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Framing Employment Research Using Behavioural Science

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By

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DECLARATION

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In accordance with the Regulations for Higher Degrees by Research, I hereby declare that the whole thesis now submitted for the candidature of Doctor of Philosophy is a result of my own research and independent work except where reference is made to published literature. I also hereby certify that the work embodied in this thesis has not already been submitted in any substance for any degree and is not being concurrently submitted in candidature for any degree from any other institute of higher learning. I am responsible for any errors and omissions present in the thesis.

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ABSTRACT

The main aim of this thesis is to explore the structured use of behavioural science in helping to frame employment research. This structured framing intended to help stimulate more interdisciplinary interaction between sub-disciplines that study employment and behavioural science, setting out new empirical and theoretical applications to the study of employment decision-making. Firstly, the application of specific behavioural science concepts to employment scenarios, structured around the core facets of behavioural science, introducing the types of bias studied in behavioural science in turn. These core facets are cognitive and social biases, risk preferences and biases, time preferences and biases. These were combined with illustrative examples of how these biases might affect employment decision-making. The employment cycle is then used to demonstrate how the concepts in behavioural science may play out across a range of employment scenarios, unearthing potential theoretical and empirical applications.

A behavioural science framing was then used to investigate factors related to the addition or omission of low rated journal publications in the assessment of academic resumes. The results of these investigations showed that low rated journal publications are still of some value, albeit journal ratings play a crucial role. Importantly, the extent to which additional low rated journal publications are valued could depend on unconscious social biases that are based on prior expectations, potentially dictated by organizational and ideological learning over time. The empirical work presented data collected from 1,011 psychology and management faculty based at U.K. and U.S.A. universities. The data was collected using an online randomized control trial survey experiment designed to test the assessment of publication records on academic resumes. Only faculty at levels likely to be involved in academic appointment panels and reviewing academic resumes were contacted to take part.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to Thesis

The premise behind this research is that behavioural science encompasses a set of behavioural biases and methodologies that can provide new insights when applied to research on employment. The research in this thesis was motivated by three core elements, with the first being that behavioural science identifies a set of biases that are likely to affect employment decision-making. Behavioural science partly emerged in response to criticisms of the traditional assumption within economics of the fully 'rational and utility maximizing man' (Sen, 1977), who will always have the full cognitive capacity to calculate the optimal trade-off in outcomes given their preferences (Simon, 1978). Instead, as studied in behavioural science, individuals suffer from routine errors in calculating between the value of alternatives. The main facets of these are due to social and cognitive biases, time preferences and biases, and risk preferences and biases (Camerer & Loewenstein, 2004; DellaVigna, 2009).

The second motivation is that research in employment is multi-disciplinary and is divided into many different sub-disciplines, which can be studying the same issues with different methodologies or levels of analysis and behavioural science can help stimulate more interdisciplinary interaction. Calls exist for more interdisciplinary research between the sub-disciplines that study employment, including: for the integration of strategic human capital development and organizational behaviour to create strategic organizational behaviour (Ployhart, 2014); to extend the behavioural theory of the firm into micro directions (Gavetti et al., 2012; Greve, 2013); for work in a subfield of 'behavioural strategy' (Levinthal, 2011; Powell, Lovallo, & Fox, 2011); as well as for multilevel theories of human capital (Barney & Felin, 2013; Coff & Kryscynski, 2011; Molloy, Ployhart, & Wright, 2010; Ployhart & Moliterno, 2011). There is now a trend toward the development of more comprehensive and integrative theories that address organizational phenomena, such as employment, from multiple levels of analysis (Aguinis, 2014; Aguinis et al., 2011; Foss, 2010; Foss, 2011; George, 2014; Van de Ven & Lifschitz, 2013), to which behavioural science could be able to contribute.

The third motivation is that the uptake of behavioural science in employment research has been mixed. Typically, personnel and labour economists have interacted with behavioural science the most, with behavioural science concepts being applied, for example, to pensions (Thaler & Bernartzi, 2004), retirement (Bidwell, Griffin & Hesketh, 2006), job search (Paserman, 2008), wages (Schoenfelder & Hantula, 2003), and bonuses (Hesketh,

2000; Shelley & Omer, 1996). However, the potential exists for other sub-disciplines that study employment to engage more with behavioural science (Chadwick & Dabu, 2009; Kaufman, 1999b). There are also calls from professional bodies for human resource management practitioners to engage with behavioural science (CIPD, 2014; 2015; 2017).

It is hoped that the structured framing set out in this thesis will help to stimulate new engagement between behavioural science and employment research. The structured framing itself is intended to provide a platform for how behavioural science insights might be applied to employment research and how these types of biases may have implications for employment theory and decision-making. The structured framing is intended to be approachable to a range of scholars from different employment sub-disciplines, by setting out behavioural science concepts in a clear way. It is also hoped that practitioners in human resource management and employment will also be able to engage with the structured framing. It is also expected that the structured framing will open new research agendas. In addition, by demonstrating the use of a behavioural science framing to inform research on employment through the empirical investigations conducted, it is hoped that the unique insights that can be gained by using behavioural science to inform research are illustrated to employment researchers.

1.2 Thesis Overview

The first part of this thesis generates new knowledge by setting out why and how behavioural science insights can be applied to employment scenarios. The second part of the thesis then analyses an illustrative employment scenario to demonstrate how a behavioural science framing could be used to underpin empirical investigations.

The review of the literature in chapter 2 unveiled a complex picture comprising of many different management sub-disciplines studying employment. The subsequent investigative literature review into the emergence of these separate sub-disciplines within the study of employment showed why and how these sub-disciplines are distinct from each other. These sub-disciplines are then modelled and mapped, identifying the interaction, or lack thereof, between them. Behavioural science is added into this conceptual mapping and modelling to show that the emergence of behavioural science as a discipline has already interacted with some of these disciplines. However, in addition to these existing links, the potential for further interaction and integration of behavioural science into the study of employment is highlighted.

 A principal motivation of this research is to illustrate the scope for behavioural science to add new theories and perspectives to help understand employment problems and

stimulate cross-disciplinary research, bringing together existing perspectives in employment research while adding behavioural science insights. The synthesis of behavioural science and employment research has been suggested in calls for the integration of various sub-disciplines studying employment including economics and psychology perspectives (Chadwick & Dabu, 2009; Kaufman, 1999b), and macro and micro levels of analysis (Molloy, Ployhart & Wright, 2010). Furthermore, practitioner integration of behavioural science into human resource management and employment decision-making is already emerging in institutional reports (CIPD, 2014, 2015), as well as in the development of online tools for recruitment.

