceived divorce or separation of the impact from research and a weakness in signposting a causal connection between the research and its impact.

The following section (8.3) and second half of this chapter explores how these threats to the self and specifically the emotional response of academics towards the impact agenda, demonstrate the pressures so clearly felt by the academic community. I summarise the chapter in 8.4.

8.3   Being an academic: the role of emotion

Analysis of participant responses suggests that the impact agenda incites a strong emotional response and that academics are heavily emotionally invested in what they do.

> People feel under threat – they feel they need to bunker down.

> Theatre, Film and TV, UK, Professor, Male

This in turn can be seen to have consequences for how academics perceive themselves which may affect their identities and sense of academic personhood. As a result this may influence their ability to reconcile their role within the context of new policy initiatives, which may run counter to the familiar or more traditional norms of academic life. As we saw in Chapters 1 – 3, much of the response to impact in the UK and in Australia has been characterised by resistance, featuring 'crisis accounts' of fear and dread, coupled with a sense that academics are at risk of a kind of "existential unravelling" (Chubb, Watermeyer & Wakeling, 2017, p.555). Given that the coverage in the media has predominantly been characterised by resistance towards impact, one could be forgiven for thinking of academics as a homogenous group, all struggling with the idea of demonstrating impact on society and the economy; self-evidently, this is not the case and this research reveals a more nuanced picture. I do find evidence of emotional struggle and turmoil, but there are also examples of confirmation and validation of scholars' work through the impact agenda.

This chapter seeks to develop an understanding of the range of emotions expressed by academics, taking into account things which might affect academic responses including, amongst other factors, their preferences, backgrounds and disciplines. Chubb, Watermeyer & Wakeling (2017) talked about a 'belt of resistance' which endures a respective tightening or slackening in response to an impact agenda in the UK and Australia (p.566). Duncan et al. (2015) reported that Australian academics are happy where their motivations align with their ability to be effective. Where academics align their role with a sense of responsibility or where their discipline is rooted within the context of utility (Chapters 6 and 7), the belt slackens, where there is less alignment, naturally it tightens.

Responses from participants were categorised predominantly by very positive or very negative feelings towards impact. Ambivalent or apathetic views were less commonly expressed but were more aligned with the mind-sets of applied or instrumental researchers (discussed also in Chapter 9). Considering the findings discussed in Section 8.2, academics' testimonies reveal a kind of moral unravelling with respect to impact. Indeed, perhaps morality and emotion can be seen to be interlinked - emotions can drive decisions, impede

development or progress - they are used to evaluate our actions and influence heavily our ability to perform or conform. Importantly, responses which were particularly emotive appeared to align with academics' sense of duty and/or reflect their 'virtues' or ideal standards of behaviour. This is not unlike Kantian observations of the connection between duty, emotion and decision-making or moral imperatives. Analysis indicates that emotions perhaps play an enabling role in the academic response to an impact agenda. Negative emotions can also be seen to reflect the underpinning character or moral standards set by an individual.

Emotion, though somewhat under-researched with respect to current HE trends, therefore ought not to be ignored within the context of the impact agenda as a powerful enabling or disabling agent. Indeed, Hey and Leathwood (2009), Ahmed (2006) & Beard et al. (2007) describe how the role of emotion should be acknowledged in HE rather than associated with a departure from the rational or the idea of the university as an 'emotion-free zone'. Self-evidently this cannot be the case. Chubb, Watermeyer & Wakeling (2017) instead concur that the "emotional ties to academic labour are binding" (p.3) and the 'passionate attachments' of academia (Hey & Leathwood, 2009) can sometimes make academic life often 'indivisible' from other aspects of life.

Critics of the impact agenda consistently return to a discourse dominated by despair, reporting that universities and their academics are in 'ruins' – indeed, my analysis confirms that the impact agenda *is* seen to create fear and anxiety among a significant proportion of participants and so to characterise the impact agenda by resistance is not wholly assuming. However, these responses cannot entirely be attributed to impact alone – rather they relate to several components of academic life, which I will discuss in the next section. This is not a simple 'doomsday scenario' for HE - this resistance is in deep tension with a strong sense of public / moral duty expressed by academics, who associate their academic position with a sense of privilege. In doing so their resistance is tempered by a desire to 'give-back' to society and to create social betterment (Chapter 5).

Although the majority of interviewees spoke passionately either for or against the agenda, emotional responses towards impact are not unilateral - a general lack (though not a complete absence) of ambivalent views suggests that impact is something which academics feel passionate about, notwithstanding hyperbole, whether for or against the notion. This may be because it is fundamentally linked to their broader motivations, potentially calling into question the purpose or value of their work, which, in turn, perhaps ultimately reflects on their own feelings of worth and value. Impact could be even seen as a bellwether, which incites a strong emotional reaction to change.

This section will discuss the range of emotions expressed with respect to the impact agenda, how it is aligns and appears critical to academic agency (8.3.1) and how it might lead to a loss of that agency (8.3.2). I do so before summarising emotion and impact in (8.3.4) and concluding in Section 8.4.

8.3.1 Impact as critical to academic agency

In contrast to the criticisms in the media and elsewhere about academics being in 'crisis' or worse, that 'science is dead' because of initiatives such as the impact agenda (Bhattacharya, 2012, p.1), it is important to note that not all participants expressed extreme negative emotion about it. Many responses were positive, with participants expressing enjoyment, enthusiasm, passion and even love when describing how they felt about their research. For many participants, this implicitly included any application of research outside the academy (Chubb, Watermeyer & Wakeling, 2017):

> It's sort of where my heart lies – quite deliberately and specifically working to apply the research that you are doing to real world political and social challenges across domains of theory and practice.

Politics, UK, Senior Lecturer, Male

There was clear agreement across the majority of life and earth science interviewees in both contexts that an impact agenda was not quite as disastrous as its critics had claimed. Here, impact was described as 'pretty much bread and butter stuff' and therefore 'not worth losing any sleep over': "it's not too frightening to me" (Health Science, Australia, Professor, Female), "I'm not worried about it" (Soil Science, Australia, Research Staff, Female). One UK scientist talked about how excited they were by impact and explained that their motivations for carrying out research are intrinsically linked with the end result: "there's no point doing science unless you tell people" (Environment, UK, Professor, Male). Where research is 'inextricably linked' to an outcome, as we see here, impact appears to evoke more positive emotions and participants did not exhibit fear or anxiety. The nature of an academic's funding contract and its security/dependence upon industry collaboration was also seen to affect responses (fixed-term contracts, non PIs) and dictated to some extent the ways academics perceived impact. For example, many were unable to distinguish it from the rest of the research as a result.

It is perhaps not surprising that participants carrying out applied research responded positively towards the impact agenda. A motivation to deliver impact could in fact be a positive emotional driver for many academics who wish to make a difference with their work and it is linked intrinsically to their sense of duty to 'give back' to society:

> If we are not having impact, then why are we doing it?
>
> Computer Science, UK, Professor, Female

> That's why the public have invested in us, so that we can think about things deeply and have debates on a level that involve us going into detail. It's a pity not to use that resource. We should feel a responsibility to give back to the community that way.
>
> Languages, Australia, Professor, Male

Participants who expressed strong motivation for influencing the world outside of academia were supportive of the impact agenda because they claimed it allowed academics to clarify their work and prove the "usefulness of their work" (Agriculture, Australia, Professor, Male, A3). Again, as we saw in Chapter 7, a creeping sense of instrumentalism in research, potentially favouring those who in the past have failed to gain currency in academia because their work was too applied emerges. Fundamentally, where academics' work naturally aligned to the impact agenda, testimonies tended less towards ones of crisis and more towards pragmatism "I don't think people should feel unduly stressed by it" (Physics, UK, Professor, Female).

Rather than "groaning about new policy" many interviewees felt that it was important to be pragmatic: "let's just get on with it" (Biology, UK, Senior Lecturer, Male, B2). However, it might not be so easy for other disciplines to dismiss impact as a concern because of the nature of the work they do. One Australian participant described how "if I was them [referring to an Arts and Humanities researcher], I could understand why they might be a bit fearful of it" (Soil Science, Australia, Research Staff, Female). These views were tempered with concerns that it was important to preserve pure or basic research, and that any threat to it was seen as a personal threat "leave it damn well alone!" (Chemistry, UK, Professor, Male). Discipline responses to impact are discussed in Chapter 9 and in the next Section (8.3.3).

Although clearly a factor, one cannot wholly attribute positive emotion towards impact with an academics' discipline or field of study. Rather, expressions of positive emotion appeared also to stem from the moral consciousness of academics. As outlined in Chapter 6, positive responses towards impact and the ability therefore to comfortably conform and respond to it appeared to accompany a sense of epistemic responsibility:

> We can do more by being a bit more effective in interrogating ourselves and I think to come back to one of your questions, accepting that there is a responsibility; definitely, we're funded by the public so we should be able to talk to the public.
>
> Languages, Australia, Professor, Male

> If you are funded by public money – in one way or another, you do have a responsibility.

<div align="right">Health Science, Australia, Professor, Female</div>

As described in previous chapters, many participants felt that impact was part of an academic's moral contract:

> If someone is being well supported to work on something then I think it is incumbent upon them to spend an amount of time making others aware and assessing the impact and potential impact, whatever it is. I don't have a problem with it. There are people who would but I don't.

<div align="right">Agriculture, Australia, Professor, Male, A2</div>

In addition, privilege appeared to accompany academics' moral compulsions toward impact:

> We are paid from the public purse and we should be doing research - we are ridiculously privileged to work on whatever we like and it's wonderful, and to bend your mind a little bit to the fact that some of the stuff you do does have benefits outside the academy, and to put measures in place to make that happen, it's a minor tax.

<div align="right">Archaeology, UK, Professor, Male</div>

Finally, there was a sense from some participants that impact was a passing trend, a fashion or fad "not worth getting upset about" and that it was "not as bad as they first feared" (Biology, UK, Senior Lecturer, Male, B2). Over half of my respondents felt that there were far greater threats to research than the impact agenda, such as thematic funding calls and the overall general process of research quality assessment (Chubb & Watermeyer, 2016; Leathwood & Read, 2012). With this in mind, the next section looks in more detail at the emotional resistance to the impact agenda for, despite the positive accounts of many participants, the majority of interviewees appear emotionally and personally conflicted by it. The next section will explore how impact is predominantly seen to destabilize the traditional perception of academics (Chubb, Watermeyer & Wakeling, 2017) and that it is this which can be said to threaten academic agency.

8.3.2 Impact leads to a loss of agency

Whilst many academics appeared generally pragmatic in response to impact, the tone of the interviews suggested that these responses were also potentially ones of stoicism in the face of rather unwelcome adversity. Similarly, at the same time there is the potential that what is to follow are in fact hyperbolic and embellished accounts, in which my participants are venting their feelings, happy that someone cares to listen, ready to return to everyday

business to which they ultimately conform (Chubb & Watermeyer, 2016). Notwithstanding, the majority of interviewees described how the academic community was 'in shock' because of the impact agenda and other pressures in the modern university. Words such as 'scary' 'threatening', 'nervousness' and 'worry' were commonly used by participants as many spoke of their 'frustrations', 'suspicions' and even 'resentment' of the impact agenda.

As we saw in Chapter 6, accounting for some of this resistance was a loss of academic freedom and autonomy, seen as critical to academic agency:

> The negative voices have fallen silent because they haven't got a choice.

> Languages, UK, Senior Lecturer, Female

Over two thirds of interviewees use words like 'prescribe' 'impede' and 'restrict' when describing the effects of an impact agenda (Chubb, Watermeyer & Wakeling, 2017, p.561). One interviewee likened university staff to Orwell's Thought Police: "you cannot stop me thinking about Keats in the morning" (Literature, Australia, Professor, Male). Such comparisons imply that freedom is in some senses impaired, the potential for sarcasm aside.

There was also a sense that resistance to impact was very closely linked to the rise of neoliberalism, which was seen to challenge the traditional conception of academia discussed in Chapter 6. Participants tended to describe impact as part of the new managerial fabric of universities and, as we saw in earlier in this chapter, felt that it led to increased pressure to sell a certain story in order to win grant funding, ultimately influencing their decisions with regards to their employment. Broadly, the pressure to apply for research funding and incorporate impact into this process was perceived as time consuming, stressful and ultimately damaging to researcher careers, potentially impairing their ability to advance their work. This was even seen to make the academic role less attractive. Participants claimed to feel 'bombarded' (Chemistry, UK, Professor, Male), leading to 'on-going resentment' and stress.

> As an academic, my ideal world is to never write another grant proposal again, I probably spend 80% of my academic time writing proposals. In the last 2 weeks I've been working on twelve. It is ridiculous.

> Archaeology, UK, Professor, Male

Other participants echoed this sentiment and claimed that impact had specifically made the academic role less inviting. One participant explained how impact had affected their decision to take up a career development opportunity because of impact:

Part of the reason I didn't put my hand up for the (Pro-Vice-Chancellor for Research) role is you know, this impact thing.

Literature, Australia, Professor, Male

Others feared the loss of their jobs altogether:

You can easily lose your job, a previous dean was kicked out, you can lose your job if you question practices of a higher level, so everyone is vulnerable, and everybody is paranoid about losing their jobs.

Education Engineering, Australia, Professor, Female

In addition, another Australian academic exclaimed that they had moved from the UK HE system to Australia in order to avoid the UK REF exercise:

The REF…Yes, which I ran screaming from!!

Law, Australia, Professor, Female

Indeed, many felt these pressures on a very personal level - some participants claimed to be 'depressed' or 'sad'. In general, female participants more readily expressed these concerns, though not exclusively. One participant said that she didn't feel 'happy' because of the pressures of her university career:

You know, somebody would look at me from the outside and think ok, she's got over 100 publications, whatever – so she's got all these publications and she's had grants – she's doing this and she's going here, actually my life is a bloody nervous wreck.

Music, Australia, Professor, Female

…Others seemed depressed and anxious:

I got extremely depressed last year for the first time in my career and thought I can't do this anymore.

Education Engineering, Australia, Professor, Female

I feel like crying about it sometimes.

Chemistry, UK, Professor, Male

Many expressed the need to embrace this emotion, rather than attempt to eradicate it. There was a sense that academics felt as though they were being silenced and oppressed. The pragmatism described in the first section appeared to come not without tension and struggle:

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> We need to find a way of doing this that doesn't upset everybody, I think that's the challenge – I am struggling with it and it keeps me awake.

Health Science, Australia, Professor, Female

Impact does therefore appear to evoke fear and anxiety among the academic community because academics are so invested in what they do; "to be an academic is to live academia" (Chubb, Watermeyer & Wakeling, 2017, p. 556).

Finally, analysis reveals a significant factor affecting academics' emotional responses towards impact is their field of study (discussed in greater detail in Chapter 9). Here, fears emerge for a denigration of the disciplines, which are ultimately very personally felt. As discussed in the previous section, most notably, (though not exclusively), participants who expressed fears relating to their discipline conducted less 'applied' types of research, such as the theoretical humanities and physical sciences. Here, participants reported 'deep seated worry', 'frustration', 'struggle', 'fear', 'shock' 'hopelessness' and 'worry' and a range of other emotions; "it does scare me" (Biology, UK, Senior Lecturer, Male, B1). Participants predominantly working in basic science commented that impact was "scary and really hard" because of the nature of the work they do (Maths, Australia, Professor, Female). Some Australian participants explained that they would feel 'hopeless' if they had to build impact into every proposal and be assessed on it as formally as in the UK. Fears about aligning research with impact were echoed by other scientists who claimed that "everyone is enormously worried" (Computer Science, UK, Professor, Female). This may be because it is seen to challenge the intrinsic value of the knowledge they seek to pursue for its own sake as this account suggests:

> I tell you Jenn, it's serious, the scientific community is in shock … It's a shattering blow to science – just this shaping of something, which is so precious.

Chemistry, UK, Professor, Male

A UK physicist shared a 'deep seated worry' that the intrinsic value of knowledge would be lost through an instrumentalised agenda of science, ultimately threatening the global competitiveness of UK science.

Academics expressed how these concerns in turn, were felt personally by their colleagues: "people feel undervalued and hopeless" (Music, UK, Professor, Male). Worry and dissatisfaction was accompanied with feelings of hopelessness and surrender, affecting their motivation to apply for competitive research funding and causing academics to feel defensive about the type of research they conduct:

I suspect there are people who figure, there's no hope, I can't do it, and I won't bother. This is my fear that people will stop trying; I would have difficulty building it in.

<div align="center">Languages, Australia, Professor, Male</div>

I get really sick because of the kind of research I do - I get pissed off at the idea that where you should put your funding is cancer research – that's the generic answer isn't it?

<div align="center">Music, Australia, Professor, Female</div>

These concerns resonate with Donovan's notion (2017) of "impact fatigue" noted to be felt by academics. I will explore in greater detail the issues specific to the disciplines in Chapter 9, but notably participants from the arts and humanities especially feared having to measure the impact or in their work, or more specifically, in their words, having to justify the epistemic 'value' of their work as we saw in Chapters 5 and 7 - many associating it with economic return. Issues of measurement appear irksome to humanities researchers in particular, who argue for the intrinsic value of their work. Indeed, one participant describes how she has to "scream and shout" about it (Music, Australia, Professor, Female) in order to defend it:

It's hard for the humanities, it has to grow out of research yet it pulls away from research – this is worrying.

<div align="center">Literature, UK, Professor, Female</div>

Several participants revealed how the impact agenda demoralises and destabilises their field of study and culture of the work they do: "what we have now is a demoralizing, denigration of disciplines" (Philosophy, Australia, Professor, Male) leaving scholars feeling 'sad' and 'demotivated'. There was a sense that participants identified and felt very personally, threats to 'their' discipline. This reflects their level of emotional investment and indicates that their default position was to defend and preserve their research it in order for it to 'survive' and be sustained. In addition, academics' emotional reactions in many ways reflected their own perceived abilities. That is to say, several were concerned about their ability to deliver impact and how that in turn might make them look to the outside world.

8.3.3 Academic identities, abilities and skills

Regularly described as a 'mind-set barrier', impact was viewed by many participants as something that was outside the normal occupation and skill traditionally associated with the academic role. Some participants welcomed this and described how the impact agenda was a good thing as it challenged their abilities to 'think outside the box'. In particular the mechanisms of carrying out knowledge exchange were seen to enable and enthuse some

participants who claimed it was 'fun' and 'engaging', but it was also viewed as 'threatening' to a large number of participants whose natural preference was to 'be left alone': "I like what I do, but not on a stage" (Archaeology, UK, Professor, Male). There was a fear therefore that the impact requirement would result in a need to re-define the role and characteristics of an academic. This was met with concern and worry by over half of the participants who felt nervous about having to reconfigure their personalities. Indeed, media coverage about introversion in academia suggests that this could be a hindrance to those who might want to generate impact, but have difficulty personally in doing so because of their very nature. This begs the questions as to whether in today's "brave new world of academia" introverts can survive (Macfarlane, 2011; Ozga, 1988).

> I think I'm one of those who isn't very out there and I'm actually fairly shy.

> Health Science, Australia, Professor, Female

> You'd better be a pretty polished performer or you've got no chance.

> Agriculture, Australia, Professor, Male, A1

Analysis reveals that a majority of participants expressed a lack of confidence when it came to their abilities to communicate their work to different audiences. Many put this down to a lack of training, their abilities or their background, for many it was also because they feared being the subject of mockery from their peers:

> I think a lot of academics are quite egotistic and you have to have a good ego to perform well in a film or on TV so they can walk around with puffed up breasts quite legitimately when you're on film whereas when you're on campus people think you're a jerk.

> Archaeology, Australia, Professor, Female

Several participants referred to feelings of shame, embarrassment and self-deprecation when describing their own or their peers' impact experiences, which further suggests that emotion relates closely to how academics are viewed and supported by their peers:

> I heard him say ruefully that some people thought that he had kind of prostituted himself by doing it [a DVD of his research].

> Agriculture, Australia, Professor, Male, A1

Many participants regarded impact as a low status activity - several claimed it was not real research and instead referred to it as 'pedestrian research'. In contrast, others claimed such

attitudes were borne out of "professional jealousy" and "snobbery" (Music, Australia, Professor, Female):

> I think there is a risk of perceptions. Some of us might be perceived as unserious researchers if we engage with the public at a lower level where everyone can engage in debate. Frankly I think that type of academic snobbery is a bit archaic and outdated and I wouldn't want to bow to it. If anyone was to say that to me I'd smile politely, nod and leave, but I'm sure that it abounds.

> Law, Australia, Professor, Female

Nevertheless, the fear of exposure, being laughed at (not just by one's peers but by the public) was also revealed by the interviews as a real concern. This could be seen to relate to a fear of judgement, or to having to justify their actions and show the value of what they do. Impact orientated work was seen as low status – work which is laughed at by colleagues. For example, upon describing writing a scholarly article and a *Guardian* article, one academic stated:

> Neither article could be written without doing research – but one is considered research output and the other is laughed at. The one that is laughed at reaches more people!

> Music, UK, Professor, Male

Some participants made comments about how engaging the public meant a potential loss of control. Here several expressed concern that their work might be misconstrued, laughed at or worse, ignored. Indeed, one participant commented how the prospect of working with the media and policy makers created fear in those who attempted it:

> Yes I feel threatened there is a fear about public exposure and the media and I'd find it hard to talk to people like the Home Secretary for example – I'd be fearful because they have a different agenda… If you don't realise that and the fact that they are going to ignore your advice for political and social reasons, you could get very upset. They are not confident that their views will be listened to or worse that they will be ignored or laughed at!

> Environment, UK, Professor, Male

In addition, impact was seen by some as an "uncontrolled environment" in which academics might feel "uncomfortable":

> Academics say they are being asked to do three things. They're being asked to be researchers, teachers and they're being asked to be administrators. Let's leave the admin side aside because that's pretty much as the wind blows. Some people are great some people are awful, some people should never be allowed near it.

<div align="center">Law, Australia, Professor, Female</div>

It appears therefore, that where the strength of one's emotional reaction towards impact is in some ways related to one's field of study, moral disposition, personality and ability to deliver impact. A level of acknowledgement towards those less able to conform to the requirement is perhaps required in order to avoid a radical reconfiguration of the academic role itself:

> Jean Paul Sartre never taught at a university – I think you're going to have more of an intellectual life outside of the university!

<div align="center">Philosophy, Australia, Professor, Male</div>

8.3.4 Discussion on emotion

These accounts show that the "belt of resistance" towards impact is "ever tightening in parallel with the loosening of academics' sense of self-sovereignty" (Chubb, Watermeyer & Wakeling, 2017, p.555). Analysis suggests that impact poses a curious tension for those who feel a strong sense of responsibility and accountability to conform to an agenda which at the same time unsettles and threatens them. The interviews reveal a community heavily invested in their work and their emotional reactions elucidate and serve to highlight this investment.

The emotional reactions of academics towards the impact agenda appear highly driven by their motivations for choosing research careers and the disciplines they so passionately care for and value. In turn, this sense of value is felt inwardly when it is challenged, this creates tensions as academics feel they themselves are being personally attacked or assaulted, desperate to defend the thing they hold so 'precious'.

The interviews show that impact has 'disrupted' academics' sense of purpose and requires of them an adjustment in how they behave in their careers, and also perhaps in their own personalities. This is at odds with the more positive framings provided by a smaller set of interviewees who claim that impact is enabling and bringing currency to those who before were considered 'second-class citizens'. So too, it is seen to enhance and provide an opportunity for academics to provide greater visibility of their work and bring forth the "efficacy of their research endeavours" (Chubb, Watermeyer & Wakeling, 2017, p.565). I will now conclude the chapter by summarising the implications for both integrity and affect in Section 8.4.

8.4   Summary: affect and integrity

This chapter has described the ways in which participants suggest that the impact agenda can be seen to have personal consequences for the academic community both morally and emotionally. Firstly, we see that impact has implications for the integrity of the academic community. Participant accounts suggest that where the impact of research is not immediately obvious (Chubb & Watermeyer, 2016b), academics may risk their integrity by embellishing stories of impact in order to respond to both localised and systemic pressures, such as hyper competitiveness in research funding. Academics are seen to engage in embellishment and impact sensationalism in order to survive and defend their research. These effects are seen to relate to an academics' field of study and the preservation and defence of basic research is paramount in the discourse. Once again, value – as something which is not measured, but is inherent, emerges as rhetoric in these testimonies, particularly by those working in less applied fields.

In the broader context, with respect to integrity, interviewees attribute and justify impact sensationalism against a backdrop of academic capitalism, hyper competition in research and the inevitable 'doomsday' scenario presented by 'neoliberal' knowledge regimes. Here, academics "find justification, route for blame and perhaps some solace" (Chubb & Watermeyer, 2016, p.9) – where they are forced and coerced, even victimized (Žižek, 2009) by having to bend and embellish impact stories in order to survive the pressures of new managerialism. Here, the entrepreneurial nature of universities and their market logic, reflected in the need to 'sell' research, appears as further justification for embellishment of impact.

However, academics are not powerless yet the interviews suggest that they are also curiously 'complicit' with the system against which they protest (Readings, 1998). There is perhaps yet more work to be done in understanding how academic emotions can influence and create action around ensuring an impact agenda which reflects the diversity of moral dispositions as well as disciplinary backgrounds and associated norms (Chubb, Watermeyer & Wakeling, 2017) reflected in these testimonies (Chapter 10). These testimonies expose the varying (mis)interpretations and conceptualisations of impact and funders' expectations (as discussed in Chapter 5). Indeed, funders claim they are not asking for predictions of impact (as many academics in this set interpret it). Professor Aiden Byrne (former Chief Executive of the ARC), in response to claims about impact sensationalism (Chubb & Watermeyer, 2016), rejected any assertion that academics had to lie to win funding on ABC radio, claiming that the peer review process maintains integrity: "they understand that it is a speculation" (Nightingale, 2016). This is reflected in the data explored in this chapter;

however what also emerges is a lack of consistency in the ways in which impact is evaluated and perceived by reviewers – perhaps the subject of further research.

Despite these assurances, some academics appear nevertheless to be acquiescing to the neoliberal turn within HE by the creation of embellished impact stories. Their doing so undoubtedly has the potential to threaten not only the integrity but also the authority of academics. These subtle threats indicate a corruption of academic ideals, which ultimately serves to damage the traditional role of an academic as 'rooted' in truthfulness (Williams, 2002). Embellished impact is, however, not necessarily a direct "display of dishonesty" (Chubb & Watermeyer, 2016, p.9); rather it exposes the tension of new management and the nature of academic life. However, if academics are seen to be embellishing impact, there is a concern about how this could undermine society's impression of academia – to "window dress" could be to over promise and under deliver resulting in decreased trust in experts, potentially fuelling anti-intellectualism and the much discussed and highly debated crisis of expertise supposedly revealed through the UK Brexit vote and Trump election, increasingly known as the 'post-truth' era. Finally, this chapter revealed how academics interpret impact as a criterion that is short term and direct in nature. Despite reassurances about impact policy from RCUK (Chapter 5), and from the ARC, analysis indicates that where impact is not immediately obvious, academics feel it would be inevitable and justifiable to embellish.

The desire to maintain investment in their discipline or field and to retain their jobs appears a clear motivator. In addition a curious sense of public accountability and responsibility to demonstrate impact emerges, because largely, where it is appropriate to do so, most if not all interviewees claimed they would want to see their research make a difference. However, here we see how the moral tension arising from these expectations puts integrity at risk and, as we will see in the following section, risks also one's sense of self, as Chubb and Watermeyer (2016) suggest "a preoccupation with performing public accountability occurs with the neglect of self-accountability" (p.10). Integrity could therefore be seen to be inextricably linked with academic character and personhood where that character is at risk of 'corruption' or some kind of epistemic vice (Battaly, 2013).

In addition to fears about integrity, analysis reveals a community heavily emotionally invested in what they do (Chubb, Watermeyer & Wakeling, 2017, p.555). Academics whose research is closest to application appear less at odds with an impact agenda, gain new currency for the work they do and a renewed sense of existential recognition, whereas those who struggle to conform express this through emotional distress and despondency. Where there is emotional dissonance we find a tightening of 'the belt of resistance', and accordingly, a slackening thereof where research better aligns with the impact agenda. The connection

between the moral implications of the impact agenda and the emotional responses provided by interviewees also reveals a community attempting to uphold high standards of epistemic virtue. Were that not the case, one would not expect to see such emotional reactions from participants - the emotional conflict arises from the epistemic conflict/contradiction. This chapter indicates therefore, that rather than seek to actively compromise integrity, academics feel compelled to do so as a means to an end, but this comes not without cost to their emotional well-being. Fears about the instrumentalisation of knowledge and risks relating to peer-recognition appear to outweigh these more positive framings of impact. The perceived threats of the impact agenda appear therefore to be insipid in these reports and point at least to a slight existential crisis in academia where the redefining of roles is leading to demoralisation and desperation. It is clear that impact, whilst not the main reason for the "unravelling of the academic profession" (Chubb, Watermeyer & Wakeling, 2017, p.565), ought to be considered as part of the emerging picture as to why there is a sense of "fear and loathing in the academy" (Chubb, Watermeyer & Wakeling, 2017). This is because it is seen to threaten the integrity and the role of academics as "custodians of truth" (Chubb & Watermeyer, 2016, p.1), which is surely what academics must rely on in order to maintain any authority and build trust with the public, vital in today's post-truth era of politics.

Chapters 5, 6, 7 and 8 reveal a relatively clear message - the disciplines cannot be seen to be homogenous in their reactions to impact but there are certain effects, trends and associations which unite them. Chapter 9 will attempt to highlight the differences and commonalities of the discipline reactions, taking into account what we have seen here with respect to the personal, political and philosophical effects of the impact agenda before concluding in Chapter 10 with policy considerations and suggestions for further areas of research.

9 Impact and the disciplines: the two by two cultures of research impact

"Theory without empirics is empty, empirics without theory is blind."

Kant, 1781[20]

9.1 Introduction

This chapter explores the commonalities and differences observed in the responses given by interviewees representing the variety of disciplinary backgrounds detailed in Chapter 4 and Appendix 9. I argue that a strong and unrelenting theme throughout interviewees' accounts and previous chapters is that researchers' connection to the impact agenda is dependent upon their field of study and specifically its proximity to application or use. In doing so, I depict the cultures of research impact as they emerge and include greater granularity on the ways in which participants from certain disciplines appear to respond to the impact agenda.. The chapter also reveals what unites the disciplines, is the contribution to the discourse concerning the university as a public good, the role of teaching as an impact and the opportunities presented by the impact agenda for inter-disciplinarity through the articulation of a 'Two by Two' matrix of research impact.

In this chapter, I examine how my participants' disciplinary background might account for the level and nature of resistance felt towards the impact agenda and attempt to draw parallels across participant responses from each discipline towards impact. I do so whilst situating the analysis within the context of the broader debate about knowledge as directed by utility, the value of certain 'knowledge domains' and how far this is reflective of what we have seen discussed as symptomatic of marketisation in HE.

I begin in Section 9.2 by introducing the analysis, highlighting how the potentially superficial and oversimplified dichotomy of a void between arts and science collapses under what can be seen to be the two new cultures of research impact in Figure 30 which is replaced by another which is the reinforcing of a divide between pure and applied research. Following presentation of the cultures of research impact, I then represent the responses from the

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[20] Immanuel Kant (1781) is quoted as having once claimed that 'theory without empirics is empty, empirics without theory is blind' - a known translation of the 'togetherness principle' from his Critique of Pure Reason, "thoughts without content are empty, intuitions without concepts are blind". The message of this chapter is that the disciplines can be seen to be increasingly reliant upon each other through an impact agenda.

individual participants further using a notional diagrammatic depiction of participants views on the instrumentality of their research in Figure 31, before presenting an analysis of the kinds of testimonials associated with the disciplines as observed by my interviewees in Section 9.3. I then discuss the reactions that *united* the disciplines in Section 9.4, where I describe how participants felt that the notion of universities as a public good and the impact of teaching were valid forms of social betterment in and of themselves. I will then explore the ways in which interviewees considered a role for inter and cross-disciplinarity through the impact agenda in order to maximise the potential for research impact (Section 9.5) before summarising the chapter in Section 9.6.

9.1.1 Representation of academic disciplines

In Chapter 3 I introduced Biglan's classification of the disciplines and mapped the disciplines represented in this study onto the model in Table 1. Whilst this thesis has not specifically used Biglan's categorisation as a framework from which to build comparison or test, it serves to highlight the persistence of both terminology and association concerning soft/hard/pure/applied research. I will refer to this classification as a new framework emerges from this data, and highlight where the synergies persist. Appendix 9 includes a table detailing the disciplines and national context represented in this study. I firstly describe the discipline observations made by the interviewees in the following section, in order to reveal a reframing of the two cultures model and situate my observations in the context of the concepts introduced in Chapter 3.

9.2 The two by two cultures of research impact

In the context of the impact agenda, we see more commonalities and differences emerge from participant responses with respect to the disciplines. I note the potential for a re-enactment of old ideals concerning pure and applied research but also a new currency and shift of power leading to a different conflict through the emergence of what I will refer to as *impact cultures.* These cultures are also concerned with the type of *value* articulated by my interviewees associated with different disciplines. In doing so I illustrate how Snow's 'Two Cultures' can be seen to evaporate and observe that the arts and sciences appear less dichotomous with respect to an impact agenda. Indeed, we have seen throughout the chapters how the natural groupings or cultures emerging with respect to impact are in fact 1) arts and science and 2) social, life and earth sciences. I highlight that these disciplines have more in common now than before with new opportunities to seize this through working together and across the cultures (Section 9.5). A new polarisation (or perhaps simply a re-enactment of traditional pure/applied arguments) emerges, in which alignment with the

impact domains discussed in Chapter 5 reveals a new set of emerging cultures and where concepts of 'hard' and 'soft' disciplines gain new currency.

It emerged that many interviewees were concerned about what they considered to be a linear, scientific model of application applied across the whole spectrum of disciplines – this was particularly the case for participants whose research was more theoretical or esoteric. The language of pure/basic research vs. application was constantly referred to, as well as 'use' and the concept of utility.

Analysis indicates that interviewee responses appeared to inhabit one of two cultures of research impact. Despite the crude divide depicted by Snow, I have mapped the disciplines against Snow's 'Two Cultures'. This is to show how, through the impact agenda, two cultures of research impact emerge. This model is depicted in Figure 30.

Here, the divide between pure and applied research appears to have been potentially regrettably reinforced by the impact agenda. A clear synergy was evident between participant responses from the theoretical arts and sciences as one 'culture' and between the social, life and earth sciences and applied engineering as another. Within this framework there appears to be less of a consideration for the 'soft'/'hard' distinction of the underpinning research, but more of the impact itself as we saw in Chapter 5. For instance, I described how interviewees characterised 'soft-impact' as relating to activities such as public engagement and outreach – and those that might be less tangible and considered as a societal impact and may even be gendered. In contrast, several interviewees referred to 'hard-impact' as relating to economic or commercial impact, where activities were tangible and in-turn appeared to carry more weight. Those impacts that were difficult to evidence were considered soft and potentially less valuable than hard impacts:

> I can see the impact my work has had, but I can't give hard numbers. There are a few instances which people in department took no notice of it whatsoever when I said I know that the X government has created legislation based explicitly on my work. Too bad - not interested.

> Computer Science, UK, Professor, Female

> It is impossible to measure. So trying to put a number on it is very artificial and it will undoubtedly lead to a bias one way or another.

> Chemistry, UK, Senior Lecturer, Male

	Soft		
Non-Instrumental Soft pure[1] Literature, History, Philosophy, Music, Theatre, Languages	**Instrumental Soft applied**[1] Education, Sociology, Social Policy, Law, Business, Archaeology, Gender Studies, Politics, Psychology, Finance, Economics	**C.P. Snow Culture 1**	**Disciplines from the "Arts"**
Non-Instrumental / Instrumental			
Non-Instrumental Hard pure[1] Physics, Mathematics, Chemistry	**Instrumental Hard applied**[1] Engineering, Agriculture, Environment, Biology, Electronics, Computer Science, Health	**C.P. Snow Culture 2**	**Disciplines from the "Sciences"**
Impact Culture 1 Non-instrumental research Arts & Humanities, Physical Sciences	**Impact Culture 2** Instrumental research Natural Science, Life and Earth Sciences, Social Science	Hard	

[1] Becher and Trowler, 2001 Knowledge domains

Figure 30: The two-by-two cultures of research impact

Indeed, having to forcibly gather data on the ways in which research has made a difference, on a tangible level was seen as inherently problematic by some participants:

> I guess I would be more interested in what people just came up and told me about it organically or seeing an impact in the classroom, people reading and talking about it.

> Literature, UK, Professor, Female

In addition to the notion of soft/hard impacts, Figure 30 shows how non-instrumental arts participants (which might be referred to as soft/pure such as literature, history and philosophy) appear to share commonalities with participants from the non-instrumental physical sciences such as physics, maths and chemistry with respect to an impact agenda. In addition, the soft-applied terminology appears to apply more to the social science domains

including education and gender studies (even some arts subjects including archaeology), who in turn appear to share commonalities with respect to impact with what we might refer to as instrumental domains, or hard-applied disciplines such as engineering, agriculture and environment, including the life and earth sciences.

The 'Snow Culture' sections on Figure 30 notionally represent Snow's divide between arts and science. The 'Impact Culture' sections map across those disciplines in order to highlight impact. Here, the arts and humanities participants share commonalities with the physical sciences and the social and life science participants also appear more congruous than before the impact agenda was explicitly introduced in the UK and Australia. The diagram also suggests that the ways in which interviewees characterised certain disciplines was done with reference to their perceived value, and these could be grouped too.

I note the persistence of Biglan's characterisation of the disciplines but also a new-found emergence of the cultures of research impact in which pockets of the arts and pockets of the physical sciences appear to share much in common – indeed through the requirement for impact perhaps they may even come to rely on each other to generate public benefit. For instance, the analysis of the REF impact case studies carried out by Digital Science and King's College London exemplified the amount of cross-disciplinarity taking place in order to generate impact (Hill, 2015) (Chapter 3, Figure 6).

The two by two cultures of research impact could be seen to be reinforcing of established notions of pure and applied research (Bush, 1945; Stokes, 1997). Snow's view that the constructivist epistemologies of the arts are entirely divorced from the positivist epistemologies of the sciences can be seen to collapse with respect to impact. Here, notions of soft and hard can be seen also to take on a new currency and conceptualisation, as was described in Chapter 5 – in many ways they are shown to be mutually reliant and reinforcing.

As described in Chapter 5, interviewees closely associated 'soft' research, such as those disciplines from the arts and social sciences, with 'soft' impacts. For example; social, public and cultural impact domains were often described as 'soft'. 'Hard' research was considered as synonymous with 'hard' impacts – here, interviewees implied that disciplines such as engineering would generate hard impact, which tended to be associated with economic or commercial potential. Here, the language is subtly related to the type of impact:

> So what is computer science? It's a difficult question; here we do take a particular, hard edged view of computer science, so there are people in sociology who are doing how technology is used.
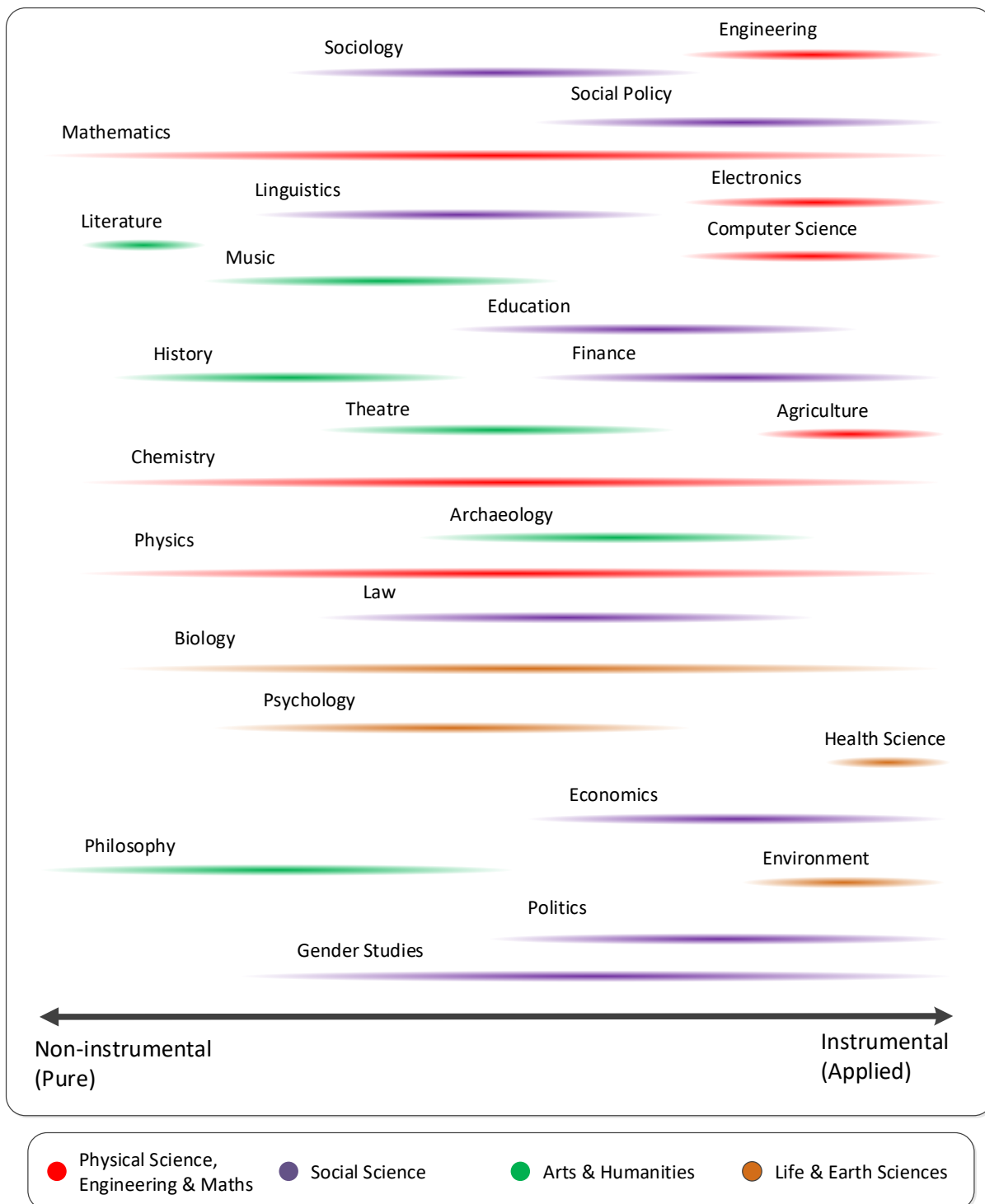
> Computer Science, UK, Professor, Male

Figure 31: Notional diagrammatic representation of participants views on the instrumentality of their research.

In order to provide further granularity on the range of responses, Figure 31 serves to highlight how the particular responses of my interviewees might be represented on a spectrum where pure research is at one end and application is at the other. This reflects the composition of those interviewed and would not necessarily be replicated if the study were repeated with a different group of interviewees. However, one might expect similar results if the interviewees were chosen from particular epistemologies within each discipline as opposed to just the discipline itself. The figure is drawn from analysis of how the interviewees self-identified, the references they made to pure or applied research and my interpretation of this information. It is a visual way of notionally representing my participant's epistemologies. I gathered this information by using coded data at 'pure' and 'applied' nodes and situated participant responses on this continuum depending on the amount of references they made to their own work as pure or applied. It is meant to act as a guide or a tool only, not as a quantitative representation. This figure is only representative of my data and is not intended as a generalisation about the disciplines.

As I have outlined, Figure 31 represents the ways in which interviewees responses could be situated on an axis between non-instrumental/pure and instrumental/applied research. The diagram is not seeking to make a definitive statement about where upon this spectrum full disciplines lie; rather it is reflective of the individual participants who were interviewed for this study. Within certain disciplines, a range of responses were observed, with those disciplines situated towards the extreme of the non-instrumental end of the spectrum nevertheless demonstrating pockets of highly applied research.

Importantly, within physics, quantum theorists and surface scientists would appear towards opposite ends of this scale. Similarly, philosophers specialising in ethics may deliver highly applied work, whilst those working on metaphysics or analytical philosophy would be considered as conducting theoretical research. Within disciplines in which this variation is apparent, the diagram identifies the expected range within that discipline as expressed by the blurred line running through it.[21] This diagram allows room for individual, dynamic trajectories, shaped by individuals, not the disciplines they were clustered in at the time of interviewing or level of seniority. In addition, an academics' attitude towards grant funding may shape this interpretation. At the time of interviewing, perhaps two academics from the

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[21] This figure is not based upon a participant's own mapping of their discipline onto a continuum. It is based upon the interview data which was then analysed with respect to mentions of applied/pure/instrumental/non-instrumental research. It is an indicative visual tool only.

same field had two very different attitudes towards applying for funding (one is successfully funded, one is not) and each hold different views which may also change over time. This depiction is intended to provide a level of granularity on divisions present in Figure 30 which would otherwise lend themselves to a dichotomous view. In order to provide greater insight into the richness of the data behind this depiction, I will now turn my attention to the discipline observations made by my interviewees.

9.3 Interviewee perceptions of impact and the disciplines

All interviewees expressed that an academic's response to the impact agenda would likely be dependent upon the type of research being conducted. As we saw in Chapter 5, pure/applied and art/science distinctions were dominant in interviewees' testimonials:

> The answer depends on the type of research you do. Even in law there are those who write about ethics and legal theory and it would be very difficult for them to prove a direct impact, whereas someone like me is a bit more fortunate.

> Law, Australia, Professor, Female

> Some research doesn't lend itself to it.

> Languages, UK, Senior Lecturer, Female

We have seen throughout previous chapters that analysis suggests that many participants associated impact with the notion of direct relevance to the outside world. In addition, I have noted that the notion of direct relevance is also further compounded by a sense that academics want to be relevant and feel a moral compulsion to make a contribution to society, where appropriate. However, such views are in deep tension with the inherent nature of certain disciplines, for example participants conducting theoretical research, where it would simply not make scientific sense to describe any kind of immediate social or economic outcome. Equally, for participants for which the timeline for achieving impact is long and diffuse, academics may not be inclined to pursue activities aimed at delivering impact. It is problematic that many participant perceptions seem further entrenched by this notion of utility and direct or short-term relevance (enforced by an agenda which is only potentially 'diluting' the footprint that academia has on society) instead of celebrating the nuanced 'real-world' relevance that different kinds of research can have:

> If we define impact as having relevance, if we define it as making a contribution beyond the university then I maintain it's already there and bringing in an agenda runs the risk of diluting what's already thereby wanting measurable, quantifiable outcomes in a much more clear cut way.

> Theatre, Film and TV, UK, Professor, Male

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I think the belief is that people don't see the humanities as relevant and that's an argument we're constantly making.

<div align="right">Languages, Australia, Professor, Male</div>

Public duty and a moral compulsion towards social betterment appears to be a strong motivating factor for my participants. "People want to be relevant" stated one academic from the humanities (Languages, Australia, Professor, Male) whose research, he claimed, was just a little too far removed from any notion of direct use. However, at times when impact was not easily identifiable, others noted that it would "be simply reckless" (Physics, UK, Senior Lecturer, Male) to even try to describe impact. This tension was strongly expressed by humanities scholars who felt that the nuanced nature of the impacts that might be generated by the arts made creating an impact story less than straightforward. This concern was compounded by the fact that some of the interviewees felt that cultural/social impacts would not be felt for a long time, as this account suggests:

> Quite often you don't see the impact of the things we're doing today till a long way down the road. Not just arts and humanities, sciences too. We understood that dinosaurs became extinct well before we found out why. So you have to do that basic work long before, saying that it makes life worth living doesn't really pass as an impact.

<div align="right">Archaeology, Australia, Professor, Female</div>

This kind of attitude was also maintained by pure science participants who perceived a similar problem with respect to the timeline for achieving impact:

> The reality is we're researching systems where we don't know what will happen…
>
> [JC: Do people say that in applications?]…No, they don't.

<div align="right">Maths, UK, Senior Lecturer, Male</div>

> It's kind of hard for the pure mathematicians to fit there. We are a few steps removed… so it is kind of a long bow.

<div align="right">Maths, Australia, Professor, Female</div>

This was seen by many participants as fundamental to the philosophy and origins of certain disciplines found in Impact Culture 1, Figure 30:

> As we all know, in the past many fundamental discoveries were not made in the name of developing technologies, they were made in the framework of studying fundamental processes in physics, in chemistry, biology and any type of technology that came about from that was actually making use of that knowledge.
>
> Physics, Senior Lecturer, UK, Male

Conversely, the opposite rhetoric was observed by a large number of social, life and earth science participants who claimed that impact was an implicit motivation and would thus be a direct goal of the research. These disciplines can be seen to broadly inhabit (although not exclusively inhabit[22]) Impact Culture 2, Figure 30.

> Impact is what we are about. It's easy in some ways; you could call us applied scientists.
>
> Environment, UK, Professor, Male

> I think if you are working with pragmatic aspects of law that have a practical application, then you're not doing it right if you're not working towards informing that sector.
>
> Law, Australia, Professor, Female

These accounts suggest the presence, at least on a superficial level (see Footnote 22) of a binary distinction - that those theoretical, non-instrumental disciplines are no doubt at the forefront of the resistance towards an impact agenda. However, this may be an oversimplification because responses are in part related to a participant's conceptualisation of impact in this context and also to the entrenchment of certain cultures of the pure and applied, not just arts vs. science. Indeed, analysis indicates that, with respect to impact, the arts and pure science participants share more in common than the arts might even share with the social sciences:

---

[22] Figure 30 is intended for use as an indicative tool/model in order to group participant responses into cultures based upon the similarities and differences observed in their reactions to impact. I acknowledge that disciplines can inhabit several cultures –increasingly the case in interdisciplinary research. This model relates to the responses of my participants only and cannot account for variation across a greater sample.