With the context set for why behavioural science may be able to contribute to research on employment, chapter 3 sets out a new contribution to knowledge by developing a structured framing to demonstrate how behavioural science concepts can interact with employment research. This is first done by demonstrating the application of specific behavioural science concepts to employment scenarios, structured around the core facets of behavioural science. The employment cycle is then used to illustrate how the concepts in behavioural science may play out across a range of employment scenarios. The application of behavioural science concepts across all employment contexts and scenarios would clearly not be feasible. Too many empirical examples would be required to illustrate how all behavioural science concepts could be applicable at all the stages of the employment cycle. The structured framing is therefore only intended to be an illustrative tool of the potential implications, not exhaustive. It is intended to be a useful tool for informing researchers and practitioners in providing a starting platform, from which much larger possible array of research agendas and examples could be investigated.

A single employment scenario is then focused on as an in-depth empirical investigation into using a framing of behavioural science to inform employment research and explore data. The employment scenario chosen was to engage with the debate surrounding academic hiring and the assessment of publication records. This had been approached from multiple levels using individual and institutional perspectives, and was independent of any existing behavioural science analysis on the issue. In chapter 4 the literature is reviewed where it is argued that from the early 1990s onwards, a growing metric around which academic were being hired was the rating of the journals in which the publications on their resume were published. This contrasts with a previous metric being the number of publications being produced. The use of journal rating has since been challenged from the mid 2000s for constraining academia and arguably becoming a source of discrimination in hiring, debating that this has become individually and institutionally

embedded. The social and behavioural practices that have emerged in the assessment of academic resumes from the use of journal ratings is interesting from a behavioural science perspective. This issue also had particular nuances as not only was the discourse itself relevant to those studying and writing about the issue, but also the discourse had changed over time. The empirical investigations presented use a behavioural science framing both in the experimental design in chapter 5 and in the analysis of results in chapters 6 and 7.

In chapter 6, data from 1,011 U.S.A. and U.K. based university faculty, was collected from a randomized control trial experiment designed to test the assessment of publication records on academic resumes. The results from this behaviourally informed randomized control trial experiment are explored, using a framing of behavioural science, informing new hypotheses and analysis of the different data types collected throughout chapters 6 and 7. With a framing of behavioural science informing the design and subsequent data analysis in the experiment, an illustration of the use of a structured framing of behavioural science in employment research is provided across the research process as well as across different methodologies and data types.

In chapter 8, the research in this thesis is then elaborated upon, discussing the findings and putting them in the context of contributions to the current state of the literature and knowledge. Where necessary results are expanded upon to put them into context. Conclusions are then set out in chapter 9, reflecting on the research process and highlighting the implications for practice and research.

This thesis hopes to make a small contribution towards establishing a structured framing for new empirical applications to research on employment, stimulating new engagement between behavioural science and different sub-disciplines that study employment. Focussing on a single identified issue in a single employment scenario allowed for greater depth of analysis and demonstration of how widely a behavioural science framing could be used in investigating various employment scenarios. It is hoped that this demonstration across the research process, methodologies and data types will assist further in stimulating new interactions with behavioural science in employment research as well as providing useful insights into the specific issue of the assessment of publication records on academic resumes. Using the full extent of the data to analyse the valuation of publication records, while focussing on the impact of low rated journals, provides new contributions to understanding the nuanced nature of the expectations behind academic resume assessment. Different prior expectations are held, creating different social biases, potentially interacting with organizational and ideological learning over time.

1.3 Research Aims

The main aim of this thesis is to explore the structured use of behavioural science in helping to frame employment research.

To meet this aim, a structure to framing is developed around the core facets of behavioural science, illustrating potential theoretical and empirical applications to the employment cycle. The assessment of publication records on academic resumes, specifically the impact of adding low rated publications to a resume, is then analysed as an example of potential irrational decision-making and behavioural bias. This analysis identifies a number of issues which are then explored and elaborated on in-depth using the behavioural science biases around which the framing is structured.

1.3.1 Research Objectives

1. To develop and demonstrate the potential use of a behavioural science framing for research on employment.
2. To identify factors associated with the addition or omission of low rated journal publications in the assessment of academic resumes.
3. To explore behavioural explanations for the valuation of the addition or omission of low rated journal publications in the assessment of academic resumes.

1.4 Definitions

Building on writers such as Kahneman and Tversky (1979), a prime focus of behavioural science is on bringing psychological insights to bear on economic phenomena (Loewenstein, 1999), highlighting biases and errors in calculating the value of alternatives. Behavioural science has endured evolutions, from its origins in economic psychology, to the emergence of behavioural economics, extending to behavioural finance and onto more recent calls for predominant use of behavioural science where multifaceted disciplines converge (Kahneman, 2013).

Utility maximizing: The optimum way to meet a preference given the options available. The aim will usually be to maximize expected value returned given the probability of outcomes and the amount of resources available, assuming preferences to be stable. This is a core assumption of economics dating back to Daniel Bernoulli in 1738 (Kahneman, 2003a).

Rationality: A meaning of rational, consistent with such models, is acting to achieve one's own life goals using the best means possible (Stanovich, 2009), usually by determining optimal decision alternatives such as achieving the highest possible wellbeing or wealth to the greatest extent at least cost (Eisenführ, Weber & Langer, 2010).

Bounded rationality: Decision-makers are settling for a satisfactory, rather than optimal, decision based on what information they have and can process within practical limitations, rather than making a complete evaluation. Bounded rationality has three interrelated dimensions. The first is processing capacity where memory and recall affect the ability to assess all information. The second is cognitive economizing, where decision-making is limited by cognitive speed and time to make decisions, leading to heuristics. The third is cognitive biases where the decision-maker can unconsciously distort information that is presented (Simon, 1982).

Cognitive bias: Relates to where judgments are made intuitively and that intuition is guided by perception. People can have limited willpower; they can be tempted and can be short-sighted (Jolls, Sunstein & Thaler, 1998). For example, in a changing environment it can be difficult to judge the likelihood and value of both present and future events. A further example is that we care what others think, as well as about our own identity, making it difficult for us to place accurate valuations on other identities.