I think it's useful to draw a distinction between humanities and social sciences here, the two are often bundled together, social sciences, sociology, anthropology, economics and psychology etc. are constantly engaging in the wider community in terms of investigating what people are talking about and doing.

Languages, Australia, Professor, Male

For me, it's hard to imagine someone going into a field like health sciences or education and not wanting to make things better — how could you not want to do that?

Education, UK, Professor, Female

Here the question of relevance re-emerges, as social scientists are more naturally focused on social experience than scholars in the humanities, which suggests a further validation of Biglan's life/non-life distinction. To group the disciplines appears far from straightforward therefore, and as such the notional diagrammatic depiction of the disciplines across a scale where pure (or non-instrumental research) is at one end and applied (instrumental) is at the other allows us to see that there may be variation within these distinctions and indeed, that sub-fields may not necessarily fit neatly into one group or another:

It's certainly not alien to the field. However the theoretical sub-fields including historical linguistics or formal semantics might be harder to demonstrate impact.

Languages, Australia, Professor, Male

If we consider the 'arts vs. natural science' debate (accepting that this can be rejected as an all too narrow distinction), I find that interviewees from both fields appeared to validate aspects of this distinction, particularly with respect to considerations of the attitudes of academics, and their behaviours as reinforcing of a certain hierarchy of the disciplines:

I think there is a discipline difference between the arts and sciences.

Chemistry, UK, Senior Lecturer, Male

Indeed, there was commonality in the way that life, earth and social science participants responded attitudinally toward considerations of impact. For instance, without question the most superlative and hyperbolic accounts came from the arts and humanities participants and the pure science participants who could not see how their work would fit into the model of research impact. This mismatch of ideals and philosophies was characterised as 'howls' by one participant who, as we saw in Chapter 8, suggests that those disciplines might be at risk of some sort of "existential unravelling" (Chubb, Watermeyer & Wakeling, 2017, p.555).

There are predictably howls from people who cannot see how their work will align with this.

<p align="right">Mechanical Engineering, Australia, Professor, Female</p>

A minority view came from the life, earth and social science participants, the majority of whom thought that even though it would be difficult, academics from non-instrumental disciplines ought still to be able to justify their 'indulgences':

I don't think they'll [arts] like it because it's like the fundamental scientists. They're focused on some study of a 16th Century explorer, and what's the relevance of that? If you'd decide to do PhD on Scott of the Antarctic, and then you're asked what's the relevance, I don't think they'd like it, but you're very well-paid to have this indulgence so why shouldn't they have to justify that?

<p align="right">Agriculture, Australia, Professor, Male, A1</p>

Some interviewees' responses were reminiscent of Snow's stance, whilst analysis indicates that the majority of those conducting what they considered to be applied research expressed empathy for non-instrumental areas such as the arts claiming that it was still "incredibly important" but "I don't even know where they'd start" (Soil Science, Australia, Research Staff, Female). This justification resulted from participants acknowledging the inherent value perceived of certain disciplines:

It must be more difficult for theoretical researchers, but aren't we better for having great novels, or beautiful music?

<p align="right">Health Science, Australia, Professor, Female</p>

It could be hard though because for non-applied research, which is incredibly important, my work is built on stuff, but those people will be struggling and I would hope that there would be a pragmatic approach.

<p align="right">Soil Science, Australia, Research Staff, Female</p>

Analysis reveals a feeling of empathy, at least with respect to defending the concept of value across participants; however the clearest reinforcement of the arts/science divide appears to emerge through the need for measurement or evidence of impact for funding purposes. Again, in the case of the arts, interviewees claimed it was very difficult to evidence impact:

Not everyone might see it as public benefit but it is.

<p align="right">Languages, Australia, Professor, Male</p>

This kind of leap of faith – to know implicitly that something is of value - was reiterated by other interviewees as a necessary step in the development of an impact narrative. Here, the impact that is generated by the arts is one that is defended as central to culture and well-being:

> … Does it make for a better world? I don't know, but at least I think these are important issues to discuss.

> Philosophy, Australia, Professor, Male

We saw in Chapter 7 how some participants accused the impact agenda of reinforcing the idea that what matters is money and that, as a result, the arts and humanities are a private good "so if you value them you pay the price - that unfortunately is the case" (Literature, Australia, Professor, Male). Interviewees felt strongly that the arts and humanities "have kept alive the notion that life isn't just about making money" (Theatre, Film and TV, UK, Professor, Male), but the two cultures re-emerge again as their scientific peers suggest that surely they can justify why they are doing what they are doing:

> I'm sure they can say why they're doing it it's just maybe it's not as instrumental as some disciplines might be able to say.

> Mechanical Engineering, Australia, Professor, Female

The response that came from an arts and humanities participant which suggests a persistent level of tension with regards to how the arts are perceived in comparison to the sciences:

> There is usual concern that the arts and humanities will say like well, how do you judge that you're making an impact on someone's life – or quality of life, that's what the humanities do whereas there was a paper today talking about particle physics and what's the impact of someone doing pure maths or those similar subjects – but it's OK that that there is no application, pure maths, but we're not allowed to do that. Particle physicists doing something with equations, it might be 30 years before the impact happens – but that's OK, leave them alone.

> Literature, Australia, Professor, Male

Indeed, coupled with this was a sense of a lack of justice, where certain participants felt their work was seen as being of greater value both academically and socially. Certain participants from disciplines representing the social, life, earth sciences and engineering were seen as readily able to demonstrate impact by those less able to. Indeed, it was felt that this was part of their very purpose:

The research impact on the general community has not been sufficiently obvious. That's especially the case for the humanities. It's easy enough in engineering, you invent some particular kind of widget, that's fine, that's very obvious, it's not the kind of impact that the humanities or social sciences can have, and yet they do and should have great impact.

History, Australia, Professor Female

I don't think it can be part and parcel of what you're doing. If you're doing surveys or studies of people, you need to engage with people in communities and professions. I imagine medical and engineering, there are professional disciplines that might be important but it can't be...I don't know! I don't think it's possible with many disciplines, and certainly if it's going to be a blanket approach, there needs to be avenues, especially where the arts are often disadvantaged in terms of funding, needing huge equipment in ways that the sciences are not. It needs to account for the diversity of the work that goes on.

Gender Studies, Australia, Professor, Female

Once again, in contrast to the contentious 'Two Cultures' debate, interviewees appear at least behaviourally to have more empathy toward one another with respect to impact. Many interviewees suggested that it was not sensible to include the impact requirement for certain subjects, as these scientists' accounts of impact in the humanities reveal:

Show me it and I will agree, I will vote on their behalf but it's silly to imagine that pathways to impact will pitch them as individuals writing grants against engineering individual grants. That's a societal role. There's a debate to be had more broadly.

Engineering, Australia, Professor, Male, E2

Pure research? The knowledge may not have immediate practical impact but may have significant implications and the understanding or the universe, the environment, understanding of the interaction of human society and the environment.

Soil Science, Australia, Research Staff, Female

Indeed, this extract shows a humanities participant's empathy for the theoretical sciences about the kinds of impact they can show:

I think it's a mistake to think that the humanities can't have an impact, I think in a way the worst effect of the research impact maybe for some of the pure sciences like theoretical physics. I think some of those people, it's not easy to say how your research on let's say the theory of general relativity actually had an impact in the community, and that would be a shame, because it's clearly from the fundamental physics that the applied scientific research gains its strength.

History, Australia, Professor, Female

I have described in previous chapters how participants conducting pure research claimed they would find it almost very difficult if not impossible to have to think about impact if it was overly associated with utility. Where this was the case, there was a strong sense that if academics had always had to prove impact, then this would have been damaging to the research community. As a result, a view emerged that certain disciplines ought to be protected for the sake of their future viability, as one participant from the sciences says of the arts "I would not want to see them shut down" (Soil Science, Australia, Research Staff, Female). In this regard, several participants reinforced the need for a 'balance' of both pure and applied research; for fear that the quality of research would suffer if all research had to be applied (a sentiment that relates back to Chapter 5 and academic perceptions of types of research as high/low esteemed endeavours). These extracts describe this tension:

> I'm pretty sure that quite a few of my colleagues here would have had no chance at all; no chance at all if this had been criteria when they were in their primes.

<div align="right">Physics, UK, Senior Lecturer, Male</div>

What emerges here are clear reinforcements of ideas and themes already described in previous chapters, but they serve to highlight the varying dispositions of the cultures which are in fact deeply entrenched with respect to fears over the perceived value of types of knowledge. In addition to these observations, new commonalities emerge with respect to the impact domains and impact challenges facing new cultures of knowledge – namely those highlighted in Figure 30.

As we have seen, a prevalent view expressed by interviewees was support for the concept of the university, and the education system more broadly, as a public not private good, and the importance of teaching and passing knowledge on through the disciplines. The theme that united interviewees from across the disciplines was that participants felt that one's *real* impact ought to be on one's students, through teaching.

9.4   Uniting the disciplines

Almost all interviewees expressed a common belief that *teaching* ought to be considered a pathway to impact – many argued that their discipline's purpose was to enhance knowledge and understanding through teaching and research, and that this was of inherent value not just academically, but also socially. Interviewees were united in their belief that the real impact to be found (and this links back to the concept of the public good inherent to knowledge), is that which contributes to the passing on of knowledge to new generations of graduates, as the following extracts exemplify. Interestingly, most of the following quotes are

from Australian researchers, possibly reflective of the fact that UK researchers knew that academic impact did not constitute the REF definition of impact at the time of interviewing:

> More importantly I love researching and interacting with young people. Think about how fantastic it can be your ideology your wisdom and your knowledge and experience can influence generations of young people. Some of them will take your wisdom, knowledge, philosophy etc. and go out and do things in their own way and make it bigger and better.

> Engineering, Australia, Professor, Male, E2

> To enthuse students with the idea of the knowledge of their discipline to reproduce the discipline and to produce new knowledge - I don't think any of those things are taken for granted anymore.

> Literature, Australia, Professor, Male

Here, the role of teaching graduates who then, in-turn, go out into society in all industries, was felt by participants to be a significant impact arising from research:

> It's in leading, being in the vanguard of the cutting edge of education and science, and whatever the equivalent is in humanities, in knowledge and scholarship, both of those, to lead and to be the leader of the discipline, to teach teachers.

> Maths, Australia, Professor, Female

However, the notion of impact as understood certainly in UK research policy for the purposes of funding and assessment, precluded at the time of interviewing the inclusion of teaching as an impact. This is because the impact agenda is related to QR and RCUK funding only. The aim of the impact agenda was, as discussed in the opening chapters, to justify investment in *research* to the government and to the public. It was not an exercise to justify funding for teaching (now the remit of the Teaching Exercise Framework (TEF) – a mechanism which evaluates value for money from teaching and which has equally received criticism from the sector for being open to game-playing[23]). The ways in which teaching is described in these testimonies, implies that it is understood by many participants as creating a social good and this is not unlike the arguments put forward by Collini (2012) and others who argue that the prime role of universities is to contribute to society through education, not through commercial or similar engagement activities. This is something which has been

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[23] http://www.researchcghe.org/publications/making-sense-of-the-teaching-excellence-framework-tef-results/

taken into account by Lord Stern in his recommendations for subsequent research assessment processes but this was not known at the time of interviewing and conducting this analysis. Arguably, what the UK TEF and REF can be seen to symbolise is a bleed into the discourse about the measurement and value of education more broadly. Both exercises represent the need for greater visibility and justification and are perhaps symptomatic of broader global trends in HE outlined in earlier chapters.

Notwithstanding, in light of an impact agenda, not being able to justify education in terms of graduate mobility and skill development appeared to frustrate interviewees (as we saw in Chapter 8). Many interviewees associated the impact agenda with the marketisation of their very discipline. In attempts to boost student numbers, they identified a need to have to defend their discipline to the public:

> I'm always very defensive of archaeology when I'm talking to parents of undergraduates because although I live it and the students do, the parents think it's a bit esoteric and if you can tell them that you're working with industry /local authorities etc., because archaeology is parasitic on other disciplines, but can then feed that back. Parents are impressed by the relevance. They think it's irrelevant, but it's not.

<div align="right">Archaeology, UK, Professor, Male</div>

Indeed, several participants even noted that they felt that the impact of universities was understood only by the public as one of generating new graduates for a skilled workforce in society. Many felt that the 'public' didn't even necessarily know what research is taking place or link that research to their teaching:

> I don't think they see that as a good way of spending money but most people have ambition for their children to get a university degree, so they think of us as teachers and think that's a good benefit. They don't see the connection to research.

<div align="right">History, Australia, Professor, Female</div>

Many participants, in defence of the public good of universities, expressed positivity about the act of engagement itself as a means to achieving impact. Through engagement, informing and educating the public, several participants felt that they could show the value of what they were doing to non-academic audiences:

> The real answer in philosophy is not to start doing some complex justification about public good, but just to say, listen, this is what I think, isn't that interesting? That's public engagement.

<div align="right">Philosophy, UK, Professor, Male</div>

However, as others noted, the notion of universities as a public good was deemed to be important with respect to impact.

> There's just a generalised public good in having a better understanding of humanities questions, of social science questions and that the community as a whole is bound to benefit from that knowledge and from the greater sophistication of knowledge that occurs because of that…
>
> … It's as if there is no public good in universities, well that is not the case and it should never have been allowed to seem to be the case In one way you could look on the research impact as restoring that notion of the public good .In another way, if it assumes that oh there's no general public good there's only these kind of incidental one or two...then that I think would be a shame.

<div align="right">History, Australia, Professor, Female</div>

Notwithstanding a general feeling of support for public engagement of research, many interviewees maintained a level of concern about the idea of the university as a private good. In particular, several humanities participants suggested that impact reinforces a hierarchy of the disciplines, and a denigration of those unable to demonstrate their impact – views examined in Chapter 5. Indeed, because of the difficulty in measuring certain impacts, such as impact upon quality of life or culture, some participants from certain disciplines felt they would naturally struggle to align with impact more than others:

> You are definitely going to get faculties that are nowhere near as strong as they once were, discipline groups that are nowhere near as strong, and let me tell you, this is not something for the future, this has already happened. It is undermining the progression of the discipline itself.

<div align="right">Philosophy, Australia, Professor, Male</div>

There is therefore a prevailing view that impact may be seen to favour certain disciplines, certain types of impacts, and even certain types of people as the following extract exemplifies:

> I'm really talking about scientists because that's the world I'm in, there are a few arrogant researchers who I imagine are arrogant fundamental scientists, who will object to being subject to these constraints and requirements, but then most reasonable scientists while they might not like it, would accept that's the requirement and in some ways it's not a bad thing for them to be forced to come to grips with.

<div align="right">Agriculture, Australia, Professor, Male, A1</div>

In particular, applied research was seen to be more attuned to an impact agenda, because it was easier to evidence. Whereas pure researchers may be driven by "wanting to know

answers to big problems irrespective of outcome" (Maths, Australia, Professor, Female), applied researchers are naturally predisposed to thinking about the application of knowledge. The following account describes how pure research is purely speculative.

> That's a lot easier with applied research obviously. With fundamental research a lot of it will be absolutely speculative. If someone's purifying some enzyme, or working out the DNA codes of enzymes, they're not thinking about applied outcomes and there probably aren't any.

<div align="right">Agriculture, Australia, Professor, Male, A3</div>

Despite the clear sense that research impact is associated heavily with applied research by participants, there was also a sense from interviewees that greater working across disciplines was developing and emerging as an increasingly vital channel for delivering impact (as we see with the example of collaborations between mathematics and science). I will explore the opportunities for interdisciplinary working in Section 9.5 and demonstrate the kinds of attitudes expressed.

9.5   Role of pure and applied research – interdisciplinarity and impact

Not all participants made a binary distinction between applied and basic kinds of knowledge. Many identified scope for sub-disciplines within each discipline where there would be a spectrum of both pure and applied aspects within one field:

> You can look at the applied end of the English language so at the science, you can look at that, so everything has got its own applied aspect, it may not be the same as in agriculture but who cares, at the end of the day, simply sitting and talking about Tolstoy or whatever, there must be some reason, why are you studying Tolstoy- what is the application to the modern society?

<div align="right">Engineering, Australia, Professor, Male, E1</div>

Several participants carrying out pure research recognised the importance of applied research as being the channel for the ultimate application of their work. In particular, mathematics participants from both contexts made the connection between pure and applied as fundamental to the process of innovation:

> We think that some of the abstract symmetry structures that we've been working with are actually going to matter and be applied, it's hard, and it's going to be a long track.

<div align="right">Maths, Australia, Professor, Female</div>

> If you're curious about something that is of direct relevance to applications then they will go in hand very well indeed, it just so happens that as a mathematician, my curiosity is more about the mathematics and they are one step removed from applications because maths is used by scientists and engineers, they are the ones who use the maths to do the impact, we just do the maths.

> Maths, UK, Senior Lecturer, Male

Other examples where this was the case were provided by humanities participants, where large cross and interdisciplinary teams of academics were working on large projects which spanned the disciplines. For instance, funding schemes such as the new Global Challenges Research Fund (GCRF) can facilitate new interdisciplinary collaborations that wouldn't have happened without an impact agenda. It is not known how far the impact agenda necessarily brings together the pure disciplines, but this is a worthwhile subject for further research. To deliver this, many participants called for greater institutional support may be necessary to undertake information gathering and dissemination on how research can respond to large challenges:

> I think increasingly there's more interdisciplinary work. We're bringing in people from these different disciplines/viewpoints to enrich our insight into this one big problem whatever it might be, so to an extent I think the more that happens the easier it becomes because then it's not down to one individual to make it all clear.

> History, Australia, Professor, Female

One interviewee, this time from the sciences claimed that the impact agenda presents an opportunity for working across disciplines "I see that it's an opportunity to start to form cross disciplinary teams" (Engineering Education, Australia, Professor, Female). Working in this manner requires the cooperation of the individuals involved and we see throughout this analysis. Hints of the Snow/Leavis debate both in this chapter and particularly in Chapter 5, suggest that academics continue to hold entrenched views about types of research and those conducting it. For example, for some of my participants applied research was not even perceived as research: "there is the thought that applied research is not research, equally there are people in the applied fields thinking the same [about pure]" (Agriculture, Australia, Professor, Male, A1). For others, translation might even be seen as below them or a waste of their time:

> Yes, I can't see it. Having a professor spending time teaching kids to write letters, I'm not sure that's a good use of my time. Am I a snob?!

> History, UK, Professor, Female

In some cases, the association made between impact and application was seen to water down the quality of participants work:

> I got this grant and built in applied research. I don't know if it's any good. I'm not an applied researcher, but I said I would do it.

Psychology, UK, Senior Lecturer, Male

There are therefore hints of cultural and behavioural 'snobbery' and associations that will no doubt dictate a researcher's ability to respond to the impact directive collectively in this way which are undercurrents in the data. Overwhelmingly, the response from interviewees appears to be one of pragmatism and balance, where almost all expressed empathy for different disciplines in having to respond to the impact agenda. In fact, many participants made suggestions about how impact should be assessed on the basis of disciplines' proximity to application; with several suggesting that impact should carry less weight, the further the research is from application both in terms of funding and research quality assessment.

I will now draw together the observations made in this chapter, including the recommendations made by interviewees concerning how funding should be allocated on the basis of impact.

9.6   Summary

Participants appear more or less attuned to an impact agenda dependent upon their field of study and specifically its proximity to application or use. In addition, the discipline to which they belong and the underpinning epistemologies and philosophies, dictate not only how they react to the impact agenda in terms of level of resistance, but also how they feel towards themselves and their peers outside their discipline. This suggests that overarching, long standing debates about *Homo Academicus* and the particular 'tribes and territories' of certain domains and fields persist (Becher & Trowler, 2001; Bourdieu, 1998).

Considering the broad spectrum of disciplines represented in this research, I find that there are underpinning philosophies and epistemologies particular to each discipline or group of disciplines which drive their reaction towards impact, as other scholars have noted (Becher & Trowler, 2001; Biglan, 1973b; Braxton & Hargens, 1996; Neumann, 2009; Smart et al., 2000; Snow, 2012). I propose a 'Two by Two Cultures of Research Impact' which broadly show that participant responses tended towards the following groupings: 'Impact Culture 1', including but not exclusive to the 'soft & hard pure' arts and humanities and physical sciences and 'Impact Culture 2', including but not exclusive to the 'soft & hard applied'

social, life, earth sciences and engineering. These cultures are representative of the data within this project and do not deny or inhibit the possibility for fluidity between disciplines, sub-disciplines, identities and cultures discussed previously in Section 9.2.

Within this framework, analysis reveals a new dimension on which disciplines can be seen to share common drivers and characteristics, so that, for example the discipline of literature shares significant synergy with mathematics in relation to impact in the same way that education does with health or agriculture. Impact appears to present clear constraints for those researchers for whom impact is difficult to evidence – in particular, researchers from Impact Culture 1, representative of participant responses from the arts and pure sciences.

Throughout this chapter, I attempted to focus on impact and the disciplines, observing the issues that united and divided participants from a number of disciplines. In doing so, I suggest that the arts and sciences can be mobilised and need no longer be polarised – a finding that signals potential opportunity for inter and cross-disciplinarity working for example through joint events to engage non academics but also through the development of networks. Perhaps impact could be a facilitator of new academic collaborations. In addition, what unites the disciplines is a strong sense that impact ought to encompass the teaching of students and an overriding moral compass to generate social betterment. Examination of the disciplines can therefore be seen to be pivotal in understanding resistance to the impact agenda but also in harnessing opportunity such as greater scope of inter and cross-disciplinarity (Hill, 2015).

Indeed, the impact agenda can be seen to reveal a strong synergy of attitudes between the pure and non-instrumental or theoretical arts and theoretical sciences and between the social, life and earth sciences. In addition, I argue that the soft/hard distinction of the disciplines appears to translate to the impact cultures.

It appears that participants believe that there is not simply one form of impact, but that any impact could similarly be 'soft' or 'hard' in nature. For instance, participants felt that soft research might be seen to generate 'soft' impact. We saw in Chapter 5, how soft and hard may refer to impact domains and activities. Here, many participants felt that impact can be seen to be negatively reinforcing of notions of instrumentalism, as seen in Chapter 7. There also emerges a potential hierarchy of the disciplines in terms of attitudes and behaviours. Notwithstanding, analysis shows that there is a persistence of the underpinning behaviours, attitudes and even stereotypes set out by the arts/science Snow/Leavis debate including perceptions about superiority, intellectual ability and epistemic value. There appears then to be a reorientation of the axis of academic value, whereby the rhetoric of the arts/science

divide persist, the fundamental fault line revealed by the impact agenda is between pure and applied types of research.

With reference to previous chapters, we have seen that the level of expectation to respond to an impact agenda, particularly with respect to building impact into future bids for funding and assessment, presents a number of challenges for the academic community represented in this project. Specifically, with respect to particular themes explored throughout these chapters, we find that academic discipline can be seen to dictate to some extent the characterisation of impact – favouring certain types of impact and related activities. For example, as we saw in Chapter 5, disciplines which are seen to be 'hard' such as engineering or electronics, might be associated more naturally with generation of economic impact through activities such as commercialisation via technology licencing or spin-out. Indeed, Chapter 8 highlighted how embellishment of impact/game-playing and expressions of resistance to an impact agenda manifest through fear and anxiety in academic researchers conducting non-instrumental research. In contrast, a strong emotional and passionate response to the impact agenda is presented by those to which it is aligned.

Analysis reveals that the pure/applied distinction in some ways re-emerges for my participants through an impact agenda, and whilst several participants chose to deliberate between only good and bad science, most persisted with entrenched views about the merits of pure/applied research. In particular, we see a persistent theme that pure research is viewed with high esteem, seen as fundamental to application, intrinsically valuable.

Participants in this sample, particularly those from Australia appear to perceive their impact to include significant impact upon society through the training and teaching of their students. The fact that a distinction is made between these kinds of impacts in the official guidance in the UK appears to frustrate and demoralize some participants who then can be seen to revisit the discourse about knowledge as a public good in response. The 2016 Stern Review of the UK REF recommended there should be some inclusion of teaching as an indicator of impact if it is 'significant'. Although these recommendations are yet to be implemented, my analysis suggests that the academic community might respond positively to this recommendation if it leads to increased recognition of research-informed teaching. It is important to note that the REF is only one aspect of the picture and that consideration of impact in the context of funding applications may still seek to make a distinction between academic and non-academic impact.

Participant responses indicate that the disciplines emerge potentially more reliant upon each other than before. This is particularly the case for non-instrumental researchers because of the issues they associate with impact. These include for instance:

- ➤ Association of impact as meaning a direct relevance and the length of time it takes from idea to application
- ➤ Impact is within academia
- ➤ Impact is too hard to predict, define and evidence in the context of cultural/societal/public enrichment

With respect to cross-disciplinarity, if academics from disciplines in Impact Culture 1 work across and within disciplines from Impact Culture 2, this could be a strong enabler for academics whose pathway to impact is less straightforward and more diffuse. Indeed, as Impact Cultures 1 and 2 emerge, we might reflect on the persistence of Kant's observation of the togetherness principle, that 'theory without empirics is empty, empirics without theory is blind' (Kant, 1781).

What underpins and crucially what might facilitate the bringing together of the disciplines for maximum impact, is the emerging sense of empathy that many of the participants appeared to demonstrate. I find that participants from all disciplines share a strong sense of moral compulsion toward social betterment. Where that is in conflict with the norms and practices of discipline or academic field, this tension gives rise to emotional and moral dissonance.

However, that is not without an acknowledgement of the persistent behaviours, tendencies and snobberies that appear to still linger beneath the surface of what appears to be a new conception of the academic role and redefining of the purpose/value of knowledge in the current political climate. It remains a challenge to bridge Snow's 'gulf of incomprehension' across the cultures in order for the community to respond to the impact agenda.

10 Conclusion

10.1 Introduction

I now summarise the key findings of this research project, which explored academic attitudes towards the research impact agenda in the UK and Australia. In doing so I highlight the contribution this research makes to the field in terms of theory and empirical findings. I then reflect on what has emerged regarding the global conversation about the political and philosophical positioning of research impact in 'key findings' (Section 10.2). I frame the limitations of this study as opportunities for future research in (Section 10.3) before adding some concluding thoughts in (Section 10.4). I begin by revisiting the aims and research questions in order to remind the reader of the purpose of this study.

The aim of this research was to examine academic attitudes towards the impact agenda in the UK and Australia specifically with respect to their perspectives on notions of freedom, responsibility and epistemic value.

My research questions were framed by philosophical and political insights but the issues explored in this thesis required empirical investigation. I set out to contribute to the broader philosophical issues raised by the impact agenda (Chapters 2 and 3) with this timely empirical contribution.

 I aimed to investigate the following research questions:

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- How do academic researchers' responses vary across disciplines and different national contexts?

These questions are both timely and significant to the HE sector in the UK and Australia at a time when national policy around the management and measurement of research impact is rapidly evolving. Now, more than ever, the academic community is expected to justify a return on the investment of public funds to governments and funders whose attempts to form policy have been seen as (initially, at least for certain pockets of the community) at odds with the traditional values of what it means to create knowledge and the purpose of the university. UK policy in this area is being fine-tuned through the recent HE Research Bill (2016)

indicative of some of the recommendations of the Nurse Review (2015) through the amalgamation of RCUK and Innovate UK under UKRI and Research England (also part of UKRI). Notwithstanding, consultation with the academic community in the UK about these changes has been fairly robust and the process arguably open and transparent. An example of this is the Stern Review which took place in 2016. We have seen how Stern's recommendations on research impact in the UK REF attempt to modify or broaden its definition - for instance, to be inclusive of emphasis on public engagement and pedagogy, addressing perhaps some of the concerns expressed within this discussion. We have also seen how in Australia, a similar review and consultation process (ATSE, 2016) reflects a commitment to liaise and consult on research impact policy. Indeed, a veritable policy boomerang (!) has continued to move back and forth between the UK and Australia for some time, indicative of the ARC's commitment to ensuring that they learn from the UK.

Notwithstanding, there is much more work to be done in joining up academic understanding of impact with the requirements of policy makers and further work is needed to educate and inform the governments who require it. These developments can be seen to divide academics - indicative of a deeper conflict residing in the academic communities' value systems and moral positioning of both their identities as individuals and also as part of a whole (the university). The notion of the university as a public good remains a dominant and pervasive discourse, whereby its purpose remains one that ought to be preserved as an implicit contributor to society through the footprint of the millions of students who are educated, thereby preserving of the notion of the intrinsic value of knowledge. So too, the moral and social consciousness revealed by interviewees in their response to the notion of accountability reveals a community committed to their public duty as academics which is at odds with the prevailing discourse(s) about neoliberalism, for example. I will now revisit the key findings of this study pertinent to both theory and practice.

10.2 Key findings

In my analysis I showed how participants' understanding and conceptualisations shaped their responses to impact. In Chapter 5, having asked interviewees what impact meant to them, this research shows there are a range of interpretations; and that these responses can be seen to be related to and indicative of the disciplinary home of the respondent; and that both of these are associated with researchers' behaviour in response to the impact agenda such as those described in Chapter 8. Research impact policy at least in the UK suggests that applicants can forfeit writing a pathways to impact by articulating why their research will not impact upon society (Appendix 15). However this is suggestive of a policy which is not

entirely translating into practice and is indicative of a heavily marketised HE, the competitive and performative demands to which academics feel they must conform.

Chapter 5 also highlighted that interviewees drew connections between their research and impact because of the language and rhetoric used to describe it. The very word impact was seen by some as problematic and the accompanying rhetoric often off-putting when considering the context of having to 'demonstrate' a contribution. Importantly, the word 'contribution' appeared to resonate well with researchers. Notions of social betterment or having one's work used in practice were welcomed by many participants, but the 'weight' associated with impact was something which bore little resemblance to the kinds of effects that certain kinds of research would have (or would want to have in some cases). This was largely linked to the marketisation of HE and a commoditised view of knowledge (Chapter 7).

Importantly, national context emerged as an important variable because Australian researchers made greater reference to impact factors, publishing and academic impact than their UK counterparts, who seemed to readily refer to the official policy definitions, such as those provided by the REF. This suggests that the impact discourse was not as pervasive at the time of interviewing in Australia as it was in the UK and it may be different were the study to be repeated today. This research provides an insight into the views of Australian academics who were thinking in the abstract about impact – something that they would not be able to do now. I have therefore demonstrated that there appears to be a lack of consistent agreement about the term itself.

Analysis also revealed that fluidity in interpretation extended to types of impact activity and that these relate to the discipline groups. For instance, there is a greater alignment with public engagement in the arts than in the physical sciences, maths and engineering that instead emphasise commercial and economic impacts. Four impact domains overall emerged: academic, public, social and policy, and economic. This reflects the official definitions of impact in both national contexts. Indeed, through this chapter we started to see clear themes of responsibility and rhetoric of utility and instrumentalism emerge. Interviewees expressed a strong desire to communicate their work, but linked many of their difficulties in characterising and conceptualising impact with broader debates about freedom and responsibility. In addition, from the first chapter we can already see that discipline can be seen to play a part in academics' responses to an impact agenda and crucially sets apart two new cultures of research, reinforcing pure and applied concepts in which the arts and humanities can be seen to share more synergy with respect to impact with the pure sciences than with life, earth and social sciences.

I considered the role of academic freedom in this context because of the history of the impact debate discussed in Chapters 2 and 3. Contrary to the debate generated by its critics, I found that resistance to an impact agenda is not entirely to do with it being seen as an assault on academic freedom, although an interviewee's perception of academic freedom, and the way they defined it, ultimately shaped this discourse. For those who associated impact with directing research into different agendas, then academic freedom is seen to be at risk (Chapter 6). Within this context, it is seen to threaten creative and blue skies thinking and many interviewees revisited long-standing notions of the importance of serendipity and the Haldane Principle. Once again, the disciplines emerge as a key ingredient to this resistance. Those close to application, often as a condition of their funding, tended towards a strong narrative of accountability and indeed, in some cases did not expect or anticipate having academic freedom. However, for others, impact was seen as a threat to autonomy in research, vital for the true process of science and research to take place. Only a small minority remained ambivalent towards academic freedom, showing that it was a clear discourse which academics wished to engage in, whatever their view.

For the most part, the research shows that academic freedom was valued, but in some cases was viewed as a slightly outdated notion, certainly with respect to the idea of seclusion in an ivory tower away from society (Chapters 6 and 7). Instead, narratives of responsibility emerged here, and most academics felt that they had a duty to communicate, which seemed to override resistance towards the impact agenda on the grounds of absolute freedom. The research shows therefore that the resistance which characterised the initial debate about impact is not entirely related to a question of freedom, and indeed not necessarily representative of the full spectrum of disciplines. Academics identify with a strong compulsion to deliver a contribution to society, because of the funding they receive. However, many associate that contribution with the training of students and graduates - something that was overlooked at the time of interviewing in the UK research assessment process, but that has gained new currency at least with respect to pedagogy in the new REF following the Stern Review in 2016. These mechanisms are still a long way from allowing academics to justify their footprint through the passing of knowledge onto the next generation, and this appears to upset and frustrate the community on a very deep level.

In Chapter 7 I described how heavily my participants associated the impact agenda with the notion of utility. The word *use* appeared throughout the interviews as, at least to some extent, synonymous with impact. Crucially, it was not a word used by all favourably, some viewed it as a narrow conception of social betterment and internalised the concept that if their research was not 'useful' then it must be 'useless'. This caused many participants to return to and unearth a discourse about the valorisation of knowledge which called into

question the value of their endeavours and, as many participants internalised this process, the value of themselves as well. For many, this was expected and did not present challenges but for others it was the source of resistance. The language used in the interviews is suggestive of a community that relates their very purpose with providing answers and inherently contributing to society. This is reflected in repeated use of words such as 'should' and 'ought'. This chapter highlighted that, as we saw in Chapter 6, the impact agenda is very much seen as symptomatic of graver concerns about auditing research and the overall instrumentalisation and politicisation of knowledge rather there being an inherent objection.

Suggestions emerged through the analysis that the impact agenda runs the risk of being associated with a culture that only values that which is economically worthwhile (Chapter 7). As a result, academics who cannot justify their research in these terms appear to have reinforced notions of the vulgarity of applied research vs. the purity of basic research as a higher intellectual pursuit (Chapter 5). These associations re-appeared in Chapter 9, suggestive of continued polarisation of the disciplines. In Chapter 9 I attempted to provide further granularity on this by introducing the two by two nexus of research impact. The direct connection academics made between the impact agenda and the fundamental epistemic value of their discipline was also clear. The concept of public good was revisited and academics seemed to welcome the opportunity to discuss it. Notions of the ivory tower also appear to persist a little, but the research shows that most academics do not expect to have to hide away in one, instead, recognising their role in creating a dialogue with the public (Chapter 7). Several interviewees commented that public engagement was not a one-way street and that accountability applied to academics only as much as it should apply to any citizen. It was therefore suggested that the public also have a responsibility to find out more about research. This raises interesting questions about whether academics should have an elevated sense of responsibility or not. Where the value of their research was brought into question and contested, academics can be seen to be more frustrated and this may in-turn affect their behaviours and emotional responses, which I discussed in Chapter 8.

This led me to analyse the ways in which participants felt that the impact agenda can be seen to challenge traditional ideals, scholarly norms and moral standards and where that was the case, to examine the extent to which academics felt conflicted as a result. Chapter 8 examined the effects of the impact agenda on integrity and revealed once more that often for academics for whom their research was far removed from application or was perhaps less instrumental, without an obvious impact story they felt forced to embellish the impact of their research. This is characterised as impact sensationalism (Chubb & Watermeyer, 2016) and reflects the localised and systemic issues in universities including the hyper competitiveness in research and academic capitalism.

My research revealed a consistent theme that where impact was not obvious, academics felt that they or their colleagues would embellish and window-dress proposals for funding. In addition, this might also involve elaborating for the purposes of assessment. This research also suggests that impact and research are still viewed by some academics as separate activities. This might explain why some academics feel it is a lesser evil to abandon their ideal moral standards when embellishing in research applications. In addition, analysis also provides a unique insight into how these effects were making academics feel. In particular, the research reveals that whilst there is indeed a large amount of unrest about the impact agenda even in recent times, it can only be seen as one symptom of the broader issues in HE described in Chapters 1 - 3.

Whilst this research has indeed confirmed that there is negative emotion associated with the bureaucracy and politics of impact, there is a large amount of positivity and accommodation of knowledge exchange. For instance, findings suggest that academics feel genuinely invested in what they do and where their passion for a subject aligns with its impact, the emotional response towards impact is positive and there is little resistance. However, where there is a conflict between the passion for the research and needing to articulate an impact (for instance to do basic research for its own sake), this tightens the belt of resistance (Chubb, Watermeyer & Wakeling, 2017) and creates emotional dissonance. Policy (and institutions) which pays little attention to these emotions, or even worse seeks to stamp them out, will no doubt meet greater resistance and a greater divide between those who aim to support academics (para-academics) and the academics themselves. Again, a strong theme relating to academics' sense of responsibility accompanied emotional responses to impact, suggestive of a community which will endeavour to make the best of this requirement.

Chapter 9 provided a nexus by which the disciplines can be seen to align within two-by-two impact cultures. I contribute to theory with respect to highlighting the disciplinary differences observed through the lens of impact. Specifically, I suggest that there is an alignment between the arts and humanities responses and the physical sciences responses as one impact culture and the life, earth and social sciences another. Here the soft and hard divide suggested by Biglan appears to have less currency, but there is a reinforcing of the pure/ applied divide, which may or may not be something of concern. There is therefore a persistence of Biglan's pure and applied dichotomies. In fact, these two-by-two cultures highlight that the polarised worlds of the arts and the sciences, perhaps have greater synergy and more in common under an impact culture than Biglan's model implied. For instance, there is more in common between the arts and physical sciences through the lens of impact, than there is between the arts and social sciences. New cultures emerge through impact, not exclusively sharing commonalities but synergistic nonetheless. I argue that

through an impact agenda there is therefore greater scope for improved empathy between certain types of discipline where that was perhaps lacking in the past. Indeed, within this context there may be a greater currency for applied research, which can now perhaps be elevated in terms of its prestige. There is however a danger that the narrative associated with the impact agenda will have the opposite effect and further alienate pure researchers to the degree that they choose to view themselves and their work on an even higher intellectual plane. Such a scenario would not help the cause of intellectualism and would instead run the risk of encouraging further polarisation of academics from society and anti-intellectualism/elitism. It is important to warn therefore of the double-edged sword of the two-by-two cultures of research impact that this research suggests.

Analysis reveals that the pure/applied distinction in some ways re-emerges through an impact agenda, and whilst several participants chose to deliberate between only good and bad science, most persisted with entrenched views about the merits of pure/applied research. This can be seen as unhelpful with respect to co-production and inter-disciplinarity. This research suggests that the academic community and its beneficiaries need to be aware of more holistic versions of value in order to avoid a narrow view of instrumentalism. Instead, academic values often seem to clash with policy (McNay, 2007b). Whilst a dichotomy can be seen to emerge with respect to participant views towards impact, a level of awareness that there is a rich diversity of individuals within each discipline and a rich ecology of epistemologies and views across the academic community must also be respected. This research provides one snap-shot at the time of interviewing, based upon individual preferences at the time which may change (discussed in Section 9.2, Figure 31). However, where possible, policy should consider the associations drawn by many of my participants that impact equates to applied research. Many interviewees suggested instead that there needed to be a 'balance' and that it might not be appropriate to apply a broad brush approach to impact in research funding mechanisms. Doing this would preserve certain kinds of knowledge, held in high esteem by the research community.

Arguably there is, finally, more work to be done in raising the profile of impact as a valid component of academic life, but this cannot simply be addressed through institutional processes. Rather, more needs to be done to appreciate and harmonise the views of policy makers with those of the academics themselves to fully grasp the reasons why arguments about epistemic responsibility and the value of knowledge are being revisited and so keenly debated.

10.3 Limitations and opportunities for future research

From this research I have generated a rich amount of qualitative data from which two international peer reviewed journal articles have been published at the time of submission. There are many opportunities for further research that builds on this work. Firstly, when considering further research one might wish to improve on the number of participants (n=51). In order to gain a richer spread of responses, further research might wish to expand on this sample and gather more data from each discipline group. Alternatively, one might wish to focus on a larger sample of a particular set of academics from particular disciplines.

In order to get a more in-depth insight into the effects of impact in Australia, it is important to acknowledge that this study involved a short visit to Australia over a two-week period involving a total of nine interviewing days. A greater immersion might provide greater insight and further research might include a larger visit and a more diverse range of interviewing techniques in order to gain a variety of viewpoints. Additionally, as my role at the UK institution may have affected responses, one might also wish to adopt a broader range of methods including surveys or focus groups, in order to get a full range of responses and avoid researcher bias. Also one might alternatively use different institutions using less specific criteria for selection as outlined in Chapter 4. A further limitation of this study is that not every discipline is represented. Further research might therefore thoroughly analyse responses from across all disciplines, or for a more direct comparison of existing theory, map selected disciplines onto Biglan's model and classification of disciplines for instance.

This study looked at attitudes of mid-senior career academics towards impact in two research intensive UK and Australia institutions. Firstly, one might wish to broaden the national context and look at a wider range of institutions and how they are responding to equivalent impact agendas in their countries. For example, a European insight, particularly in light of the UK exit from the EU could be illuminating. So too might highlighting practices in other countries including America and Canada where enterprise and knowledge mobilisation is a growing issue in HE. It might also be interesting to consider the differences in attitudes of academics from non-research-intensives, compared with those in more traditional research-intensive institutions. In addition, in order to understand how impact affects all researchers, the focus of this study on mainly senior academics is acknowledged as a further limitation. The findings suggest that this could affect responses and so it may be prudent to look at other researcher career levels including PhD student attitudes towards the impact agenda alongside more established staff. Indeed, existing literature exploring this (Bastow et al., 2013; King's College London and Digital Science, 2015) indicated that there is no strong evidence that career stage greatly influencing responses to impact, but neither

is there clear comparative work of this. We have seen how my research suggests that younger and/or more inexperienced researchers may have different dispositions to impact, but more research would be needed to fully explore this. In addition, research conducted by King's College London and Digital Science (2015) similarly indicates that institutional stratification might influence reactions. Perhaps 'modern universities' and elite universities would be an interesting comparison. This is again another consideration worthy of reflection. This research was an in-depth qualitative study involving analysis of academics' attitudes towards research impact in the UK and Australia across just 51 academics. As a result one cannot generalise about the population; however in order to get a greater spread of views and to represent more of this research statistically, one might in the future utilise mixed methods of both interviews and surveys. With a bigger sample it is possible further themes may emerge, particularly if I was to take into account different variables of a bigger sample, such as career stage, institution type/size. A survey might initially comprise; demographic information, discipline and career trajectory information. I might ask participants to locate themselves within a type of research; pure/applied/strategic/use-inspired, for example. I would then introduce a series of attitudinal statements with which to agree or disagree in order to construct a scale or index. These might include statements about the dispositions which were uncovered through the qualitative work. I would then introduce statements with which to agree or disagree about the broader themes of instrumentalism, value, freedom and responsibility present in my research questions in order to try to quantify with a much broader sample the types of qualities and dispositions of academics towards the impact agenda.

As previously noted, I find that there are gaps in our understanding of how impact is conceived-of and how academics translate their research into practice. Furthermore, the research warns of many threats to the future of research under a marketised regime. We do not know the full effects or how these pressures are affecting application rates and peer review practices, for instance. Further research might look in more detail at how impact is reviewed in practice on grant funding peer review panels, as the research implies that not all academics take it seriously. If this is the case, this begs important questions about how academics are expected to respond to it. Finally, this research has only begun to consider the extent to which individual characteristics and traits affect responses towards the impact agenda. For instance, the effect of gender on responses concerning impact is one area of interest for further research. If the language and practices of impact are seen to be gendered, there may be more research required in understanding the barriers to understanding research impact.

10.4 Concluding thoughts

This thesis has focused on some of the key challenges facing the academic community specifically through the lens of impact - a phenomenon that is very much here to stay. One thing is certain – there is a need for an open and honest debate about impact.

Narratives of fear and resistance that initially dominated the discourse upon first designing this project are, to an extent, regrettably confirmed through analysis of the testimonies provided. However, this is far from a homogenous reaction. What emerges is a rich tapestry highlighting the complexity and diversity of disciplines and their resulting behaviours. Much of the reactions to an impact agenda are indicative of differing research practices, norms, values and philosophies, which cut across disciplinary boundaries and for some, are entrenched in deep-rooted ideals about what it means to be an academic. Indeed, the dissent, as well as the hope and/or compliance, reflected in these accounts provides us with a unique window into the personal, practical, philosophical and political dispositions of academics in a contested and turbulent research environment.

I find a senior research community morally and emotionally invested in what they do; passionate and motivated to make a difference with the knowledge they create through their students and beyond, but largely frustrated, marginalised and de-moralised by a system which feels at odds with their ideologies, habits and norms. Policy which harnesses the passions, motivations and moral sensibilities of academics and above all respects the value systems exhibited therein, stands a greater chance of gaining currency with the research community.

The implications for policy and practice of this research emerge at various levels. For instance, Chapter 5 in particular provides funders with a direct source of information on the definitions used by academics to define and make sense of impact. This may be particularly useful for Australian research policy-making bodies who are still defining and co-producing an impact agenda with the academic community and its managers. In addition, HEFCE in the UK, following the Stern Review 2016, were tasked with re-defining impact (my thesis was sent to HEFCE with this purpose in mind). Notwithstanding, my findings which shed light on the challenges facing academics, game-playing and the implications for integrity could help funders and other bodies such as the UK Research Integrity Office to appreciate the dangers of treating impact as a tick box exercise. In the case of Australia, when our paper on integrity

(Chubb & Watermeyer, 2016) was covered by the media, the ARC Chief Executive was quick to respond publicly, reaffirming and clearing up ambiguities for Australian academics writing impact statements[24].

Policy might also be influenced by the evidence provided here with respect to disciplinary diversity – as many participants suggested that certain types of research should not have to consider impact, something which is an on-going discourse. Indeed, other aspects of the research may have implications for practice in which university managers might utilise the findings of Chapters 5 and 9 to consider how to best structure their impact support. My research indicates that assuming that one should group the arts, humanities and social sciences together, whilst grouping the physical, life and earth sciences together with respect to impact (commonly the case in research support structures in institutions and for training purposes) is not necessarily appropriate. Instead one might look to the impact domains occupied by certain disciplines arising from this research and group them accordingly or purposely blend groups in order to maximise skills and approaches whilst acknowledging their diversity. I will continue a dialogue with stakeholders of my research in the hope of achieving some impact myself.

Finally, my research raises concerns about what happens to the quality of research if impact (and academic conceptualisations of impact) overtly drive research into particular areas. It highlights the subsequent threats to pure research vital for global competitiveness and esteem as well as raising questions about whether it is meaningful to ask all disciplines to consider impact and how academics making value judgements of impact both in funding and assessment panels can do so dispassionately, considering their passionate responses towards the impact agenda.

Now more than ever, at a time when the role of experts is being debated, academics should come forward as experts to co-produce and design policies, concerning their own sector; research policy. Employing the ethos of impact, policy consultations must then surely involve and above all listen to the community they aim to serve in order to guard against further "epistemic drift" (Elizinga, 1985). Frodeman (2017) stated that "the impact agenda can be seen to represent an opportunity that we should seize, not a burden" (p.154). Indeed, whilst impact may be seen as a threat to certain ideals, it also offers opportunity to move on from

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[24] http://www.abc.net.au/radio/programs/am/study-finds-academics-embellishing-on-grant/7238954

outmoded and entrenched views about the role of academia as somehow removed from society.

Perhaps then, impact can be seen as a beacon of broader changes, admittedly posing a threat to, but also offering possibility for, the public university - creating social betterment and providing greater visibility of the knowledge created by universities and the academics who give themselves so unreservedly and relentlessly to their endeavours.

Appendix 1: Overview of disciplines represented in UK semi-structured interviews and the corresponding research funders.

ARTS & HUMANITIES Arts and Humanities Research Council (AHRC)	Archaeology Theatre, Film and Television Literature History Music Languages Philosophy	M M F F M M M	Professor Professor Professor Professor Professor Professor Professor
SOCIAL SCIENCE Economic and Social Research Council (ESRC)	Education Economics Politics Social Policy Psychology Sociology	F M M M M M	Professor Professor Professor Senior Lecturer Senior Lecturer Senior Lecturer
LIFE AND EARTH SCIENCE Biological and Biotechnology Research Council & Natural Environment Research Council (BBSRC/NERC/MRC)	Health Science Biology (B1) Biology (B2) Biology Environment Environment (E1) Environment (E2)	M M M F M M M	Professor Senior Lecturer Senior Lecturer Senior Lecturer Professor Senior Lecturer Senior Lecturer
ENGINEERING, MATHS AND PHYSICAL SCIENCES Engineering, Physical Sciences Research Council (EPSRC/STFC)	Electronics Physics Chemistry Electronics Computer Science Computer Science Maths Chemistry Physics Computer Science	F F M M M F M M M F	Research Staff Professor Professor Professor Professor Research Staff Senior Lecturer Senior Lecturer Senior Lecturer Professor

Table 5: Overview of disciplines represented in UK interviews

Appendix 2: Overview of disciplines represented in Australian semi-structured interviews and the corresponding research funders.