Later in this research, cognitive biases are divided into distinct categories. These are social biases, cognitive biases, time preferences and biases, and risk preferences and biases. Social biases are where a distorted value is placed on an option because of a prior perception dictated by social influences. Cognitive biases are those where there are consistent perceptual difficulties in judging magnitude of difference between options. Time preferences and biases are determined by the different value we put on events in the present, past and future. Risk preferences and biases are perceptual variations placed on the likelihood of outcomes and uncertainty (Camerer & Loewenstein, 2004; DellaVigna, 2009).

Heuristics: Used to reduce the search space and cognitive processing capacity needed to consider a given problem or choice; calculations are based on incomplete information instead (Groner, Groner & Bischof, 2014). For example, to assume that objects seen with less clarity are further away, but clarity can be determined by visibility, so clarity is not always consistent with distance (Tversky & Kahneman, 1974).

1.5 Thesis Structure

The structure of this thesis developed from the findings. In investigating the literature and subsequent empirical data findings, new enquiries were formed. The structure reflects the research process, while laying out a demonstration of the use of a behavioural science framing to assist in research on employment.

The chapters to be contained in this PhD thesis would thus be as follows:

1. Introduction
2. The Contributions of Behavioural Science to Employment Research
3. The Application of a Behavioural Science Framing to Research on Employment
4. Social Bias in Academic Recruitment
5. Methodology
6. Quantitative Data Findings
7. Qualitative Data Findings
8. Discussion
9. Conclusions

Broadly speaking this thesis can be separated into three parts. Chapters 1, 2 and 3 set out why and how a framing of behavioural science for employment research is of interest. Chapters 4, 5, 6 and 7 use this framing to inform empirical investigations into an employment scenario to be able to demonstrate how the framing might be used. Chapters 8 and 9 discuss the implications of the findings throughout this thesis.

CHAPTER 2: THE CONTRIBUTION OF BEHAVIOURAL SCIENCE TO EMPLOYMENT RESEARCH

2.1 Introduction to Chapter

The purpose of this chapter is to set out why behavioural science might able to contribute to research on employment, and therefore why it might be of interest to employment scholars. There are several converging paradigms that have emerged, consistent with the integration of behavioural science into research on employment. Firstly, the emergence of behavioural science itself as a discipline has relevant connections to management scholarship. Secondly, there are calls for more interdisciplinary research between different sub-disciplines that study employment. The case for why behavioural science can contribute to fostering this cross-disciplinary research is a key element in this chapter. The third emerging paradigm concerns calls for the integration of different levels of scholarship, especially in management. Lastly, as part of integrating different sub-disciplines as well as levels of analysis there are calls to integrate methodologies. The potential for integrating sub-disciplines, including their methodologies is illustrated using similarity matrices. In addition to these academic and theoretical paradigm contributions, there is emerging consideration of behavioural science in human resource management practice.

2.2 Behavioural Science and its Origins

Behavioural economics brings psychological insights into the study of economic phenomena. Both experimental economics and behavioural economics can trace their origins to psychology, with experimental methods influencing the former and psychological theory influencing the latter. Behavioural economists use economics-style experiments and experimental economists are now embracing psychology, making the disciplines more agreeable since the end of the 20th and early 21st century (Loewenstein, 1999). The exploration of the boundary between psychology and economics is not a new phenomenon. The process has been occurring since the mid 20th century. Even in the early stages of this development, it was proposed that there were advantages for both economics and psychology in the integration of these disciplines. "If economics verifies human economic behaviour then theories of human behaviour must underpin them. The relationship should run both ways" (Simon, 1959). The field of behavioural economics has now integrated a wealth of anomalies into economic models, drawing on insights from psychology. Hebert Simon's (1959) paper can be seen as helping to lay one of the early foundations of both

behavioural economics and managerial decision-making (Buchanan & O'Connell, 2006; Schwartz, 2002).

These attempts initially responded to contradictions in psychology with the idea of rational man, and that man was a utility maximizer. This model of human behaviour had prevailed in economics since Edgeworth (1881). Even though Edgeworth himself noted that human behaviour extended beyond utilitarian institutions (Sen, 1977). The assumption of a rational, utility maximizing, man and the notion that it could be integrated into social sciences as well (Becker, 1976), created a flow and counter flow of ideas (Samson, 2014).

Early work focussed on individuals being 'boundedly rational', rather than fully rational. In bounded rationality, individuals are limited by the resources they have with which to make a decision: they suffer from biases, such as over optimism and self-serving notions of fairness, as well as social comparison and a need for social belonging. Simon (1982) suggests that decision-makers are settling for a satisfactory, rather than optimal, decision based on what information they have and can process within practical limitations, rather than making a complete evaluation. Bounded rationality has three interrelated dimensions. The first is processing capacity where memory and recall affect the ability to assess all information. The second is cognitive economizing, where decision-making is limited by cognitive speed and time to make decisions, leading to heuristics. The third is cognitive biases where the decision-maker can unconsciously distort information that is presented. These can be applicable across decision-making and organizational settings (Foss & Weber, 2016).

Behavioural science has since pursued a range of behavioural insights from psychology and considered a vast array of anomalies in economics models. These anomalies are often referred to as heuristics and biases in the decision-making process and range from ambiguity effect and confirmation bias, to hindsight bias and stereotypes. In excess of 100 of these biases in decision-making have now been considered. The three most prominent groups of these decision biases are seen to be involved in time discounting, especially hyperbolic discounting; risk and loss aversion, with prospect theory reference points being highly significant in its contribution; and social preferences.

It is not surprising that advances in economics in relation to behavioural science have influenced economic sub-disciplines such as labour economics and personnel economics. Interestingly one of the most prominent empirical examples of an application of behavioural science within practice, relates to an area of interest to human resource management and employment. 'Save More Tomorrow' is a behavioural 'nudge' designed to respond to the irregularity in utility caused by individuals' failure to fit with the 'life cycle hypothesis' and

spread their wealth over their lifetimes. Issues of self-control and procrastination lead to insufficient savings in retirement and 'Save More Tomorrow' is designed to help with successful pension planning. The initiative draws on heuristics of procrastination, inertia and status quo bias as well as hyperbolic discounting to counteract the difficulties individuals have with savings. The initiative encourages individuals to make graded increases in their pension contributions with wage rises thus delaying higher payments into the less salient future, according to their likely hyperbolic discounting. It also only reduces future gains rather than creating future losses, in line with loss aversion. The set plan improves self-control in addition. The results suggest that behavioural science can be used to design effective prescriptive programs for important economic decisions (Thaler & Benartzi, 2004).