ARTS & HUMANITIES	Languages	M	Professor
	Archaeology	F	Professor
	Music	F	Professor
	Literature	M	Professor
	History	F	Professor
	Philosophy	M	Professor
SOCIAL SCIENCE	Engineering Education	F	Professor
	Education	M	Professor
	Finance	M	Professor
	Gender Studies	F	Professor
	Law	F	Professor
LIFE AND EARTH SCIENCE	Health Science	F	Professor
	Soil Science	F	Research Staff
	Agriculture (A1)	M	Professor
	Agriculture (A2)	M	Professor
	Agriculture (A3)	M	Professor
ENGINEERING, MATHS & PHYSICAL SCIENCE	Chemical Engineering	F	Professor
	Maths	F	Professor
	Engineering (E1)	M	Professor
	Engineering (E2)	M	Professor
	Mechanical Engineering	F	Professor

Table 6: Overview of disciplines represented in Australian interviews

Appendix 3: Characterisations of impact by discipline group

Arts and Humanities
Social good (UK,MUS)
Engagement (A,HIS)
Value (A,HIS)(A,LIT)
Social development (A,LANG)
Betterment (UK,MUS)
Relevance (UK,TV)
Outreach (UK,LIT)
Cultural enrichment (A,HIS)(A,LANG)
Contribution (UK,TV)(UK,PHIL)
Education (A,ARCH)
Knowledge Exchange/Transfer (UK,ENG)(UK,PHIL)
Public benefit(A,ARCH)(UK,PHIL)
Public good(UK,MUS)(A,LIT)(A,HIS)
Exciting the public about human creativity (A,LANG)
Ignoring academia (A,LANG)
Community interest (A,LANG)
Enriching society (A,LANG)
Engaging communities (A,LANG)(A,HIS)
Contributing to public debate (A,LANG)
Public engagement (A,LANG)(A,LIT)(A,HIS)(UK,HIS)
Economic benefit (A,LANG)(A,LIT)

Give back to the community (A,LANG)
Educating the public (A,ARCH)(A,PHIL)(UK,HIS)
User application (A,MUS)
Motivating and enthusing people about a subject (A,MUS)
Public outreach (A,MUS)
What ought to be done (A,LIT)(UK,HIS)
Benefit to stakeholders (A,HIS)
Enriching knowledge of cultural heritage (A,HIS)
Impact national interest (A,PHIL)
Significance (A,PHIL)
National benefit (A,PHIL)
Educating citizens able to evaluate and able to talk about things that are important to democracy (A,PHIL)
Outside the academy (UK,ARCH)
Social engagement (UK,ARCH)
Collaborative research (UK,ARCH)(A,MUS)
Causing shifts in society (UK,HIS)
Real world questions (UK,LANG)
Usefulness (UK,LANG)

Table 7: Characterisations of research impact by discipline group: arts and humanities

Life and Earth Science
Changing behaviour (A,AGR)
Better decision making (A,AGR)
Applied research (A,AGR)(A,AGR)(A,AGR)
An effect (A,AGR)(UK,ENV)
Community service (A,AGR)
Go out to the people using my research (A,AGR)
Extension: go out and extend (A,AGR)
How you might improve someone's lot (A,AGR)
Community conversations (A,HEA)
Make a difference (A,HEA)(A,AGR)(UK,HEA)
Improve life (A,HEA)(UK,HEA)
Improve health and nutrition (A,HEA)(A,AGR)
Relevance to stakeholders, policy makers (A,HEA)
Translation from research to policy or practice (A,HEA)
Make strategic alliances with people (A,HEA)
Serendipitous (A,HEA)(UK,BIO)
Practical outcomes for industry (A,AGR) (A,AGR)
Part of the funding contract (A,AGR) (A,AGR)
Influencing industry practice. Adoption and modification by industry (A,AGR)
Good research (A,AGR)
Increase the production of food, alleviate hunger and malnutrition in the world (A,AGR)
Part and parcel the research without the impact is not really research (A,AGR)

Improve quality of life (A,AGR)
Application to modern society (A,AGR)
Influences on the learning process (A,AGR)
National benefit/ significance (A,AGR)
Practical in orientation (A,AGR)
Geared towards the practical (A,AGR)
Pathway to market (A,AGR)
Solving a problem (A,AGR)
Translating good science into applied outcome (A,AGR)
About having a result (UK,ENV)
Anything that takes work outside the academic community, into businesses, helping to influence the UK economy I suppose, the developing world in our case. (UK,ENV)
Getting the word out on what I do (UK,BIO)
Knowledge exchange (UK,BIO)(UK,ENV)
Influencing policy (UK,BIO)
To improve critical thinking in the general public (UK,BIO)
Societal relevance (UK,ENV)
Economic impact, return on investment (UK,ENV)(UK,BIO)
Applying findings and apply them to a present day management issue (UK,ENV)
Feed into EU policies (UK,ENV)
Social and economic development (UK,ENV)

Table 8: Characterisations of research impact by discipline group: life and earth sciences

Physical Science, Maths and Engineering
Working closely with industry (A,ENG)
Applied/ application research (A,ENG)(A,ENG)(UK,MAT)(UK,PHYS)(UK,CS)
Community engagement (A,ENG)(UK,CS)
Capacity building (A,ENG)
Relevance (A,ENG)(UK,MAT)
Usefulness (A,ENG) (UK,PHYS)
Communication plan (A,ENG)
Significance (A,ENG)
Outside academia (A,MAT)
Application (A,MAT)(UK,PHYS)
Improving life quality (A,MAT)(UK,ELEC)(UK,CS)
Educational future (A,MAT)
Affecting society (A, MAT)(UK,PHYS)(UK,ELEC)
Translating the potential benefits of research (UK,CHEM)
National benefit (A,MAT)
Economy, health and wellbeing of the country(A,MAT)
Research goes somewhere and has been used by somebody (A,ENG)
Change: lives, socially, economically, environmentally (A,ENG)(UK,ELEC)
Preventing things from going wrong in the environment i.e. Oil spill (A,ENG)
Saving money (A,ENG)(UK,ELEC)
Social good (A,ENG)
Market driven (A,ENG)

User-pay (A,ENG)
Making money (A,ENG)(UK,CS)
Improve efficiency of practices(A,ENG,)
Improve environmental performance (A,ENG)
Social implications of research (A,ENG)
Improve understanding of the universe (A,ENG)
Solving problems (A,MECHENG)(UK,ELEC)
Usefulness to society (UK,PHYS)
UK REF definition (UK,PHYS)
Take-up (UK,PHYS)
Exciting people about a subject (UK,PHYS)
Improving public understanding of science (UK,PHYS)
Policy impacts (UK,PHYS)
The effect research has on other people (UK,ELEC)
Making things quicker and cheaper (UK,ELEC)
Academic impact (UK,ELEC)(UK,CS)
Technology transfer (UK,ELEC)
Spinning/selling research (UK,CHEM)
Breakthroughs, discovery (UK,CHEM)(A,ENG)
Evidence based policy making (UK,CHEM)
Contribution to society (UK,CHEM)
Reductionism (UK,CHEM)
Exploitation (UK,CS)

Somebody other than academics has to care (UK,CS)
Involvement from day one, built in (UK,CS)
Engagement (UK,CS)
Practical outcome for people (UK,CS)
Economic impact (A,MAT)(A,MECHENG)
How has the world changed by what we have done? (UK,CS)
Social impact (UK,CS)(UK,CS)
Helping people (UK,CS)
Influence (UK,CS)
Academic impact (UK,MAT)
Real world application (UK,CHEM)
Justifying public money (UK,CHEM)(UK,PHYS)
Making use of knowledge (UK,PHYS)
Public impact (UK,CS)

Table 9: Characterisations of research impact by discipline group: physical sciences

Social Sciences
Education (A,ED)
Societal and environmental impact (A,EDU)(A,GEN)
Application (A,EDU)(A,LAW)(UK,ECO)(UK,P)(UK,ECO)(UK,SOC)(UK,PSYCH)
Research that services the community (A,ED)
Social Justice (A, EDU)(UK, ECO)
Relevance (A,EDU)(A,ED)
Community service, benefit, support (A,ED)

Innovation (A,EDU)
Neo-liberalism (A,EDU)
Community value (A,EDU)
Financial impact (A,ED)
Informing policy and practice (A,EDU)(UK,EDU)(A,LAW)(UK,ECO)
Use: If people are using my techniques, software, instruments (A,ED)(UK,SOC)
Communicating results (A,ED)
Solving problems for industry (A,FIN)
Impact on other researchers (A,FIN)
National benefit (A,FIN)
Outside (A,FIN)
Beyond universities (A,GEN)
Cultural impact (A,GEN)
Use (A,LAW)(UK,ECO)
Informing the sector (A,LAW)
Practical (A,LAW)(UK,SOC)
Changing the world (UK,EDU)
Make a difference (UK,EDU)(UK,ECO)
Engage and make the world a better place (UK,ECO)
Positive engagement with the world (UK,ECO)
Involving communities (UK,ECO)
Engagement (UK,ECO)
Improving decision making (UK,ECO)

Communicating to a wider audience (UK,ECO)
Challenging policy issues (UK,POL)
Shaping policy debate (UK,POL)
Public outreach (UK,POL)
Influence (UK,POL)
Wider effect beyond the academy (UK,POL)
Change something (UK,PSYCH)
Improve things for people (UK,SOCI)

Table 10: Characterisations of research impact by discipline group: social sciences

Appendix 4: Typologies of impact by discipline group

Arts and Humanities
Education and outreach programmes in schools, workshops for kids (A,MUS) (A,LANG)(A,MUS)(A,HIS)(UK,ARCH)(UK,ENG)(UK,HIS)(UK,LANG)
Social Media (A,MUS)(A,LIT)(A,HIS)(UK,HIS)(UK,PHIL)
Development of teaching programmes (A,LANG)(A,MUS)(A,HIS)(UK,ARCH)
Partnering/ advising community centres and groups (A,LANG)(A,HIS)
Advising policy makers, MPS, Local Authorities, European policy, legalisation, providing evidence (A,LANG)(A,ARCH)(UK,ARCH)(UK,TV)(UK,HIS)(UK,PHIL)
Developing games/the games industry/digital outputs (A,LANG)(A,LIT)(UK,HIS)
Talking to the public, putting on events, workshops (A,LANG)(A,MUS)(A,LIT)(A,HIS)(A,PHIL)(UK,TV)(UK,ARCH)(UK,LANG)(UK,PHIL)
Media, TV, radio, film, documentaries, magazines (UK,ARCH)(A,LANG)(A,ARCH)(A,MUS)(A,LIT)(A,HIS)(A,PHIL)(UK,TV)(UK,ENG)(UK,HIS)(UK,MUS)
Books (A,LANG)(A,MUS)(A,PHIL)(UK,LANG)(UK,PHIL)
Tourism (A,ARCH)(A,LIT)
Job creation (A,ARCH)
Consultancy (A,ARCH)(A,LIT)(UK,ARCH)
Industrial partnerships and regular meetings with/presentations to industry/advisory boards i.e. BBC, Film (A,MUS)(A,LIT)(UK,ARCH)(UK,TV)(UK,HIS)
Marketing and communications (A,MUS)(UK,ARCH)
Knowledge Transfer Partnerships (A,MUS)(UK,ARCH)(UK,PHIL)
Public lectures,exhibitions(A,MUS)(A,HIS)(UK,ARCH)(UK,ENG)(UK,LANG)(UK,PHIL)
Teaching (A,MUS)(A,LIT)(UK,LANG)(UK,PHIL)

Performance(A,MUS)(UK,MUS)(A,LIT)(A,HIS)
Teacher training programmes i.e. National science learning centres (A,LIT)(A,HIS)(UK,ARCH)(UK,TV)
Community festivals(A,HIS)(A,LIT)
Website (A,HIS)(UK,HIS)
Concert or festival booklets (A,HIS)(A,LIT)
Working with/ advising museums (A,HIS)(A,PHIL)(UK,ARCH)(UK,TV)(UK,HIS)(UK,PHIL)
Public intellectualism (A,PHIL)
Building links with research agencies, NGOs, think tanks (UK,ARCH)
Commercial accounts and partnerships with business (UK,ARCH)(UK,LANG)
Development of technologies/ IP (UK,ARCH)(UK,MUS)
Interviews with civil servants, presenting evidence (UK,ARCH)
Developing standards frameworks for industry (UK,ARCH)
Training staff in related organisations (UK,ARCH)
Impact officer/ intermediary does the work (UK,ARCH)(UK,HIS)(A,HIS)
Building links with galleries (UK,MUS)
Community music groups (UK,MUS)
Entertainment (UK,MUS)
Networking, conferences (UK,LANG)
Workshops/ events with stakeholders i.e. The Police (UK,PHIL)

Table 11: Typologies of impact by discipline group: arts and humanities

Physical Science, Maths and Engineering
Forming strategic partnerships and long term work with end users like industry i.e. Oil and gas industry (A,ENG)(A,ENG)(A,ENG)(A,MECHENG)(UK,ELEC)(UK,PHYS)(UK,ELEC)(UK, CS)(UK,CS)(UK,CHEM)(UK,CHEM)(UK,PHYS)(UK,CS)
Consulting (A,ENG)(A,ENG)(A,MECHENG)(UK,CS)
Public relations: Media, TV, radio, press releases, articles for popular press, New Scientist etc. (A,ENG)(A,ENG)(A,MECHENG)(UK,PHYS)(UK, ELEC)(UK, CHEM)(UK,CS)(UK,MAT)(UK,CHEM)
Engaging with the community (A,ENG)(UK,CS)
Developing good relationships with planners, government policy makers (A,ENG)
Working across disciplines (A,ENG)(A,MAT)(A,MECHENG)(UK,ELEC)(UK,MAT)
Working with the military (UK,ELEC)(UK,CS)
Developing technologies i.e. Search engine (A,MAT)(A,ENG)(UK,PHS)(UK,ELEC)(UK,ELEC)(UK,CS)(UK,CS)(UK,PHYS)
Visualising data for the public through art (A,MAT)
Public lectures (A,MAT)(UK,CS)(UK,PHYS)
Public speaking / attending industry conferences, industrial road shows (A,MECHENG)(UK,PHYS)(UK,CS)
Lectures to learned societies (A,MAT)(A,MECHENG)(UK,CS)
Training and capacity building (A, MAT)(A,ENG)(UK,ELEC)(UK,ELEC, M)(UK, CHEM)(UK,CHEM)(UK,PHYS)
Teacher training (A,MAT)
Education, schools, sixth forms, outreach e.g. Annual maths competition for kids (A,MAT)(A,ENG)(UK,ELEC)(UK,CHEM)(UK,CHEM)(UK,PHYS)
Matched funding through government Linkage schemes (A,ENG)(A,ENG)(UK, CS)(UK,PHYS)(UK,PHYS)

Workshops with industry, getting continued advice and input (A,ENG)(UK, PHYS)(UK,CHEM)
Design codes, frameworks and international standards, developing new techniques (A,ENG)(A,MECHENG)(A,ENG)(UK,ELEC)(UK,ELEC)(UK,CS)(UK,CS)
Writing documents for policy makers, working with policy makers, influence policy, giving talks to Gov. departments (A,ENG,M)(A,MECHENG)(UK,CHEM)(UK,CS)(UK,PHYS)
Employment locally through skilled PhD students (A,ENG)
Working with companies, private sector (A,ENG)(A,MECHENG)(UK,ELEC) (UK,ELEC)(UK,PHYS)(UK,CHEM)(UK,CS)(UK,CHEM)(UK,PHYS)(UK,CS)
Making products (A,ENG)(A,ENG)
Executive education & training (A,MECHENG)(UK,CS)(UK,CHEM)
Academic impact through training of UGs and PGs (UK,PHYS)(UK,CHEM)
Public engagement: exciting people through workshops and talks, café scientifique, festivals, science week (UK,PHYS)(UK,ELEC)(UK,CHEM)(UK,CS)(UK,CS)(UK,CHEM)(UK,PHYS) (UK,CS)
Targeted serious political advocacy (UK,PHYS)(UK,CHEM)
Commercialisation, inventions, patents (UK,ELEC)(UK,CS)(UK,CHEM)
Organising workshops with industry (UK,ELEC)(UK,CS)
Building up contacts with industry (UK,CS)(UK,CHEM)(UK,PHYS)
Pitching to investors, venture capitalists (UK,CS)
Setting up a spin out company (UK,CS)(UK,CHEM)(UK,PHYS)
New products and services (UK,CHEM)(UK,PHYS)
Networking, cold calling, googling contacts (UK, CS)(UK,MAT)(UK,CHEM)
Impact award (UK,CS)(UK,CS)

Working with end users (UK,CS)(UK,PHYS)
Consulting consumer groups/ the public (UK,CS)
Disseminating to wide audiences: road shows, info in museums (UK,CS)(UK,MAT)
Professional video created (UK,CS)
Drug development (UK,MAT)
Social media (UK,MAT)(A,MAT)
Discovery (UK,CHEM)(UK,CHEM)
Having a website (UK,CHEM)(UK,CS)

Table 12: Typologies of impact by discipline group: physical sciences

Life and Earth Sciences
Working with industry (A,AGR)(A,AGR)(A,AGR)(UK,BIO)(UK,BIO)(A,SOIL)
Magazine articles for industry magazines (A,AGR)(A,SOIL)
Seminars for industry, conferences, presentations (A,AGR)(A,AGR)
Community work (not public engagement) (A,AGR)(UK,ENV)(UK,ENV)(UK,ENV)
Press releases (A,AGR)(A,AGR)(A,AGR)(UK,ENV)(UK,ENV)(UK,BIO)
International Vs. Local kick the dirt dirty, welly boot stuff (A,AGR)(A,AGR)(A,AGR)
Working with government departments (A,AGR)(UK,ENV)(UK,BIO)(UK,ENV)(UK,HEA)
Meetings with consumer reference groups/PPI (A,HEA)(UK,HEA)
Workshops with stakeholders, stakeholder forums, consumers, farmers, industry (A,HEA)(A,SOIL)(A,AGR)(A,AGR)(UK,BIO)(UK,ENV)(UK,ENV)
Consumer involvement (A,HEA)
Close working with NGOs, think tanks, charities, local organisations, governing authorities (UK,ENV)(UK,ENV)

Evidence drafted for policy makers, policy change (A,HEA)(A,AGR)(A,AGR)(UK,BIO)(UK,ENV)(UK,ENV)
Drug discovery (A,HEA)(UK,BIO)
Capacity building group for researchers (A,HEA)(UK,ENV)
Media, TV, interviews, newspaper articles, radio (A,HEA)(A,AGR)(A,AGR)(UK,ENV)(UK,BIO)(UK,ENV)(UK,BIO)(A,AGR)
Write a book (A,AGR)
Public presentations (A,AGR)
Newsletters, leaflets, public engagement (A,AGR)(UK,ENV)(UK,BIO)(UK,BIO) (UK,ENV)(UK,HEA)
School and education programmes, outreach activity, citizen science, I'm a scientist get me out of here and visits (A,AGR)(UK,ENV)(UK,BIO)(UK,BIO)(UK, ENV)(UK,BIO)
Patents, Commercialisation (A,AGR)(UK,BIO)(UK,BIO)
Communication with politicians (A,AGR)(UK,ENV)
Business case analysis/ benefit cost analysis (A,AGR)
Commercial work, contractual arrangements (A,AGR)(UK,BIO)
Food security (A,AGR)
Patients and carers (UK,HEA)(A,HEA)
Producing markers that plant breeders could use (A,AGR)
Social media; blog, twitter (A,AGR)
Videos (A,AGR)
Teaching (A,AGR)
Working with managers and local communities in villages and habitats (conservation research) (UK,ENV)
Setting up a charity (UK,ENV)

Strategic partnership with business (UK,ENV)(UK,BIO)
Widening participation activities(UK,BIO)
Collaboration with societies (UK,BIO)
The use of apps on mobiles (UK,ENV)
Piece of drama or write a poem (UK,ENV)
Working with the tourism industry (UK,ENV)

Table 13: Typologies of impact by discipline group: life and earth sciences

Social Science
Funding through industry/ with partner involvement (A,EDU)(A,ED)(UK,SOC)
Media coverage, articles, interviews, TV, radio, the Conversation (A,EDU)(A,ED)(A,GEN)(A,LAW)(UK,EDU)(UK,ECO)(UK,SOC)
Working with communities in vulnerable populations, meetings etc. (A,ED)(UK,ECO)(UK,SOC)
Teaching new generations, capacity building (A,ED)
Books (A,ED)(A,GEN)
Public speaking, symposiums, lectures (A,ED)(A,FIN)(A,GEN)(UK,ECO)(UK,PSYCH)(UK,SOCI)
Working, joining, doing interviews with NGOs Think-tank's, voluntary orgs (A,ED)(UK,POL)(UK,SOC)
New learning technologies (A,ED)(UK,EDU)
Public engagement/ schools dissemination i.e. Science shops (A,ED)(A,FIN)(A,LAW)(UK,EDU)(UK,POL)(UK,PSYCH)
Artists creating works of art about research, exhibitions, theatre production about homelessness (A,ED)
Working with other researchers, capacity building (A,ED)

Developing links with corporations, businesses (A,ED)(A,ENGED)
Dissemination though workshops, conferences, publications (A,ED)(UK,ECO)(UK,ECO)
Graduate employment (A,ED)(A,GEN)
Working in the policy area, writing reports for public bodies (A,ED)(UK,EDU)(UK,ECO)(UK,SOC)(UK,PSYCH)
Consulting, knowledge transfer (A,FIN)(UK,POL)
Working across disciplines (A,GEN)(UK,SOC)
Social media (A,GEN)(UK,ECO)
Working with communities of interest: Australian feminist societies (A,GEN)(UK,EDU)(UK,ECO)
Extending networks and consulting them: emails, personal contacts(A,GEN)(UK,SOC)
Working with museums (A,GEN)(A,ED)
Inviting people to book launches (A,GEN)
Working with libraries (A,GEN)
Engaging with communities and professions (A,GEN)(UK,ECO)(UK,SOC)
Direct citation by supreme courts (A,LAW)
Consultative opinions on legislation, law reform (A,LAW)(UK,SOC)
Write government reports for inter trial commissions and trade law (A,LAW)
Providing evidence to policy makers and practitioners (UK,EDU)(UK,ECO)
Brochures and marketing materials (UK,EDU)(UK,ECO)
Programme development for schools, teaching products, educational materials, incentivise schools (UK, EDU)(UK,POL)
Work with government departments (UK,EDU)(UK,ECO)(UK,SOC)
Developing a database of information on educational programmes for use by practitioners (UK,EDU)

Initiatives to speak to kids, identify needs etc. (UK,EDU)(UK,PSYCH)
Working with teachers, teacher training (UK,EDU)
Training (UK,EDU)(UK,SOC)
Working with private sector (UK,EDU)(UK,ECO)(UK,SOC)
Working with registered charities or not for profit orgs (UK,EDU)(UK,ECO)(UK,SOC)
Marketing and outreach activities (UK,EDU)(UK,ECO)(UK,ECO)
Hiring a dissemination manager to broker research (UK,EDU)
DVDs (UK,ECO)
National conference at Medical Museum, workshops and presentations (UK,ECO)(UK,SOC)
Website (UK,ECO)
Engagement with stakeholders, patient groups, pharmaceutical sectors (UK,ECO)(UK,SOC)
Resource allocation in the NHS (UK,ECO)
Working with Quaker groups(UK,POL)
Working with MPs (UK,POL)
Presenting and debating (UK,POL)
Working with public sector organisations(UK, SOC)(UK,PSYCH)
Asking organisations 'what questions do you want answering' (UK,SOC)
New technologies (UK,PSYCH)
Working with learned societies (UK,PSYCH)
Build partnerships (UK,SOCI)
Social Enterprise engagement/third sector (UK,SOCI)
Actively pursuing links – enterprising activity (UK,SOCI)
Working with charities and voluntary organisations (UK,SOCI)

Table 14: Typologies of impact by discipline group: social sciences

Appendix 5: Impact types

Academic impact	"Enhancing the knowledge economy - New knowledge and scientific advancement - Worldwide academic advancement to address issues of importance in other countries or globally - The development and utilisation of new and innovative methodologies, equipment, techniques, technologies, and cross-disciplinary approaches - Contributing towards the health of academic disciplines – developing expertise and knowledge in new or declining disciplines or multi-disciplinary areas - Delivering and training highly skilled researchers." (RCUK, 2011)
Social / economic impact	"Enhancing cultural enrichment, quality of life, health and well-being - Contributing towards evidence based policy-making and influencing public policies and legislation at a local, regional, national and international level - Shaping and enhancing the effectiveness of public services - Transforming evidence based policy in practice and influencing and informing practitioners and professional practice - Improving social welfare, social cohesion and/or national security - Changing organisational culture and practices - Contributing toward environmental sustainability, protection and impact reduction - Enhancing the research capacity, knowledge and skills of businesses and organisations - Contributing to increasing public awareness and understanding of science, economic and societal issues - Contributing toward wealth creation and economic prosperity i.e. the creation and growth of companies and jobs; enhancing business revenue and innovative capacity - Enhancing the efficiency, performance and sustainability of

	businesses/organisations including public services
	• Attracting R&D investment from global business
	• Contribution to regeneration and economic development
	• The commercialisation and exploitation of scientific knowledge, leading to spin out companies, and the creation of new processes, products and services
	• Training of skilled people for non-academic professions." (RCUK, 2011)