In human resource management and the wider study of employment, there is, within the same area of study, both psychological and economic sub-disciplines working in parallel. Despite the many examples of labour economics and personnel economics integrating insights from behavioural science, there does not yet seem to be a two-way process as suggested in the very origins of behavioural science and the relationship between psychology and economics (Simon, 1959). Thus, as yet, insights from behavioural science have not been integrated to any great extent into human resource management as a more specific field of study, and insights from organizational behaviour and psychology have not yet been at the roots of the behavioural science implementations in labour economics and personnel economics. The reasons for this are multifarious. The development and indeed divergence of the boarder study of employment and labour into its distinct disciplines is an underlying factor. The dynamics between the related disciplines as well as their epistemological and methodological approach are all contributory. Mapping these dynamics is an important step to establishing the two-way relationship, allowing the broader study of employment to develop from both a psychological and economic disciplinary perspective.

2.3 Sub-Disciplines that Significantly Contribute to the Study of Employment

The broader study of employment now consists of a range of sub-disciplines emerging as new fields or sub-fields. The study of human resource management (HRM) emerged from applied extensions of labour economics as an academic field, with publications often being in economics journals, and economists seeing that personnel management played an important role in labour problems. However, building on the notion 'business is too important to be left to the economists' (Haire, 1960), intellectual exchange between economists and human resource management reduced. By the 1970s organizational behaviour had become the dominant disciplinary foundation for human resource

management (Kaufman 1999a). Thus, the predominantly behavioural human resource management faculties became increasingly incognito to economics and vice versa. Despite the fact that researchers in economics and management study human resource management and similar employment scenarios, creating potential for knowledge exchange, interaction remains limited due to disciplinary difference (Mitchell, 2002).

Figure 2.1: Traditional Human Resource Management (HRM)
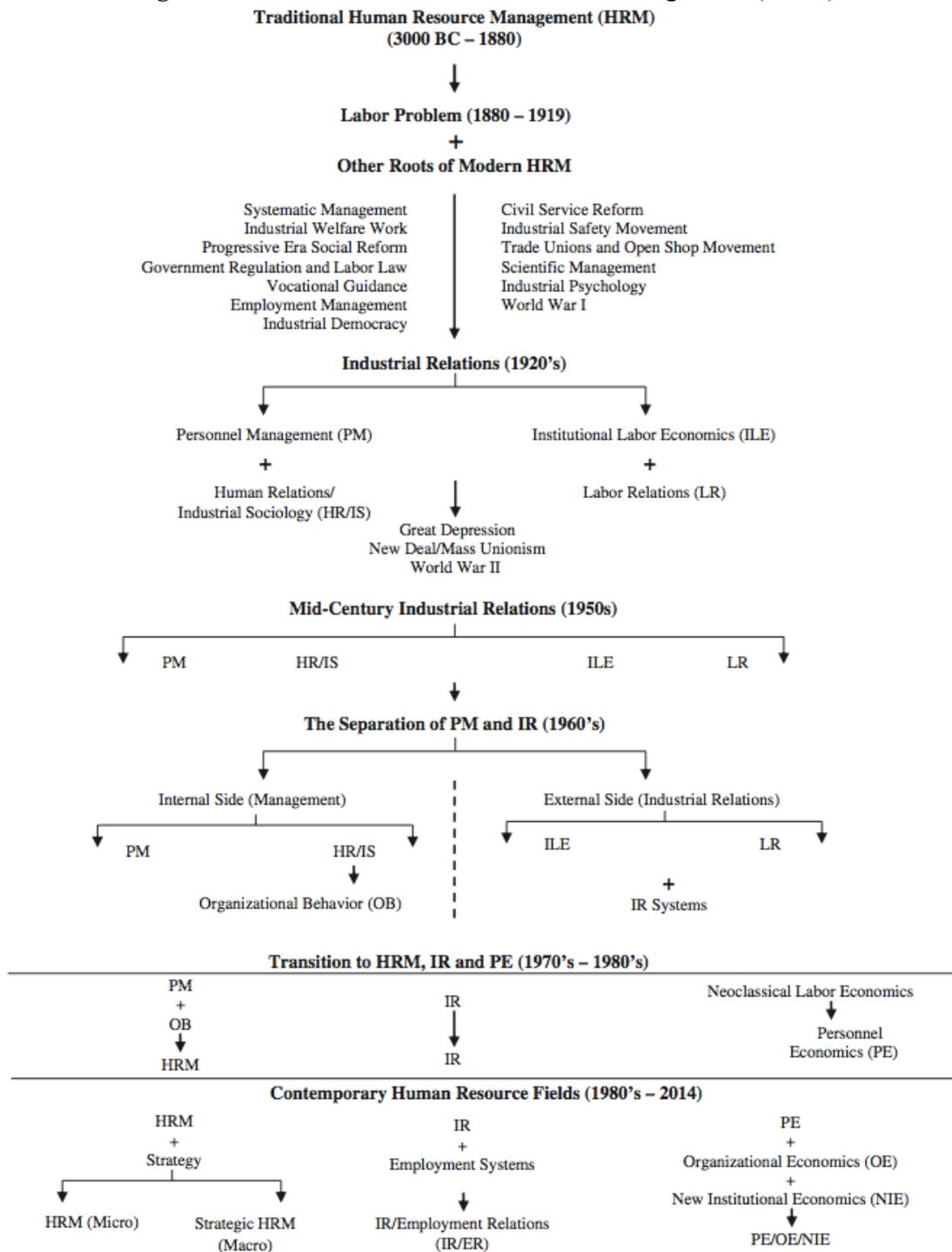
Source: Kaufman, B. E. (2014). *The historical development of American HRM broadly viewed.*

Figure 2.1 illustrates how the study of human resource management is interdisciplinary, consisting of multiple sub-disciplines. For the purposes of this research, there is a focus on human resource management as a specific area of employment study, as well the inclusion of some core human resource management sub-disciplines of organizational behaviour and industrial relations seen in the 'Separation of PM and IR (1960s)' level of figure 2.1.

Although the term HRM entered academic and practitioner consciousness in the 1980s and is now an accepted term in discussions about the contemporary employment relationship, a universally accepted definition remains elusive. HRM is open to many definitions (Storey, 1992). HRM as a distinctive approach to people management frequently differentiate between `soft' and `hard' variants (Storey, 1992). `Soft HRM' represents an approach centred around ideals of quality and commitment, whereas `hard HRM' reflects a contingency approach based on an assessment of the best way to manage people in order to achieve business goals in the light of contextual factors (Storey, 1998).