Table 15: Impact types, adapted from RCUK, 2011 downloadable document 'Impact Types' (RCUK, 2011)

Appendix 6: Stakeholder definitions of impact in the UK and Australia

Funder	Type of focus	National context	Definition
RCUK Academic impact	Prospective impact	UK	"The demonstrable contribution that excellent research makes to academic advances, across and within disciplines, including significant advances in understanding, methods, theory and application." (RCUK, 2017)
RCUK Social & economic impact (Pathways to impact)	Prospective impact	UK	"The demonstrable contribution that excellent research makes to society and the economy. Economic and societal impacts embrace all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations by fostering global economic performance, and specifically the economic competitiveness of the United Kingdom, increasing the effectiveness of public services and policy and enhancing quality of life, health and creative output." (RCUK, 2017)
HEFCE REF	Retrospective impact	UK	"An effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia." (HEFCE, 2011)
ARC Impact statements /proposed ERA impact	Prospective and retrospective impact	Australia	"The demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, beyond contributions to academia" (ARC, 2015)
ARC Impact pathway	Prospective impact	Australia	"An analysis or plan which identifies causal links by which research achieves or will achieve its impact. It is used by researchers

			and research planners to identify hypotheses about the route from research-specific activities, through to uptake and adoption of research outputs, and the realisation of subsequent future intended impact(s). This includes defining the changes and linking processes, and indicators to measure progress towards intended impact(s)." (ARC, 2017)
NHMRC	Prospective impact	Australia	Requires information about the potential translation of research to non-academic audiences adopting the ARC definition. "Those that contribute to new commercial opportunities, better products and processes to treat patients, better policies to improve prevention strategies, publications that influence policy makers to make improvements in management and administration of our system, and even how being a researcher and a teacher or clinician improves your work." (NHMRC, 2017)
Thompson Reuters	Impact Factor	Global	"The impact factor is a measure of the frequency with which the "average article" in a journal has been cited in a particular year or period. The annual JCR impact factor is a ratio between citations and recent citable items published. Thus, the impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the previous two years." (Clarivate, 1994) (http://wokinfo.com/essays/impact-factor/)

Table 16: Official definitions of impact referred to by participants

Appendix 7: Relation of impact to academic freedom
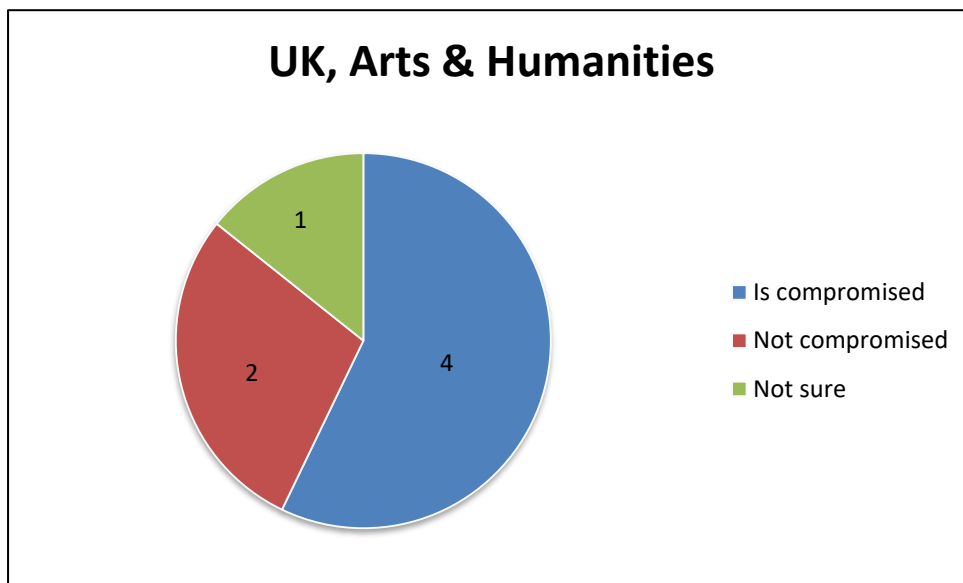
Figure 32: Relation of impact to academic freedom: arts and humanities, UK
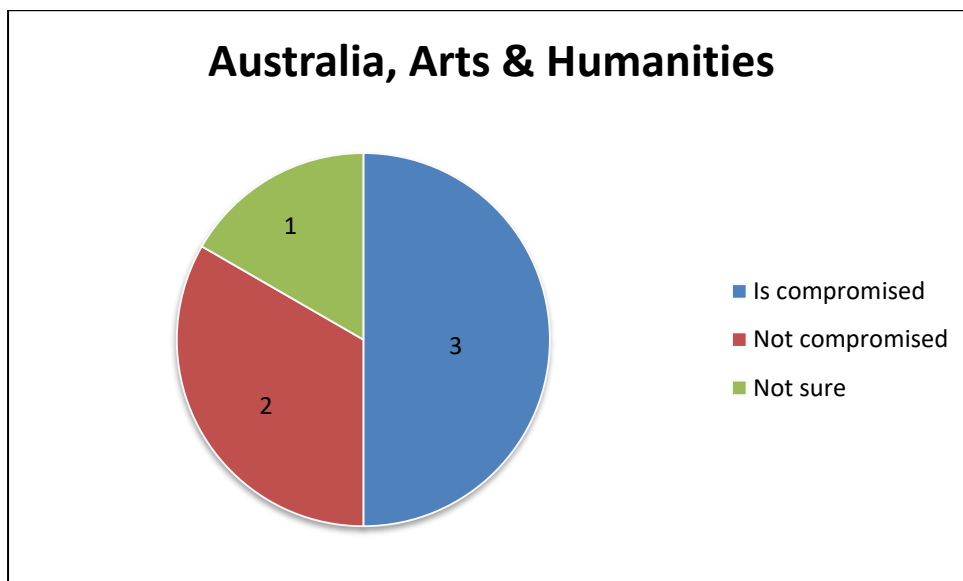
Figure 33: Relation of impact to academic freedom: arts and humanities, Australia
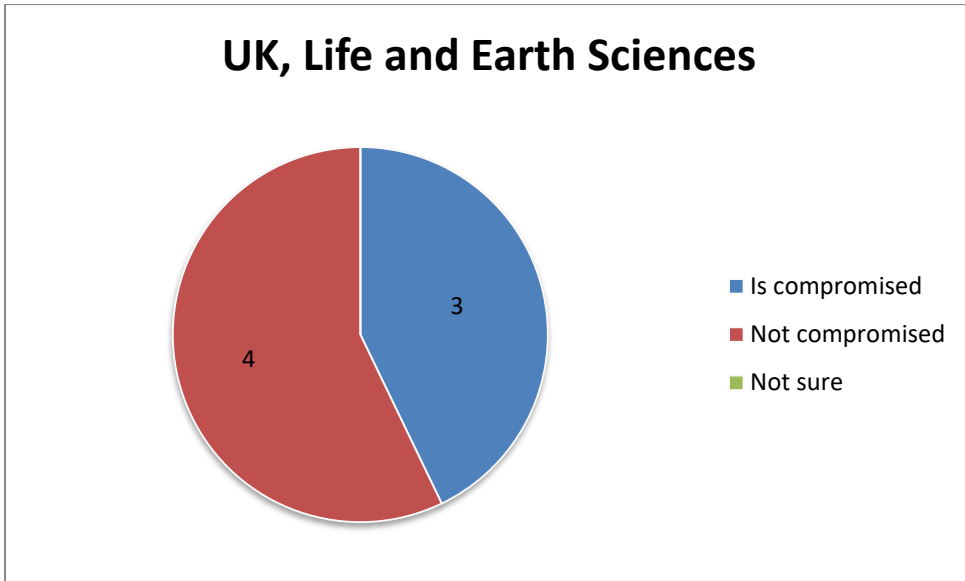
Figure 34: Relation of impact to academic freedom: life and earth sciences, UK
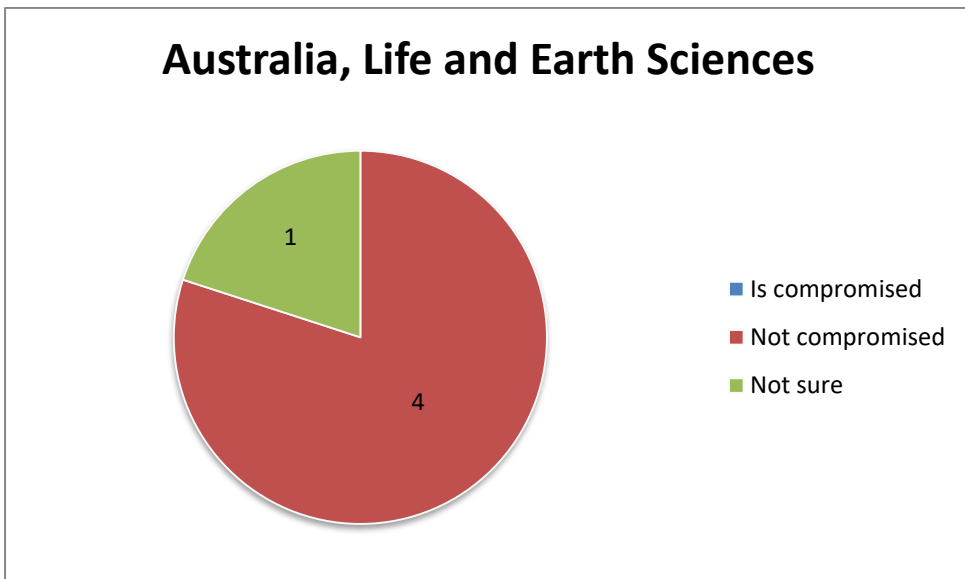
Figure 35: Relation of impact to academic freedom: life and earth sciences, Australia
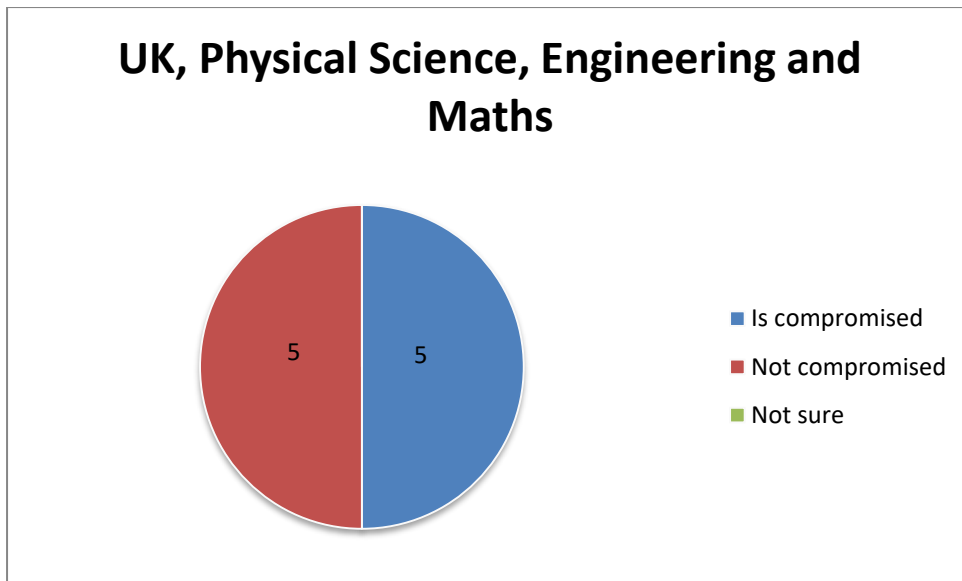
Figure 36: Relation of impact to academic freedom: physical science, engineering and maths, UK
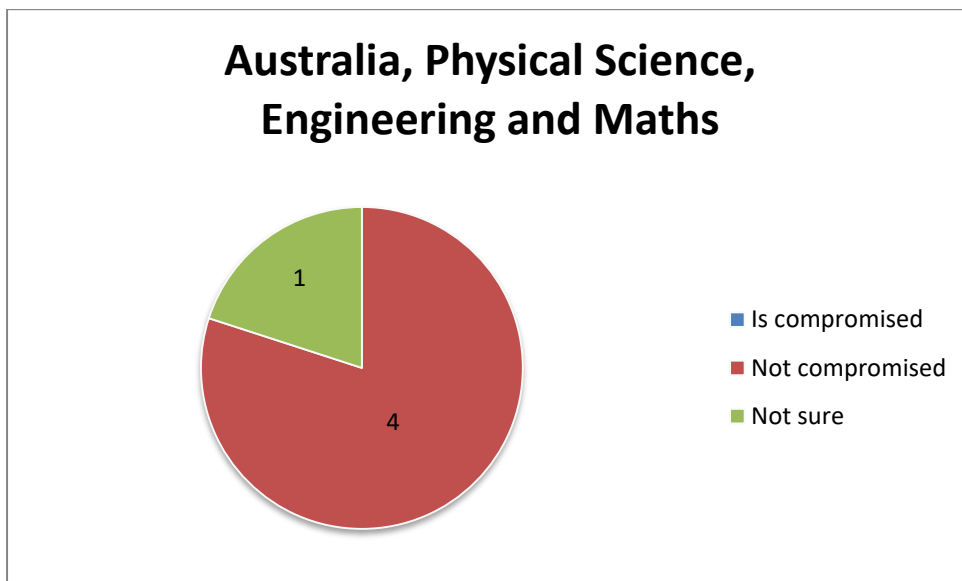
Figure 37: Relation of impact to academic freedom: physical science, engineering and maths, Australia
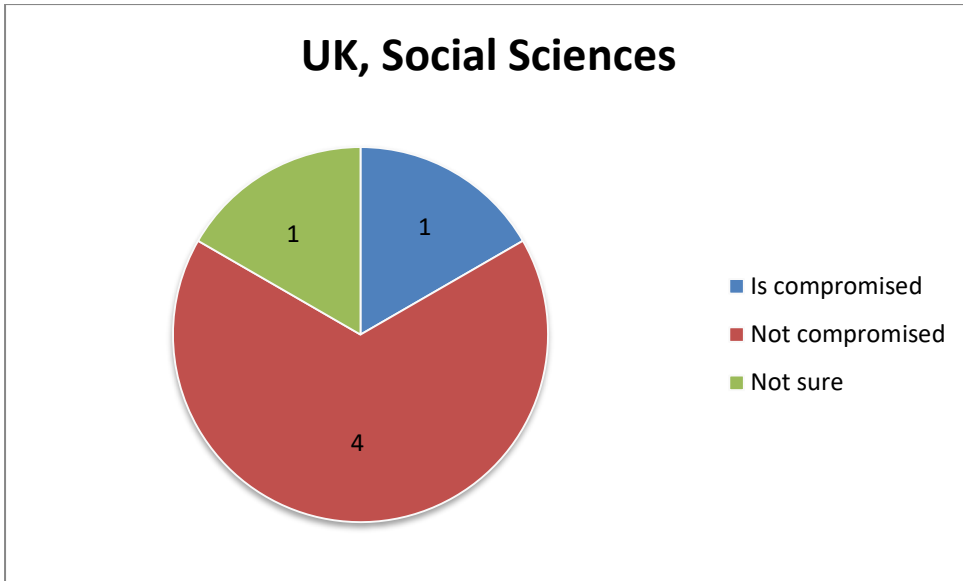
Figure 38: Relation of impact to academic freedom: social sciences, UK
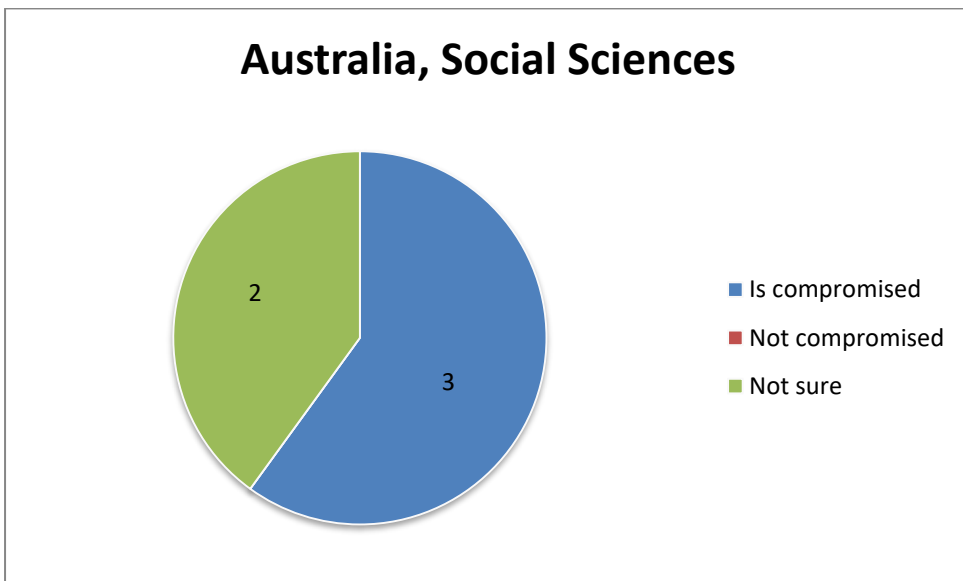
Figure 39: Relation of impact to academic freedom: social sciences, Australia
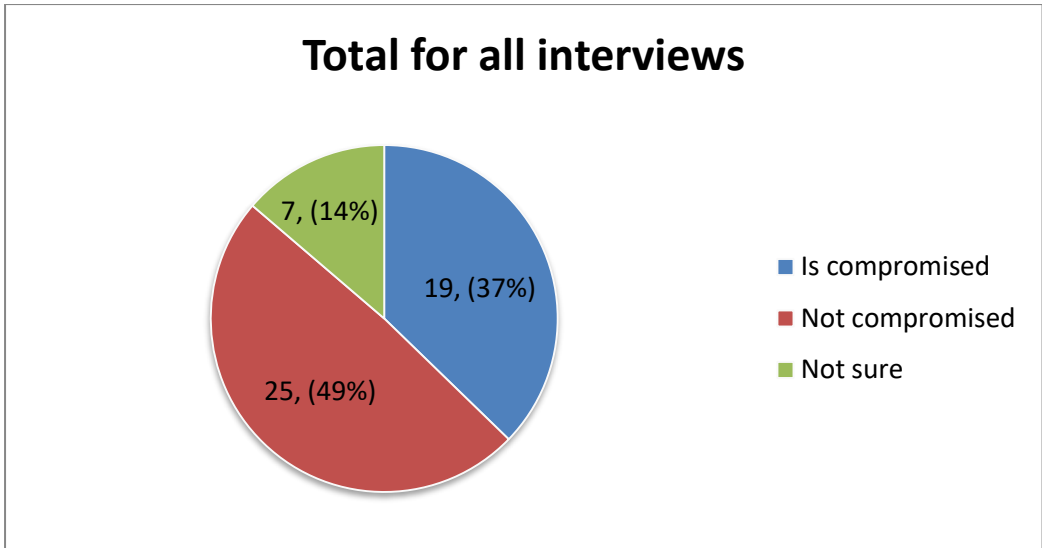
Figure 40: Relation of impact to academic freedom: total for all interviews
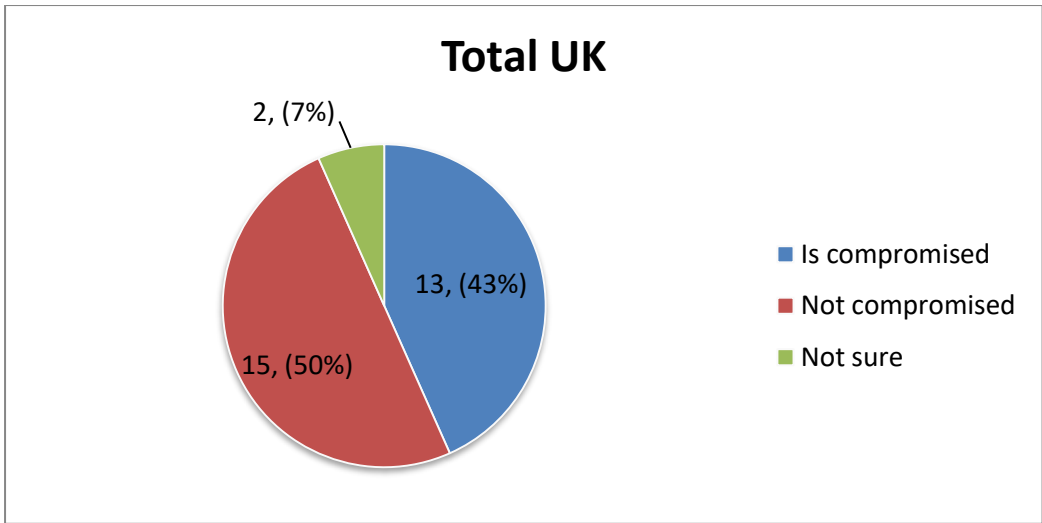
Figure 41: Relation of impact to academic freedom: total for UK

Total Australia

- Is compromised
- Not compromised
- Not sure

6, (28%)
5, (24%)
10, (48%)
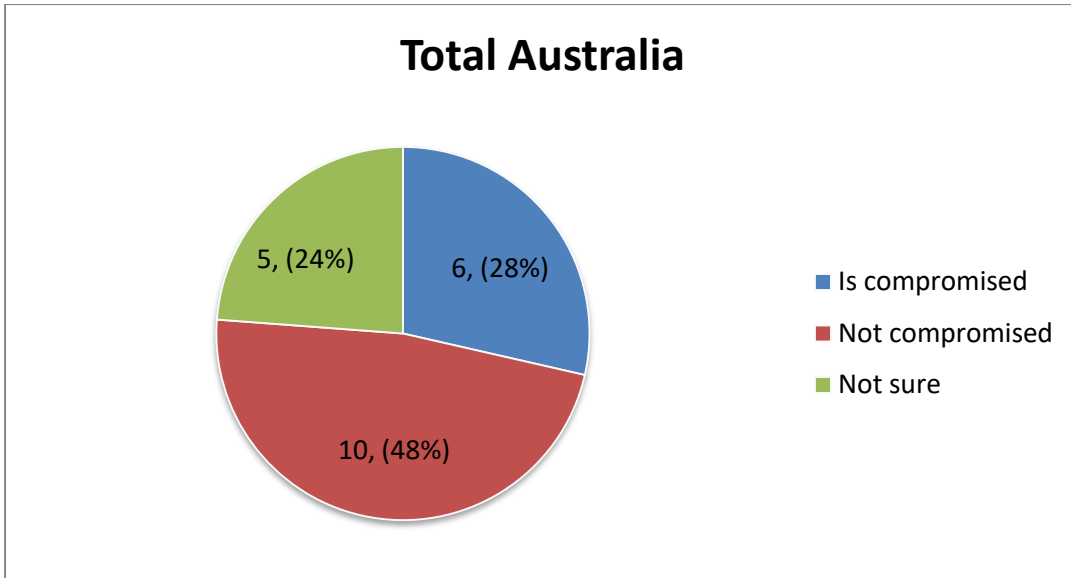
Figure 42: Relation of impact to academic freedom: total for Australia

Appendix 8: Relation of impact to duty to communicate
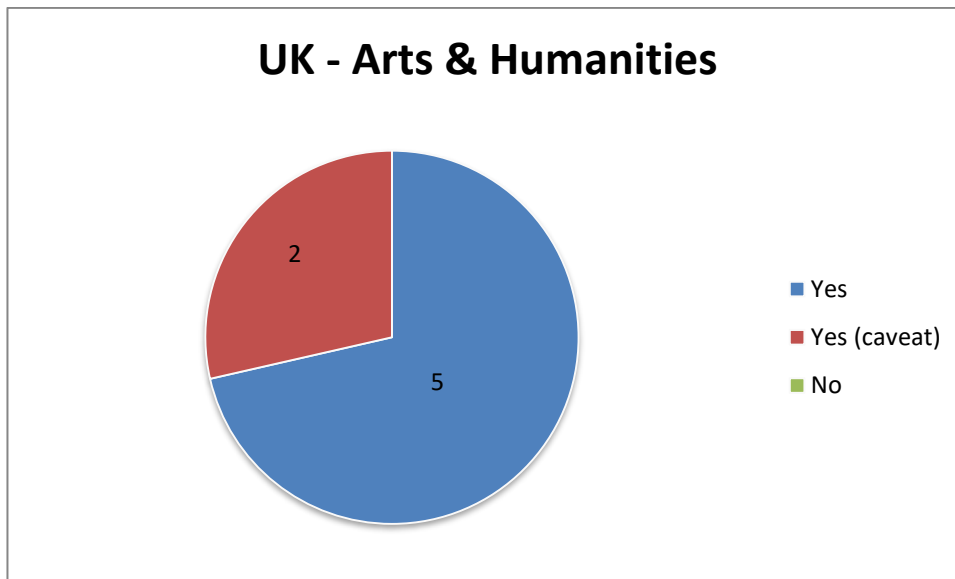
UK - Arts & Humanities