By the mid to late 1990s it was noted that HRM relied upon theoretical approaches (for example, theories of motivation, satisfaction, and performance). It was argued that these theories are linear in conceptualisation and depend largely upon correlational evidence. In these linear correlation theories, findings can be constrained by researchers and patterns imposed by our biological, psychological and social systems are frequently ignored or assumed to constitute random error within the models. Criticisms extended to suggest that effective HRM practices should be sensitive to the unique, complex and less systematically predictable patterns of human behaviour (Cooksey & Gates, 1995).

Economists consider themselves to have strong theory and typically regard the management style human resource management literature as light on substance and heavy on description and prescription (Kaufman & Miller, 2010). Economics can be seen by some scholars to provide a rigorous and in many cases better way to think about these human resources questions than the more psychological and sociological approaches. Questions dealing with compensation turnover and incentives are inherently economic with others being capable of being informed by economic reasoning. Management researchers, however, view economists' models as far too simplistic. Contrary to economics, psychology has a focus on individual differences in psychological variables (e.g., motivation, cognition) that are abstracted (or ignored) in the standard economic model of the rational utility maximizing actor (homo-economicus). Human resource management, within the study of employment, would often eschew generalisation arguing that every situation is different. Economists however focus on identifying casual sources of general principals. Thus, labour economics

and human resource management continue in most respects to proceed as the two proverbial ships in the night (Kaufman & Miller, 2010).

As organizational behaviour became most influential in informing human resource management research, a new sub-discipline of labour economics emerged to study the micro level employment dynamic. This field was personnel economics. Access to sufficient data was seen to have constrained personnel economics in the ten years after it first appeared in the 1987 Journal of Labour Economics. However, it is argued to have real, not just theoretical, implications (Lazear, 1999). Four primary building blocks from economics form the foundation of personnel economics. Firstly, personnel economics assumes that both the worker and the firm are rational maximizing agents, seeking utility and profits. Secondly, personnel economists assume that labour markets and product markets must reach some price–quantity equilibrium. Thirdly, efficiency is a central concept of personnel economics. Fourthly, personnel economists emphasize the use of econometrics and experimental design to identify underlying causal relationships (Lazear & Shaw, 2007).

Related to, and emerging more recently in personnel economics, microfoundations focusses on highlighting the lower individual level constituents that make up broader, higher constituents; including social processes, routines, motivation and capabilities (Barney & Felin, 2013; Greve, 2013; Winter; 2013). While microfoundations may treat bounded rationality 'thinly' (Foss, 2003), it places emphasis on choice and rationality, with rational agents engaging in satisficing behaviour (Felin & Foss, 2012). While mostly engaged with by the sub-discipline of personnel economics, microfoundations can be seen to potentially bridge the sub-disciplinary divide, including incorporating aspects of behavioural science, as it seeks to link macro management with more micro disciplines such as psychology and organizational behaviour (Felin, Foss & Polyhart, 2015).

At a similar time to the emergence of personnel economics, strategic human resource management (SHRM) emerged in human resource management, trying to integrate human resource management with macro and meso level structures The basic premise of strategic human resource management is that a particular form of human resource management is required given a particular organizational strategy. Better congruence between human resource management and an organizational strategy should result in better performance (Delery & Doty, 1996). The mainstream literature in SHRM largely draws on the discipline of economics and the resource-based view (RBV) of the firm to explain the role of HRM in developing firm competitive advantage (Barney, 1991; Barney &Wright, 1998; Cohen, 2015; Ferris et al., 2004; Mayson & Barrett, 2006).

The emergence of personnel economics and strategic human resource management in the 1990s (Kaufman, 2000) went some way towards bridging the disciplinary divide between the sub-disciplines that study employment. However, there is still a significant divide. A review article of personnel economics literature found that only 2% of their citations are to management journals, with the point of greatest intersection being industrial relations journals (Lazear & Shaw, 2007). Citations to economics journals in strategic human resource management literature stand at 3% (Lepak & Shaw, 2008). Personnel economics remains distant from human resource management. Microeconomic theory and models from the finance field still dominate personnel economics, with psychology and organizational behaviour dominating human resource management (Gerhart, 2005; Kaufman & Miller, 2010; Weber & Kabst, 2004).

In addition to the focussed, specific sub-disciplines of organizational behaviour within human resource management and personnel economics within labour economics, there is also a field of industrial relations. Industrial relations' definitive core concept is not well defined. It has been defined as social regulation of market forces (Hyman, 1995), social mobilization (Kelly, 1998), structured employment antagonism and pluralist workplace governance (Edwards, 2005; Kochan,1998), as well as an employer voice (Budd, 2004). Early industrial relations was positioned between laissez-faire capitalism and socialist revolution, with industrial relations growing from some of the problems with the laissez-faire approach to the labour market. Principally industrial relations saw that the labour market was unbalanced, with employers holding more power than employees. It also aimed to craft a closer connection between economics and the other social sciences, making it less physics-like and more human. Industrial relations' own objections to neoclassical labour economics are that the labour market is imperfect and hierarchical, thus unable to be regulated as a commodity by supply and demand alone. There is a recognition that neoclassical labour economics extends to theorize imperfect market problems (Lazear, 2000; Levitt & Dubner, 2005); however criticism of the neoclassical labour economics approach extends beyond that. There is criticism that in recessions labour is discharged by the millions, leaving society to bear the cost of the unemployed. In addition, incomplete contracts, whereby complexity leads to contractual terms being dynamic or not fully laid out, results in an incoherent pricing and another form of externality to the employee (Kaufman, 2010).

Godard (2014) argues that human resource management is by nature a multidisciplinary subject area, which was traditionally linked with industrial relations. However, Godard concurs that human resource management has become especially focussed on organizational behaviour and psychology, despite the multidisciplinary requirement of

human resource management. Godard's critique of human resource management is mainly situated in an argument of marginalization towards industrial relations and a de-emphasis of asymmetry in the employment relation. In practice this means that human resource management practice assumes an equal power relation between employer and employee and lends itself to more of a 'win win' human resource management practice than a pluralist one. This analysis extends to four main claims. Firstly, instrumental narcissism, viewing all agents as instruments, prevails in a psychological approach, thus promoting an expected loyalty and self-alienation. Secondly Godard argues that scientized models within organizational behaviour or psychology rely too heavily on dismissing deviations as mediating factors. Thirdly, it is argued that organizational psychology does not engage with law, economics and institutions sufficiently. Lastly, it is criticised that organizational psychology promotes an individualist, rather than collective, assumption and abstracts analysis from social environments.