Figure 43: Interviewee response to whether they felt a 'duty to communicate': arts and humanities, UK

Australia - Arts & Humanities
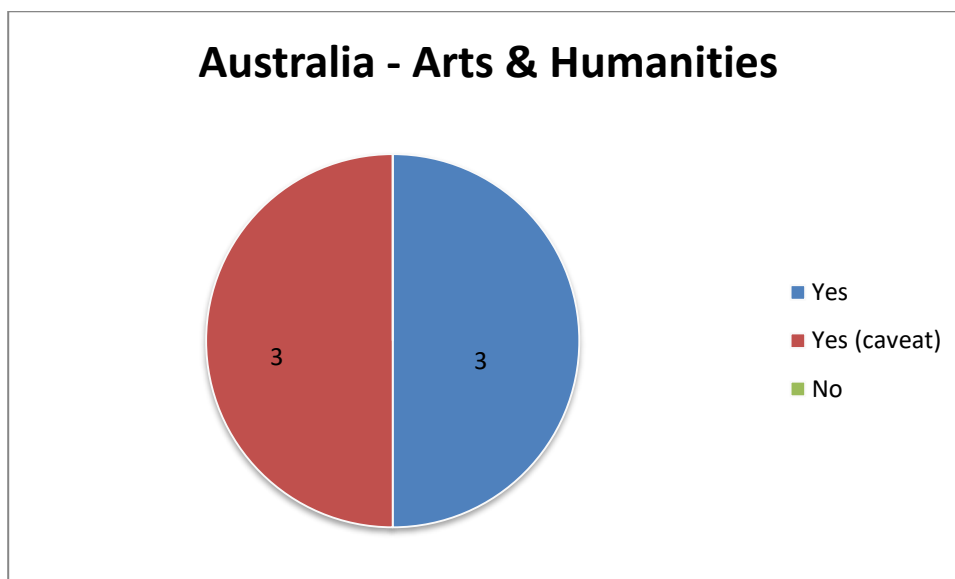
Figure 44: Interviewee response to whether they felt a 'duty to communicate': arts and humanities, Australia
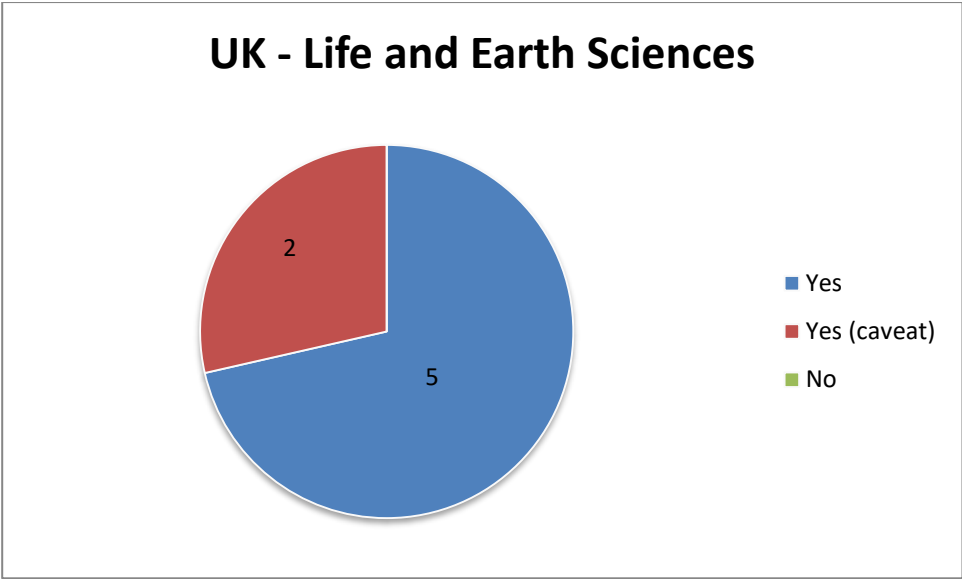
Figure 45: Interviewee response to whether they felt a 'duty to communicate': life and earth sciences, UK
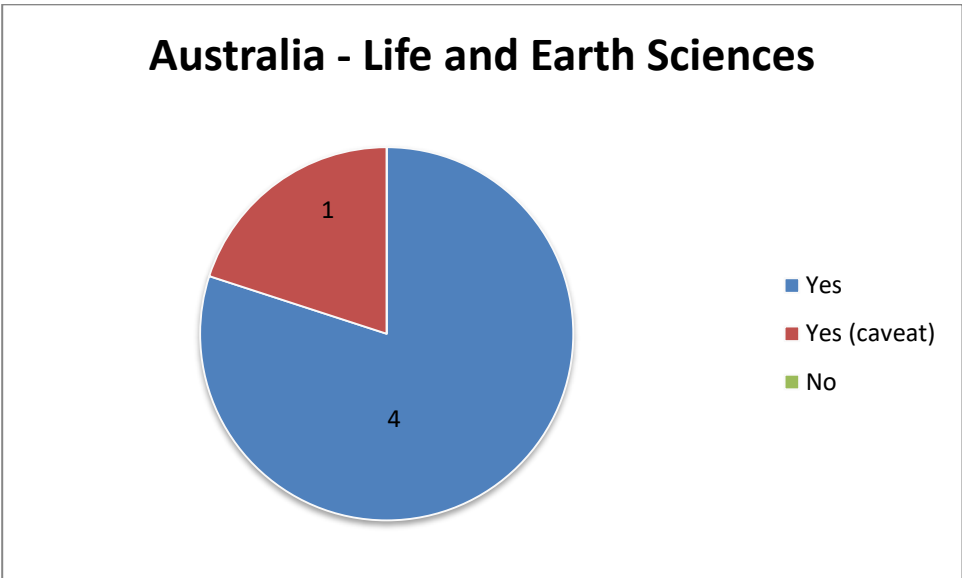
Figure 46: Interviewee response to whether they felt a 'duty to communicate': life and earth sciences, Australia
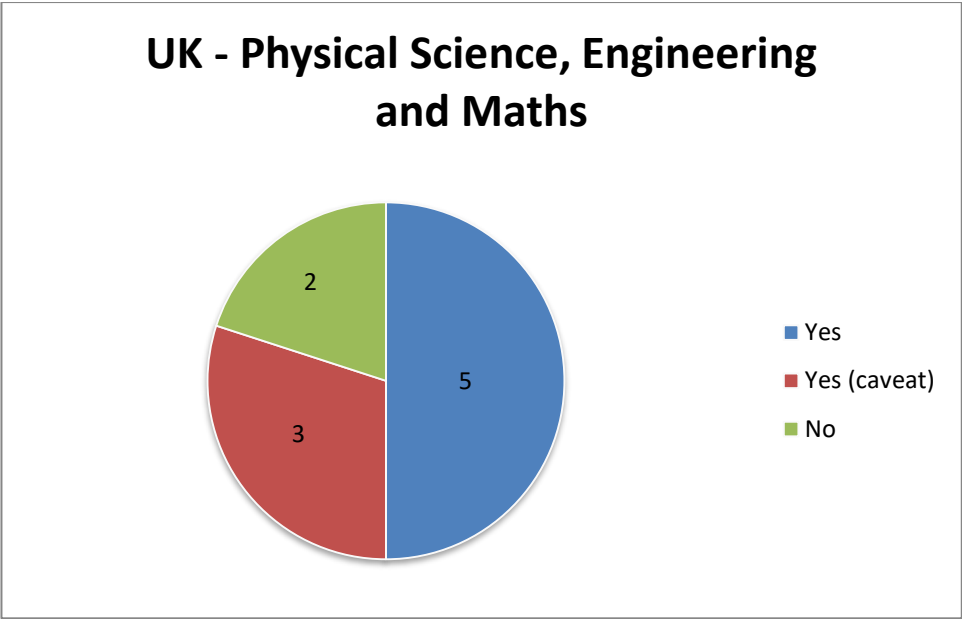
Figure 47: Interviewee response to whether they felt a 'duty to communicate': physical science, engineering and maths, UK
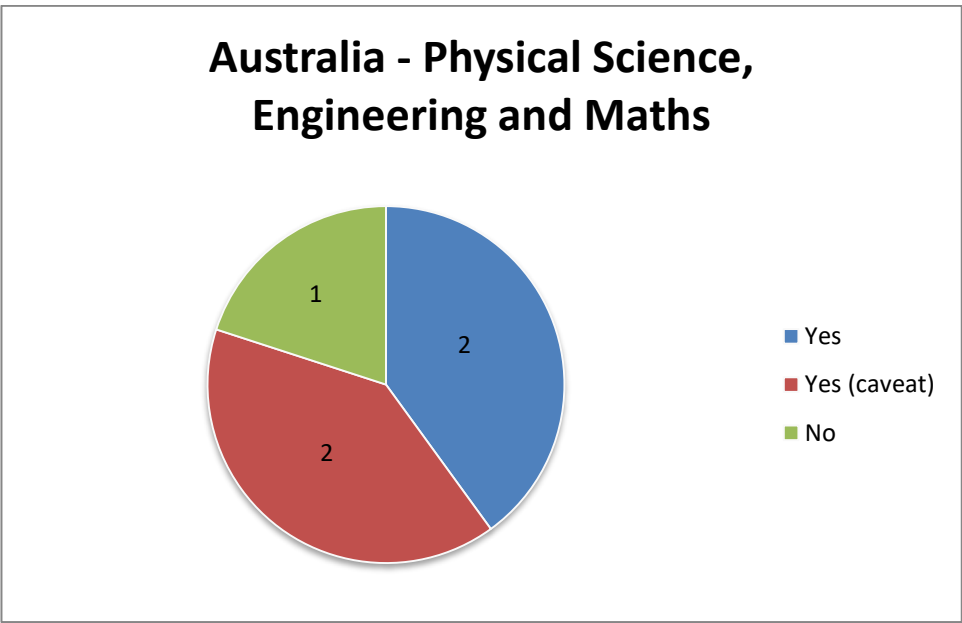

Figure 48: Interviewee response to whether they felt a 'duty to communicate': physical science, engineering and maths, Australia
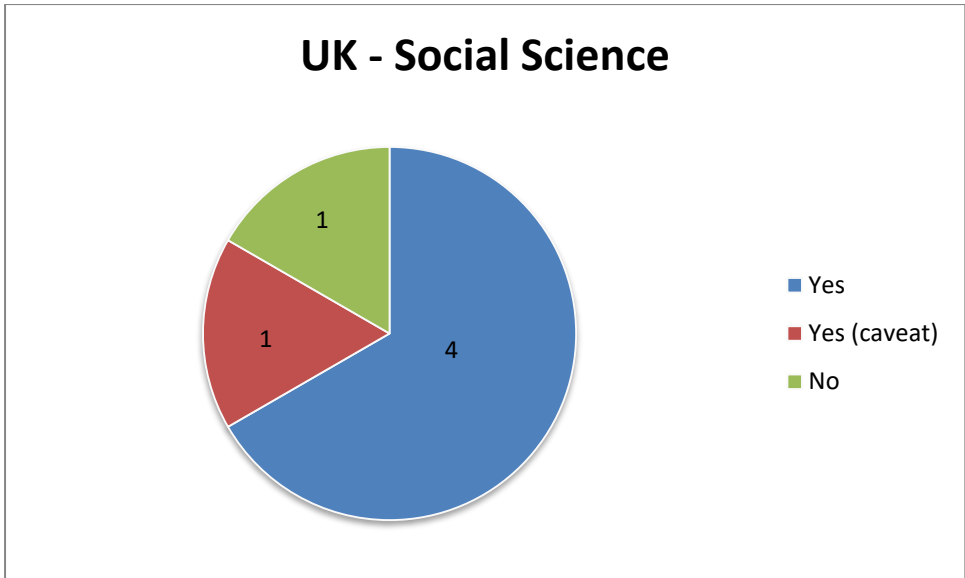
Figure 49: Interviewee response to whether they felt a 'duty to communicate': social sciences, UK
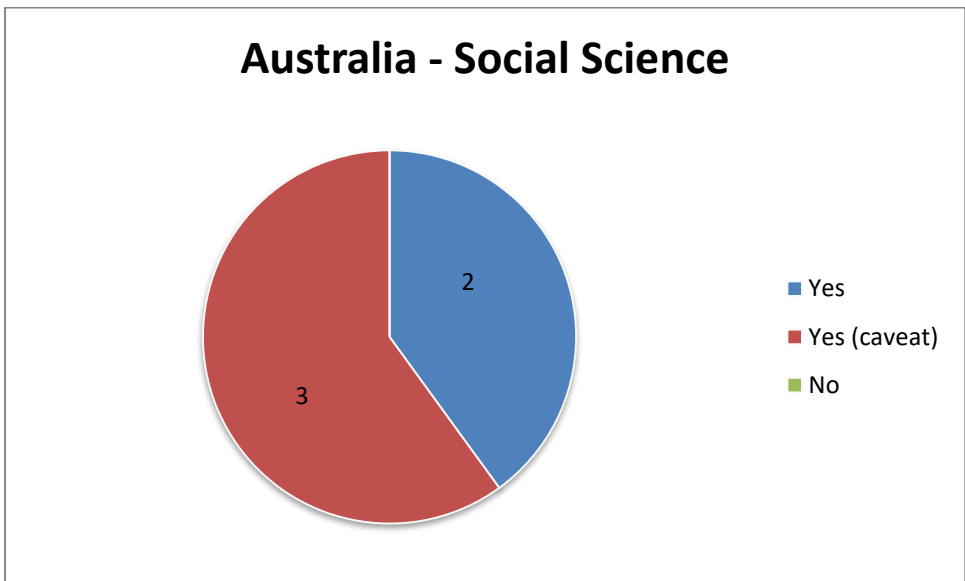

Figure 50: Interviewee response to whether they felt a 'duty to communicate': social sciences, Australia
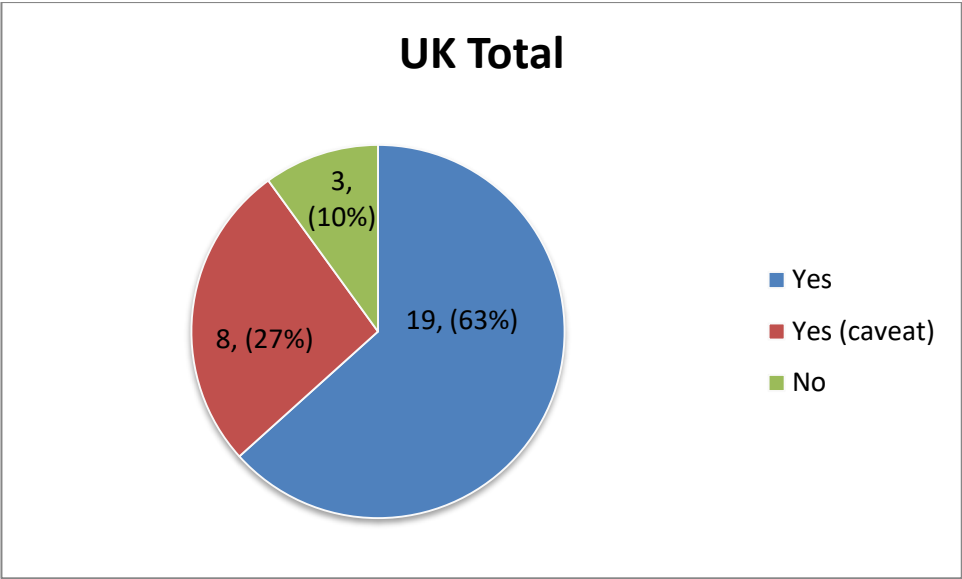
Figure 51: Interviewee response to whether they felt a 'duty to communicate': total for all UK interviews
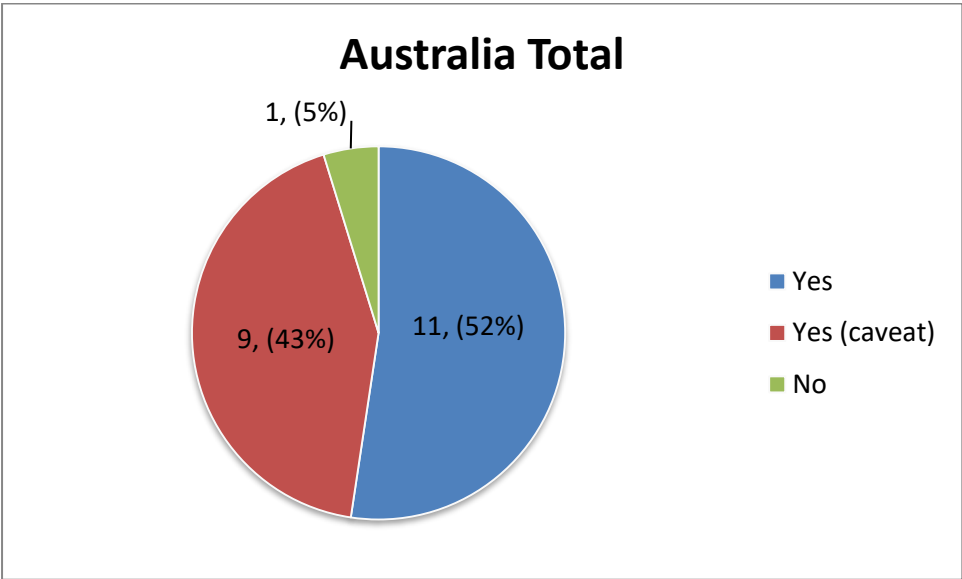

Figure 52: Interviewee response to whether they felt a 'duty to communicate': total for all Australia interviews

Grand Total

4, (8%)
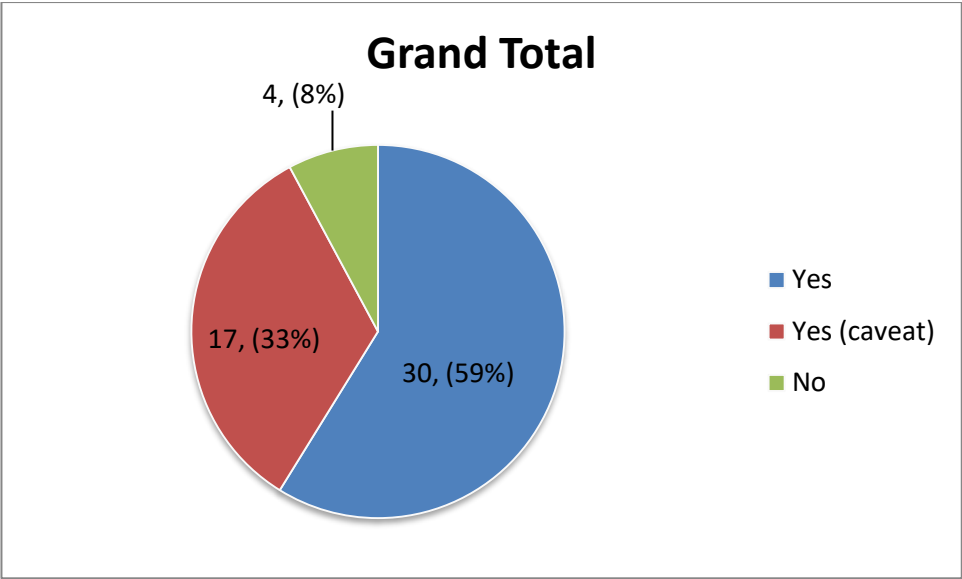
17, (33%)

30, (59%)

- Yes
- Yes (caveat)
- No

Figure 53: Interviewee response to whether they felt a 'duty to communicate': total for all interviews

Appendix 9: Disciplines represented in the sample

Arts and Humanities	Social Sciences	Engineering, Mathematics and Physical Science	Life and Earth Sciences
Languages (A) (UK) Archaeology (A) (UK) Music (A) (UK) Literature (A) (UK) Philosophy (A) (UK) History (A) (UK) Theatre, Film and Television (UK)	Education (A) (A) (UK) Finance (A) Gender Studies (A) Law (A) Economics (UK) Politics (UK) Sociology (UK) Social Policy (UK) Psychology (UK)	Engineering (A) (A) (A) (A) Mathematics (A) (UK) Electronics (UK) (UK) Physics (UK) (UK) Chemistry (UK) (UK) Computer Science (UK) (UK) (UK)	Health Science (A) (UK) Soil Science (A) Agriculture (A) (A) (A) Environment (UK) (UK) (UK) Biology (UK) (UK) (UK)[25]

Table 17: Disciplines represented in the sample

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[25] Where verbatim quotes are provided by academics from a discipline represented by more than one person, the details after the quote include a number to indicate which respondent it was. i.e. A1 – Agriculture, 1.

Appendix 10: Informed consent form

Informed Consent Form

Working title: 'The impact agenda: perspectives from the UK and Australia'

I understand that I am being invited to participate in a research study conducted by Jennifer Chubb (the researcher).

I understand that the purpose of this research study is to explore academics' perceptions (from the UK and Australia) of their roles within the context of the 'impact agenda'. I understand that should I wish to ask questions about the project prior to taking part in the interview, this option is available to me.

I understand that I will be providing information through an interview in which I will be asked questions about my understanding of research impact, my attitudes towards the increased expectation to articulate and achieve impact for funding purposes; how the impact agenda relates to my sense of academic freedom, my role as an academic in society, how it relates to my preferences along with any practical considerations I may have relating to carrying out and articulating impact activities. The following research questions are being investigated:

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- Do academic researchers' responses vary across different groups, such as across disciplines and different national contexts?

I understand that I may decline to answer any questions and that I may withdraw my agreement to participate at any time during the interview or for up to fourteen days after completion of the interview. At that time, I know that I may indicate whether or not the data collected up to that point can be used in the study, and that any information I do not want used will be destroyed immediately.

I understand that the interview will be audio recorded, and this recording may later be transcribed. I understand that I will have an opportunity to comment on the written record once it has been produced for accuracy only. I understand that no other use will be made of the recordings without my written permission and that interviews will be recorded solely for the purpose of analysis. I understand that the data will be handled and stored in a manner in which ensures that only the researcher can identify me as their source. Therefore personal details will be held electronically on a password protected or encrypted area and hard copies will be stored in a locked filing cabinet. I understand that I am being offered confidentiality in any written report or oral presentation that draws upon data from this research study, and that none of my comments, opinions, or responses will be attributed to me, nor will any other person discussed in the interview.

I understand that this research study has been reviewed and received ethics approval following the procedures of the Department of Education, University of York.

Do you agree to participate in the study?

Yes ___ No ___

Name of participant: _____
Signature of participant: _____
Date: _____

Name of researcher: _____
Signature of researcher: _____
Date: _____

Appendix 11: Information sheet (Australia)

Working title - 'The impact agenda: perspectives from the UK and Australia'[26]

PhD Candidate Jennifer Chubb

Information

Background

It is acknowledged that traditional academic research has led to many unpredictable, spontaneous and transformational discoveries without "constraints from government on outputs and policy interventions"[27], however there is now an increased focus from funders and those assessing the quality of research to clarify what translational benefit research has yielded or will yield for the economy and society at large. This study aims to consider how academics view their level of duty to the public and external stakeholders in relation to communication of research, within the context of the 'impact agenda'.

'The impact agenda' is a term commonly used to define the policy landscape around this shift in research funding and assessment. It has ignited much debate in the academic community in the UK and elsewhere due to the inclusion of 'pathways to impact' statements in grant funding applications outlining the way in which research proposals will impact upon society, culture and the economy. In addition, the Higher Education Funding Council for Education (HEFCE) has introduced a 20% weighting on impact in the Research Excellence Framework exercise calling for evidence that funded research has made an impact on society and the economy.

In Australia the inclusion of these elements in funding proposals is less formalised, but it is starting to emerge as an increasingly important consideration with focus on the significance and innovation of each proposal. Indeed, it was the Australian Government who first devised and then rejected the impact case study model used today in the UK Research Excellence Framework (REF). In addition, the ARC has formed a working group to look at the inclusion of a short impact statement in ARC grant applications. With a change in government in Australia, impact is now growing in importance, with the UK and Australia consciously engaged in 'policy borrowing' on impact and other aspects of higher education. The recent ERA impact trial saw Australian universities shift their focus for research quality assessment to assessing impact in a similar way to the UK's equivalent process REF 2014. HEFCE has emphasised the value of sharing practices in this area, working with the Australian 'Group of Eight', in relation to monitoring the effectiveness of the case study model for assessing impact the UK. Research looking at understanding the role of impact in one country will therefore substantially benefit the other.

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[26] This information sheet was used for the Australian interviews – in addition to the information in Appendix 15.
[27] http://www.timeshighereducation.co.uk/story.asp?storycode=408984 05 Nov 2009. *An open letter to Research Councils UK.*

In order to support academics to achieve and be able to define research impact for the future, this study seeks to build understanding of the challenges associated with achieving impact, which will deepen understanding of the issues facing academics today.

The research project you are being invited to participate in will involve interviews with academics from across the full range of disciplines with experience of the grant writing process and an awareness of the UK REF 2014/ERA assessment from across the disciplines including: Arts and Humanities, Social Sciences, Life and Earth Sciences and Physical and Engineering Sciences.

This study seeks to investigate

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- Do academic researchers' responses vary across different groups, such as across disciplines and different national contexts?

Interview details

Interviews should last between 30 and 60 minutes and can take place at the Australian HEI or at a place of the interviewee's choosing within the local area. Interviews will be recorded for the purpose of analysis. Anonymity is assured. No other use will be made of the recorded data without your written permission. All interviews will be recorded solely for the purpose of analysis.

Methodology

The first phase of this project was carried out at a research intensive university in the UK during which thirty in-depth semi–structured interviews were conducted with academics with experience of writing for research funding. The sample was drawn from records of Principal Investigators from across all discipline funder areas.

The second phase of the project will involve twenty in-depth semi-structured interviews with academics with experience of grant writing at the Australian HEI.

All interview participants will have

4. Experience of grant writing/holding
5. Experience and awareness of carrying out/ designing impact related activities
6. Ideally, experience of/knowledge of (UK) REF 2014/ERA impact trial for assessment purposes

A short immersion in a university environment during this phase of the research will provide a deeper understanding of the Australian case, which will provide an interesting comparison to my UK study, difficult to develop at a distance.

Interview outcomes

It is likely that the results of the research project will form the basis for scholarly publications and presentations. National bodies and organisations may also benefit through the publishing of material relating to this research. The outcomes of this study will be reported on to the EPSRC (a UK funder of phase one of the project) with the aim to inform and influence higher education policy in relation to UK research council funding.

Who is conducting the research?

The research is being conducted by Jennifer Chubb, PhD student, University of York.

Who is supporting the research?

The research was initially supported by the EPSRC Pathways to impact award grant and WUN mobility funding.

Does the survey have ethical clearance?

The project has been vetted for ethical compliance under the University of York's ethical clearance procedures for research projects. This includes consideration of Data Protection and Freedom of Information compliance.

Who can I talk to about the project?

You can contact Jenn Chubb: jennifer.chubb@york.ac.uk

UK Supervisor details: Paul Wakeling, Department of Education: paul.wakeling@york.ac.uk

Australian project supervisor: REDACTED

Benefits to researchers

This study could be of particular interest to academics were involved in the pilot impact case study exercise at institution X. Best practice and lessons learnt from the UK could be shared on issues such as evaluating and evidencing impact.

Wider dissemination

I have so far completed two chapters for a forthcoming publication by UK SAGE 'Success in research' series to be published in 2013 which examines academic motivation towards impact and the skills of impact. I plan to further utilise the data in order to publish for both academic and non-academic audiences.

In terms of the wider society, the results of this visit will benefit:

- UK HE policy makers & Australian HE policy makers
- Research funding agencies (UK and international/EU)
- Academic researchers, postgraduate students, prospective and current
- Educators and practitioners in researcher and staff development
- UK associations and universities
  Australian associations and universities

Appendix 12: Information sheet (UK)

Working title - 'The impact agenda: perspectives from the UK and Australia'

PhD Candidate Jennifer Chubb

Information

Background

It is acknowledged that traditional academic research has led to many unpredictable, spontaneous and transformational discoveries without "constraints from government on outputs and policy interventions"[28], however there is now an increased focus from funders and those assessing the quality of research to clarify what translational benefit research has yielded or will yield for the economy and society at large. This study aims to consider how academics view their level of duty to the public and external stakeholders in relation to communication of research, within the context of the 'impact agenda'.

'The impact agenda' is a term commonly used to define the policy landscape around this shift in research funding and assessment. It has ignited much debate in the academic community in the UK and elsewhere due to the inclusion of 'pathways to impact' statements in grant funding applications outlining the way in which research proposals will impact upon society, culture and the economy. In addition, the Higher Education Funding Council for Education (HEFCE) has introduced a 20% weighting on impact in the Research Excellence Framework exercise calling for evidence that funded research has made an impact on society and the economy.

In Australia the inclusion of these elements in funding proposals is less formalised, but it is starting to emerge as an increasingly important consideration with focus on the significance and innovation of each proposal. Indeed, it was the Australian Government who first devised and then rejected the impact case study model used today in the UK Research Excellence Framework (REF). In addition, the ARC has formed a working group to look at the inclusion of a short impact statement in ARC grant applications. With a change in government in Australia, impact is now growing in importance, with the UK and Australia consciously engaged in 'policy borrowing' on impact and other aspects of higher education. The recent ERA impact trial saw Australian universities shift their focus for research quality assessment to assessing impact in a similar way to the UK's equivalent process REF 2014. HEFCE has emphasised the value of sharing practices in this area, working with the Australian 'Group of Eight', in relation to monitoring the effectiveness of the case study model for assessing impact the UK. Research looking at understanding the role of impact in one country will therefore substantially benefit the other.

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[28] http://www.timeshighereducation.co.uk/story.asp?storycode=408984 05 Nov 2009. *An open letter to Research Councils UK.*

In order to support academics to achieve and be able to define research impact for the future, this study seeks to build understanding of the challenges associated with achieving impact, which will deepen understanding of the issues facing academics today.

The research project you are being invited to participate in will involve interviews with academics from across the full range of disciplines with experience of the grant writing process and an awareness of the REF 2014 from across the disciplines including: Arts and Humanities, Social Sciences, Life and Earth Sciences and Physical and Engineering Sciences.

This study seeks to investigate

- How do academic researchers in the UK and Australia conceive of their roles and responsibilities as researchers in the context of the impact agenda?
- What philosophical challenges do academic researchers perceive to be present when considering the impact agenda with respect to freedom, epistemic value and responsibility?
- Do academic researchers' responses vary across different groups, such as across disciplines and different national contexts?

Interview details

Interviews should last between 30 and 60 minutes and can take place at the UK HEI or at a place of the interviewee's choosing within the local area. Interviews will be recorded for the purpose of analysis. Anonymity is assured. No other use will be made of the recorded data without your written permission. All interviews will be recorded solely for the purpose of analysis.

Methodology

Aim of 50 semi-structured interviews with senior academics across the disciplines from two research intensive universities in the UK and Australia.

Ideally, all interviewees will have:

7. Experience of grant writing/holding
8. Experience and awareness of carrying out/ designing impact related activities
9. Experience of/knowledge of (UK) REF 2014/ERA impact trial for assessment purposes (desirable)

Interview outcomes

It is likely that the results of the research project will form the basis for scholarly publications and presentations. National bodies and organisations may also benefit through the publishing of material relating to this research. The outcomes of this study will be reported on to the EPSRC with the aim to inform and influence higher education policy in relation to UK research council funding.

Who is conducting the research?

The research is being conducted by Jennifer Chubb, PhD student at University of York.

Who is supporting the research?

The research was initially supported by the EPSRC Pathways to impact award grant and WUN mobility funding.

Does the survey have ethical clearance?

The project has been vetted for ethical compliance under the University of York's ethical clearance procedures for research projects. This includes consideration of Data Protection and Freedom of Information compliance.

Who can I talk to about the project?

You can contact: Jennifer Chubb by emailing: jennifer.chubb@york.ac.uk

UK Supervisor details: Paul Wakeling, Department of Education: paul.wakeling@york.ac.uk

Wider dissemination

I have so far completed two chapters for a forthcoming publication by UK SAGE 'Success in research' series to be published October 2013 which examines academic motivation towards impact and the skills of impact. I plan to further utilise the data in order to publish for both academic and non-academic audiences.

In terms of the wider society, the results of this visit will benefit:

- UK HE policy makers & Australian HE policy makers
- Research funding agencies (UK and international/EU)
- Academic researchers, postgraduate students, prospective and current
- Educators and practitioners in researcher and staff development
- UK associations and universities
  Australian associations and universities

Appendix 13: Impact policies beyond RCUK, ARC and NHMRC

Impact appears in different guises across other different funders and national context on which I provide additional context in this appendix. This is not exhaustive but is intended to provide some global context.

A key funder of UK research is the European Commission (EC), whose Horizon 2020 research funding scheme seeks to invest public funds in research that is innovative and aimed at tackling societal challenges. European research funding is now subject to change following the UK's decision to exit the EU following the UK referendum in June 2016 (BREXIT). At present, the government has stated that institutions will honour their EU funding arrangements and not be discouraged from application until the UK officially leaves the EU. Notwithstanding, there has been a huge amount of unrest about the future of research collaborations and relationships following BREXIT. What this will signal for impact and the UK knowledge economy will not be known for some time, however the anticipated damaging effects to the international community of researchers indicate a turbulent time ahead for UK research (Wilsdon, 2016). Understanding of innovation and societal impact through previous or on-going interaction with the EU funding mechanisms will likely inform some of this study's participant responses and understanding of impact and research communication and impact remains a key element of EU funding. In addition, European and American institutions continue to focus on knowledge exchange and impact, concerned with the valorisation of knowledge as universities and their governments grow increasingly concerned with the economic return of publicly funded research (Daalder & Shils, 1982; Ernste, 2007).

Research into 'knowledge mobilisation' and impact in Canada has emerged (Belkhodja & Landry, 2007; Belkhodja et al., 2007; Cooper & Levin, 2010; Landry, Amara & Lamari, 2001). A consultation exercise in 2004-2005 led by the Social Sciences and Humanities Research Council (SSHRC), explored how to allocate funds based on the benefits the research would bring to society through knowledge mobilisation, for instance. The SSHRC require an impact statement and a knowledge mobilisation plan in applications but crucially and distinctly from the UK, they allow academic impacts to be sufficient for these statements. They do not yet require a formal articulation of socio-economic impacts. Here, the debate appears to be more concerned with metrics and 'being measured'. This discourse is more rudimentary because they are interested in any type of measurement not just that which the UK and Australia might refer to as 'research impact'.

Partly this could relate to how different countries receive their research funding. Canadian universities research funding comes from the federal government and many of their federal granting programmes require applicants to articulate 'Benefit to Canada', but that is a small part of the adjudication. Despite this, Canadian universities are concerned about metrics and there has been some debate around impact at a fledgling stage. For example, dissent has been observed in Canada, notably in research by Bailey and Freedman (2011), which included 65 signatures from academics and researchers who hoped to "defend the ideals of a publicly funded and socially fair higher education system" (Potschka, 2012, p.846). Canada, like many other countries across the world does not have anything like the REF exercise in accounting for impact, but the raised consciousness of knowledge mobilisation suggests that this is a direction they are moving in. Further research into the practices in Canada as they progress towards what looks like the beginnings of a research impact agenda, may also be timely.

The UK's National Institute for Health Research (NIHR) explicitly asks for Patient Public Involvement (PPI), which has received criticism for being 'tokenistic' but requires patients and the public to be involved throughout the research process. Health researchers are asked to articulate research impact in a short statement. Some exceptions can be found across the funders. The Leverhulme Trust for instance explicitly <u>does not</u> ask for research impact in the ways it is defined by RCUK, instead it is implicit that the work they fund should make a difference to the world.[29] The Leverhulme Trust is distinct in this regard. This is therefore not an exhaustive list; however, it serves to highlight the proactive stance towards impact adopted by funders and policy makers in the UK, and the synergy between the UK and Australia as they begin to form their impact policies.

In the US, the National Science Foundation (NSF) introduced the requirement for broader impacts (BI) criterion in 1997. Frodeman and Parker (2009) suggest that the guidelines on this state that academics can fulfil this by describing education and outreach and by "broadening diversity of those involved in research" (p.339). Clearly broader social impacts are more diverse than this and the latest American Innovation and Competitiveness Act moved this discussion on a pace. The NSF Merit Review Criteria 2011 is the single most important piece of policy with respect to BI in NSF. This sets out that all NSF projects should

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[29] "Our primary aim is to fund original research that advances knowledge of our world and ourselves. We do not set strategic priorities for our grant-making; in making funding decisions our sole concern is for the quality, significance, and originality of the proposed research. As far as possible, we take a non-utilitarian and academy-focused approach to funding" http://www.leverhulme.ac.uk/ (Leverhulme, 2012).

be a) of the highest quality and have the potential to advance knowledge, b) contribute to societal goals c) assessed using appropriate metrics (NSF Merit review criteria 'review and revisions', 2011, p.1).

The Metric Tide (Wilsdon et al., 2015, p.22) describes further snapshots of international perspectives of the use of metrics for research impact including Australia, Denmark, Italy, the Netherlands, New Zealand and the US, arguing for a balanced and responsible use of metrics in research assessment. Impact is now an increasingly global phenomenon.

Appendix 14: Total number of mentions of impact activities

In relation to Chapter 5, the following figures show the total number of references made from across fields and national contexts.

Figure 54 and Figure 55 reveal that the arts and humanities scholars in both the UK and Australia favoured discussion about the public domain and this was most akin to their theoretical counterparts in the physical sciences, who emphasised engagement with the economic domain more than any other grouping. The social, life and earth scientists appear to have commonalities in the amount they discussed all domains, with a preference for policy and public domains, whereas the arts and physical sciences and maths appear to have more in common than perhaps the 'two cultures' might have first implied.

Figure 54 presents the total number of mentions for Australia of activities which broadly constituted impacts in the public, policy and social and commercial domains. Figure 55 gives the same detail for the UK interviewees.

Finally, Figure 56 gives a combined total for the UK and Australia, still representing the cognate groups of disciplines. Appendices 3 and 4 give a detailed breakdown of the individual activities listed and the respondent initials are noted. This does not reflect the amount of times it was mentioned, just the description. What we see are that the broad patterns are the same across the two countries - cognate groups that show relative balance between the domains (Life and Earth Science and Social Science) display this characteristic in both national contexts and groups that have a clear dominating impact domain (A&H, Physical Science) likewise display this feature in both countries.
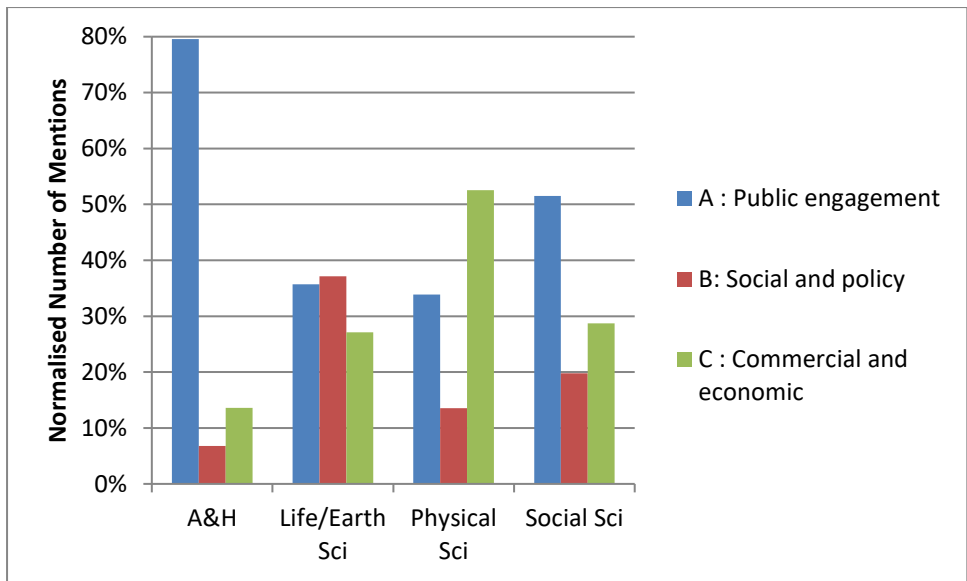
Figure 54: Summary of impact domain analysis - normalised numbers of mentions - Australia
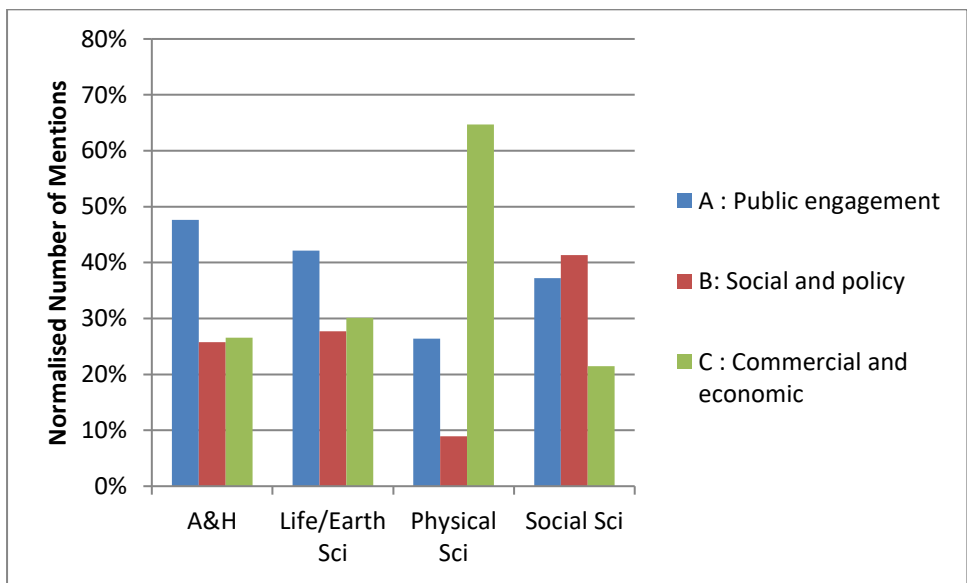

Figure 55: Summary of impact domain analysis - normalised numbers of mentions – UK
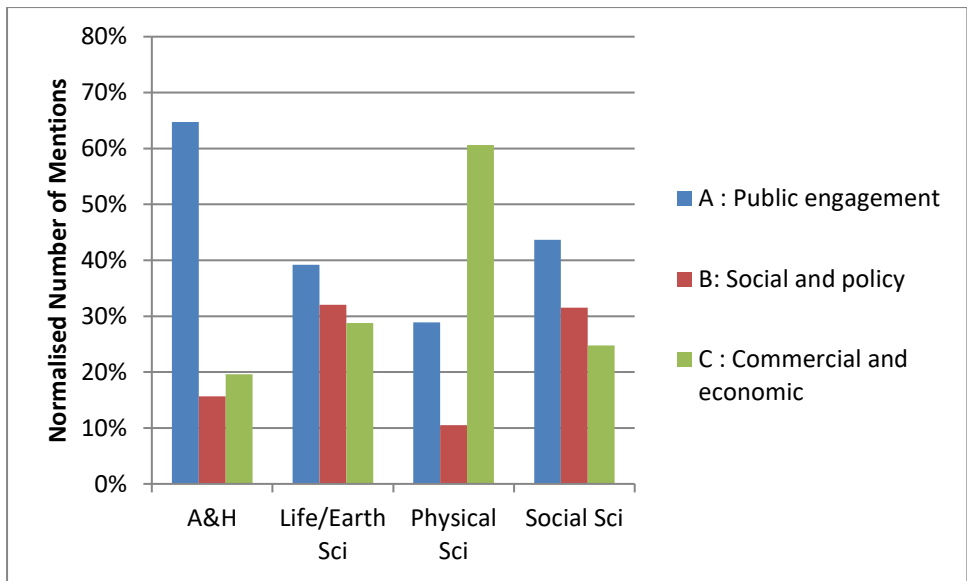
Figure 56: Summary of impact domain analysis - normalised numbers of mentions – combined.

Appendix 15: Supporting participant information sheet (RCUK)

SOURCE: http://www.rcuk.ac.uk/innovation/impacts/

The Research Councils invest £3bn of public funding in excellent research to bring about positive impact in our society and economy.

This occurs in many ways – through knowledge exchange, new products and processes, new companies and job creation, skills development, increasing the effectiveness of public services and policy, enhancing quality of life and health, international development and so on.

Our primary criterion is research excellence. RCUK introduced Pathways to Impact to encourage you to think about what can be done to ensure your research makes a difference. Through Pathways to Impact we want to encourage you to explore, from the outset and throughout the life of your project and beyond, who could potentially benefit from your research and what you can do to help make this happen.

Across the dual support system, the Research Councils and UK Funding Councils are committed to supporting excellent research and to realise the importance of impact. Research Councils require academics to consider the future impact of research at the point of applying for funding. UK HE Funding Bodies, in context of the REF, assesses the historic evidence of impact. All funders have a common understanding of the importance of societal and economic as well as academic impact.

Research Councils UK defines impact in the following ways:

Academic impact

The demonstrable contribution that excellent research makes to academic advances, across and within disciplines, including significant advances in understanding, methods, theory and application.

When applying for Research Council funding via Je-S, pathways towards academic impact are expected to be outlined in the Academic Beneficiaries and appropriate Case for Support sections. An exception to this is where academic impact forms part of the critical pathway to economic and societal impact.

Economic and societal impacts

The demonstrable contribution that excellent research makes to society and the economy.

Economic and societal impacts embrace all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations by:

• fostering global economic performance
• increasing the effectiveness of public services and policy
• enhancing quality of life, health and creative output

Public engagement may be included as one element of your Pathway to Impact. Engaging the public with your research can improve the quality of research and its impact, raise your profile, and develop your skills. It also enables members of the public to act as informed citizens and can inspire the next generation of researchers.

A clearly thought through and acceptable Pathways to Impact statement

A clearly thought through and acceptable Pathways to Impact is an essential component of a research proposal and a condition of funding. Grants will not be allowed to start until a clearly thought through and acceptable Pathways to Impact statement is received.

A clearly thought through and acceptable Pathways to Impact statement should:

• be project-specific and not generalised
• be flexible and focus on potential outcomes

> Researchers should be encouraged to:
> - articulate a clear understanding of the context and needs of users and consider ways for the proposed research to meet these needs or impact upon understandings of these needs
> - identify and actively engage relevant users of research and stakeholders at appropriate stages
> - outline the planning and management of associated activities including timing, personnel, skills, budget, deliverables and feasibility
> - include evidence of any existing engagement with relevant end users

It is expected that being able to describe a pathways to impact will apply for the vast majority of proposals. *In the few exceptions where this is not the case, the Pathways to Impact statement should be used to fully justify the reasons why this is not possible.*

Appendix 16: Ethics approval

UNIVERSITY *of* *York*

DEPARTMENT OF EDUCATION

Heslington, York, YO10 5DD

Email: *education-research-administrator@york.ac.uk*
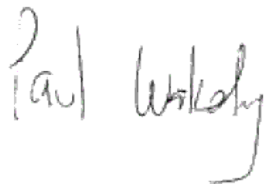
Web: *www.york.ac.uk/education*

2 August 2017

To whom it may concern

Ethical Approval: CHUBB, Jennifer (106045987)

I am writing to you as the Chair of Ethics Committee in the Department of Education at the University of York, to confirm that Jennifer Chubb's doctoral research project titled "Instrumentalism and Epistemic Responsibility: Researchers and the Impact Agenda in the UK and Australia " has been approved by the committee.

Should you have any questions or concerns about the conduct of this piece of research, please do not hesitate to contact me at the address above.

Dr Paul Wakeling

Chair of the Ethics Committee

Glossary of Terms

AHRC – Arts and Humanities Research Council

ARC – The Australian Research Council

ATN – Australian Technology Network

ATSE – The Australian Academy of Technology and Engineering

BAA – Backing Australia's Ability

BBSRC – Biological and Biotechnology Research Council

BI – US Broader Impacts Criteria

CMR – Engineering Construction and Management

DETYA - Department of Education, Training and Youth Affairs

GCRF – Global Challenges Research Fund

EC – European Commission

EIA – Excellence in Innovation for Australia trial

EPSRC – Engineering and Physical Sciences Research Council

ERA – Excellence in Research Australia

ESRC – Economic and Social Research Council

EU – European Union

FTE – Full Time Equivalent

Go8 – Group of Eight

HE – Higher Education

HEI – Higher Education Institution

HEFCE – Higher Education Funding Council

IAA – Impact Accelerator Account

J-eS – Joint Electronic Submission

KT – Knowledge Transfer

KTP - Knowledge Transfer Partnership

LSE – London School of Economics

NCGP – National Competitive Grants Program

NERC – Natural Environment Research Council

NGO – Non-Government Organisation

NHMRC – National Health and Medical Research Council

NIHR – National Institute Health Research

NSF – National Science Foundation

P2I – Pathways to Impact

PI - Principal Investigator (research grants)

PIA – Pathways to Impact Award

PPI – Patient Public Involvement

QR – Quality Related (funding)

RAE – Research Assessment Exercise

RAND – Research and policy think-tank

RCUK – Research Councils UK

REF – Research Excellence Framework

RQF – Research Quality Framework

SEO – Socio–Economic Objective

SSHRC - Social Sciences and Humanities Research Council

STFC – Science and Technology Funding Council

TEF – Teaching Excellence Framework

UKRI – UK Research & Innovation

WUN – World Universities Network

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