Kaufman (1999a) however writes that human resource management, latterly including industrial relations, emerged from labour economics. This caused a divergence between human resource management and labour economics, which was eventually partly filled by personnel economics (Kaufman, 2000). Kaufman & Miller (2010) critique this divide arguing that both the field of labour economics and human resource management can gain insights from one and other. This analysis is an extension of an earlier criticism of labour economics' assumption of rational utility maximizing and that integrating the behavioural approach of human resource management could prove useful (Kaufman, 1999b).

Backes–Gellner et al. (2008) argue how personnel economics had gained and could gain from behavioural science insights. The main interaction had been that personnel economics had become aware that the assumption of full rationality had shortcomings and had opened the field to interactions with social sciences. Time, risk and social preferences are causes of deviations as well as equity, fairness and reference points (Backes-Gellner et al., 2008). Dohmen (2014) highlights that labour economics more widely is lagging a little behind in integrating behavioural science. Nonetheless there was scope for labour economics to gain from a more psychologically complete view.

The adoption of behavioural science has altered and contributed to the broader study of employment and related sub-disciplines. There is also substantial potential for its integration with the study of human resource management more specifically. In addition to an increased capacity for exchange between the related economics and human resource management approaches, behavioural science also addresses many of the concerns put

forward by Godard (2014) regarding organizational behaviour and psychology. Behavioural science tries to take into account deviations from the standard utility model, and incorporates them into the model rather than dismissing them as mediating factors. Many of the insights incorporated into behavioural science models involve the consideration of social context and influences, thus placing the individual within a social context.

2.4 Behavioural Science and its Contribution to Interdisciplinary Employment Research

The study of human resource management and its related disciplines, including labour economics, personnel economics, industrial relations, organizational behaviour and psychology, all aim to study employment relationships. They can all therefore share an aim, and in some sense, be used to support each other. Increasing discussion is being had from a variety of disciplinary perspectives pertaining to the development of the wider study of employment by incorporating new insights and approaches. These discussions include critiques from an industrial relations perspective (Godard, 2014), lessons from behavioural economics for personnel economics (Backes–Gellner et al., 2008), how behavioural economics has been adopted into labour economics (Dohmen, 2014), as well as an acknowledgement of the diversity within the emergence of the wider study of employment (Kaufman 1999a, 1999b, 2000; Kaufman & Miller, 2010).

Despite this, a foundation for incorporating these new insights into human resource management as a specific field of study has not yet been considered. If we consider that, as in the origins of behavioural science, "if economics verifies human economic behaviour then theories of human behaviour must underpin them. The relationship should run both ways" (Simon, 1959). If organizational behaviour and psychology are providing the main insight to human resource management, these theories can inform labour and personnel economics as a form of behavioural science and vice versa.

2.4.1 Modelling the Study of Employment: Relational Diagrams

Further conceptualization of the study of employment is presented using a relational diagram in a criticism of 'the psychologization of employment relations', highlighting the multidisciplinary nature of human resource management (Godard, 2014, p3). This conceptualization is important given that it presents a wide range of exogenous academic influences upon the study of industrial relations, as well as subdividing that broader influence into different macro and micro sub-disciplines. It also provides a good example of the complexity of management scholarship and attempts to highlight that the study of

employment is a multidisciplinary area with many interrelated concepts.

When considering the relational diagram (Godard, 2014, p3), a number of disciplines and sub-disciplines are modelled with a wide range of exogenous academic inputs influencing them, often in two-way relationships. The spectrum of these exogenous influences range from politics, law and history, to sociology, psychology and economics. It is also important to consider the claim that industrial and organizational psychologists can be seen to be instrumental in the formation of this particular area of study. It also conceptualizes that epistemologies and ontologies can direct academic specificities.

Building on this conceptualization of exogenous academic disciplinary influence, it is useful to consider behavioural science as an exogenous disciplinary input into employment analysis. It is important to consider how this disciplinary emergence has contributed already, as well as how it might further be contributed to or engaged with in the future.

Figure 2.2: Mapping the Sub–Disciplines That Study Employment
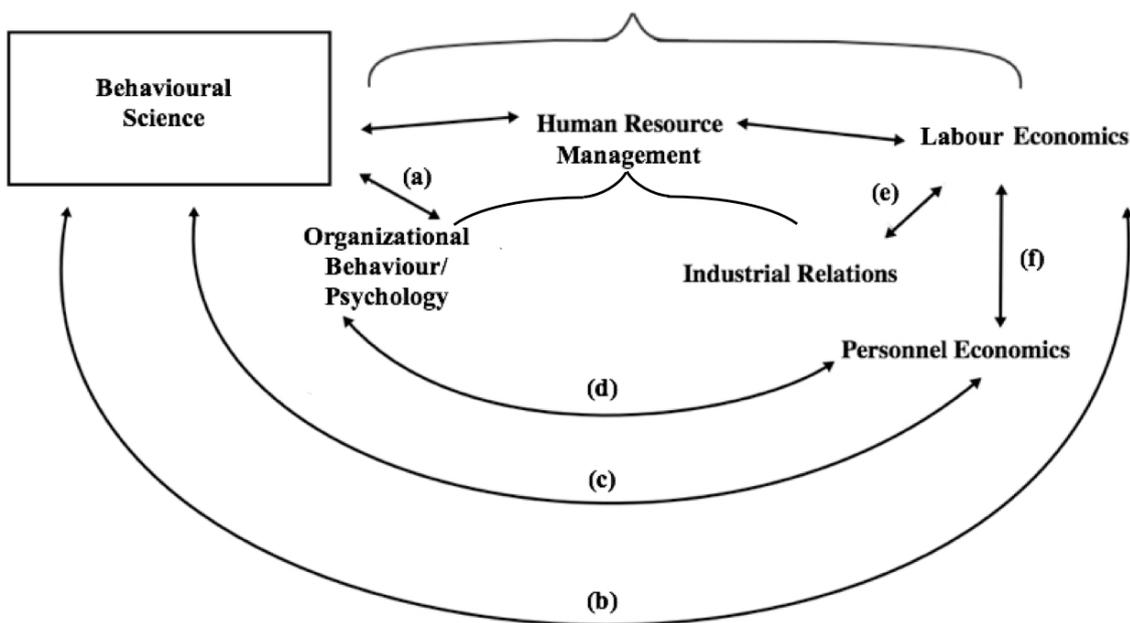
The conceptualization contained in figure 2.2 is intended to show both the existing and potential interactions between the different sub-disciplines that study employment, whilst considering the exogenous input of behavioural science.

Interaction (a) is whereby insights from organizational behaviour and psychology are incorporated into models by behavioural science and vice versa. This is a less active interaction thus far, with social comparison bias, the tendency, when making hiring decisions, to favour potential candidates who don't compete with one's own particular

strengths (Garcia, Song & Tesser, 2010), being one of few examples. However, it is crucial in order for real insight and mediation to be gained through the use and integration of behavioural science. Equally within this interaction, concepts from behavioural science could also be integrated into the pursuits of organizational psychologists. Again, to date this type of interaction is underutilized (Backes-Gellner et. al., 2008; Lepak &Shaw, 2008; Lazear & Shaw, 2007).

In the case of behavioural scientists engaging with organizational behaviour, there are specific cognitive or social biases that may be distinct to human behaviour in an organizational setting, but nonetheless aggregate to a systematic non-rational, poor utility maximization. These insights from organizational behaviour could be of interest for the formation of specific behavioural biases with economic relevance. However, in addition, there is scope for organizational behaviour to engage with the wider theories of human behaviour as proposed by behavioural science, considering their potential influence within an organizational setting.

Interaction (b) is whereby the insights from behavioural science are incorporated into labour economics. Interaction (b) thus far has been the most active bridge between sub-disciplines, with behavioural science concepts being applied to pensions (Thaler & Bernartzi, 2004), retirement (Bidewell, Griffin & Hesketh, 2006), job search (Paserman, 2008), wages (Schoenfelder & Hantula, 2003), and bonuses (Hesketh, 2000; Shelley & Omer, 1996). This is perhaps in part due to the fact that it is the most intuitive progression within the study of employment for using behavioural science, given that behavioural science incorporates and adds new insights into existing economic models.

Interaction (c) is whereby insights from behavioural science are incorporated into personnel economics. This creates a second loop between sub-disciplines, without incorporating labour economics and industrial relations in the wider, macro level analysis. With the closeness of pursuits between personnel economics and human resource management as well as the prevalence of organizational behaviour, it is within this dynamic that a large proportion for potential to incorporate behavioural science lies. It is in this interaction that the sub-discipline of micro-foundations lies, which has been one of the more prominent examples of adopting the exogenous influence of behavioural science into the study of employment.

Interaction (d) is also underexploited. Particularly from the work of micro-foundations and the increasing acknowledgement and integration of behavioural science into personnel economics, there is scope for organizational behaviour to gain insight from personnel economics. Thus far, however, as with the limited uptake of micro-foundations

within organizational psychology, interaction between personnel economics and human resource management or organizational behaviour remain limited (Barney & Felin, 2013; Lazear & Shaw, 2007; Lepak &Shaw, 2008).

Interaction (e) is the interaction between industrial relations and labour economics. In terms of basic references to human resource management and labour economics, it is this interaction that the most interdisciplinary citations occur. This is in part due to industrial relations directly opposing labour economics and both generally operating at the macro level. However, since the demise of the main institutions that supported traditional industrial relations, a new sub-discipline has emerged in the form of employment relations. This lays more closely between the organizational behaviour aspects of human resource management and labour economics, sitting closer to micro level constituents.

Interaction (f) is probably the most active bridge at present. Personnel economics is a subfield of labour economics and they share the same approaches; albeit they have different focuses and organizational scales.

The model in figure 2.2 as a whole represents the complexity and further channels through which the study of employment might be influenced and mediated by behavioural science as an exogenous academic development. The incorporation of behavioural science into labour economics will not always make an impact upon human resource management more specifically unless it is engaged with by industrial relations or indeed back through the micro level analysis of personnel economics and thus onto organizational behaviour. The successful implementation of "Save More Tomorrow" (Thaler & Benartzi, 2004) in practice required an acknowledgement that employees needed greater empowerment in their pension decisions. This process is multi directional as industrial relations and labour economics, liaise and mediate one and other.

There is a multi-directional relationship between personnel economics and labour economics, given that personnel economics is a subfield of labour economics and their approaches are similar. The main limitation for interaction between the two disciplines is that they have different pursuits. But again, taking the example of "Save More Tomorrow" (Thaler & Benartzi, 2004), once an admission that employees needed help with their pension savings was made, the micro-level constituents behind their saving difficulties needed to be understood. This is where personnel economics, behavioural science and organizational behaviour came in. The challenge within the study of employment is not only bridging across disciplinary specificities of methodology and epistemology but also transcending solutions across the macro - micro level constituents that create processes.

Personnel economics might influence organizational behaviour and psychology

given that their pursuits are closely related. They both aim to study the micro-level constituents of employment practices. Personnel economics can take an individual behavioural approach as in the prevalent pursuit of micro-foundations research. However, the assumptions and methodologies between these two sub-disciplines differ, and without relaxation of these, interaction may be more limited. The relaxation of these plays an important role in using behavioural science as a mediator within management study. Behavioural science can be seen to have emerged both in the challenging of economics assumptions of rational utility maximization (Sen, 1977) as well as the notion that the macro constituents of economics and the micro constituents of psychology should inform each other (Simon, 1959). The emergence of this exogenous sub-discipline of behavioural science therefore can bring the assumptions of psychological and economic disciplines closer. It could be considered that interaction (d), between personnel economics and organizational behaviour might remain limited, but could happen through interaction (a) and (c) whereby organizational psychologists and personnel economists interact with behavioural science directly.

In summary, there are existing interactions between separate disciplines in the wider study of employment as well as scope for further. Even where interactions exist, a strengthening of those interactions could be beneficial. Without the introduction of behavioural science as a mediator, there would only be simple linear relationships between certain disciplines rather than a more holistic and cyclical interaction.

The challenge lies in encouraging behavioural scientists to take on human resource management and employment issues and incorporate them into their own models. From here there is the potential to influence both personnel economics and labour economics, thus influencing the wider study of employment. When looking at the model it is easy to envisage a cyclical working and reworking of ideas between sub-disciplines to advance the study of employment as a whole. However, the interaction of psychologists with exogenous academic inputs and multi-level forms of employment analysis is argued to be crucial as in the psychologization of employment relations 'relational diagram' (Godard, 2014). It is therefore of great importance to consider how might organizational psychologists be interacting with the new exogenous emergence of behavioural science as well as the potential for them to do so.

2.5 Behavioural Science and its Contribution to the Integration of Levels of Analysis

The micro-foundations research highlights one area where individual agents are embedded into economic and social systems. The research builds across the micro and macro

specificities within management, in turn contributing to employment scholarship.

One of the major distinctions between macro and micro level analysis is that the macro level tends to be studied through economic analysis and the micro through psychology. Bringing together these disciplines therefore constitutes an important part of integrating the levels analysis. A main challenge to these integrations is that psychology and economics have fundamentally different theoretical perspectives and methodological standards (Grimshaw & Rubery, 2007). Behavioural science to some extent gives scope to create interaction between these two distinct disciplines, as behavioural science takes insights from psychology to explain economic decision-making.

The potential for interaction created by the notion that economics can integrate insights from psychology has important implications in the study of employment and its sub-disciplines. Organizational behaviour, organizational psychology and human resource management, tend to study issues such as employee integration, commitment and staff management (Aguinis et al., 2011; Guest, 1987), often using a micro level (individual processes) psychological approach (Godard, 2014; Haire, 1960; Kaufman, 1999a). Personnel and labour economics are largely concerned with the meso (organizational) and macro (socio-economic) products of individual processes within employment decision-making like hiring, training, compensation and teamwork (Lazear & Shaw, 2007). Industrial and employment relations most frequently aim to study the macro social structures that can help determine the micro individual processes.

Calls are emerging within the study of human resource management and labour economics to integrate these pursuits. Microfoundations bridges macro-micro while incorporating aspects of behavioural science, but contributions within human resource management and organizational behaviour are limited (Barney & Felin, 2013). To date, the microfoundations movement has mostly been engaged with by personnel economics and can be seen as an applied extension of personnel economics. In addition, a review of labour economics literature highlighted the shortcomings of the assumptions of rationality, suggesting the integration of behavioural sciences into empirical research (Kaufman, 1999b). Strategic human resource management can also require the integration of psychological and economic perspectives (Chadwick & Dabu, 2009).

A distinction between sub-disciplines, is that the study of management is divided by three system levels. These are individuals and groups, organizations, as well as economic and social systems (Molloy, Ployhart & Wright, 2010). There is also a wider 'trinity of disciplines' within the field of management (Agarwal & Hoetker, 2007; Rynes, Bartunek, & Daft, 2001), with disciplines being defined by distinct theories, methods and assumptions

that shape the way phenomena are conceptualized, examined and measured. These distinctions between sub-disciplines have been conceptualized into a Venn diagram containing three main disciplines that contribute to the study of management. These are economics, psychology and sociology. Between these disciplines lie the sub-disciplines of decision theories, entrepreneurial firms, evolutionary economics and mentoring (Molloy, Ployhart & Wright, 2010).

The points of intersect where these levels of analysis converge are important to the integration of different disciplines and sub-disciplines with different macro and micro level perspectives and analysis. Of particular interest here is the intersect of decision theories, pointed to by the example of prospect theory (Kahneman & Tversky, 1979). Within the Venn diagram, this intersect lies between psychology and economics, with which behavioural science engages. This sub-discipline is clearly situated between the behavioural or psychological constituents that explain individual behaviour within an organizational setting, whilst interacting them with the economics theories that might be used to explain the macro outcomes within organizations as a whole.

Using examples, it can be shown that the trinity of management sub-disciplines within the matrix of management research can view the same phenomena differently. For example, when considering human capital, psychologists are likely to see the accumulation of human capital as a product of individual differences and cognitive ability. Whereas economists might see human capital as a product of an investment decision. Meanwhile sociologists might see human capital as a product of a career history and a structural position (Molloy, Ployhart & Wright, 2010).

It is therefore interesting to map the study of employment analysis in a similar way, whilst integrating behavioural science. It is also important to situate and map this dynamic with the respective sub-disciplines studying employment while considering overlaps and the influences upon them. This is important given that integrating macro and micro constituents is seen as important for advancing the field of management (Hitt et. al., 2007) as well as for highlighting and fostering potential new engagement across disciplines.

Figure 2.3
Venn Diagram of Employment Analysis

1: Personnel Economics
2: Behavioural Science
3: Industrial Relations
4: Organizational Behaviour

☐ Endogenous Discipline
▨ Exogenous Discipline
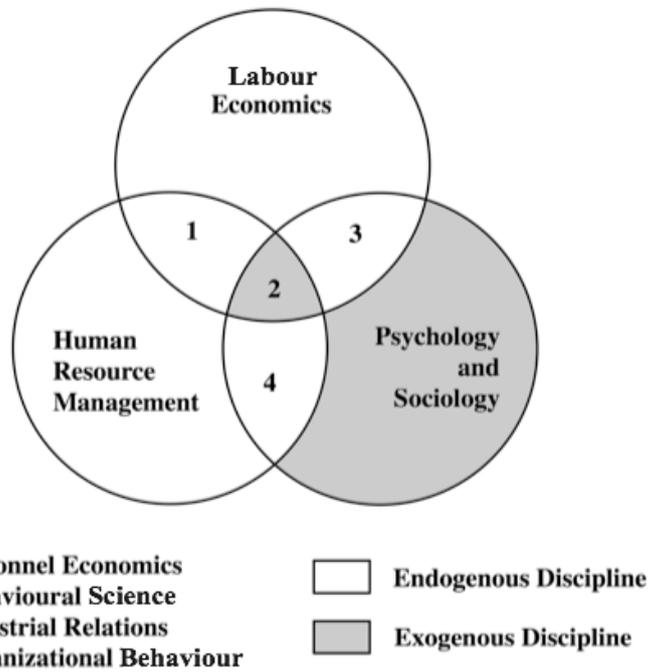
Building on the classic Venn diagram of the 'trinity of disciplines' (Molloy, Ployhart & Wright, 2010, p7), figure 2.3 shows how sociology and psychology interact with study of human resource management (micro) and labour economics (macro). Area 1, personnel economics, is where the sub-discipline of labour economics is brought into the micro level. Intersect 3, industrial relations, is where the processes within labour markets are disputed between economic and sociological perspectives. Intersect 4, organizational behaviour, is where psychological and sociological approaches are used to consider human resource management problems. Intersect 2, behavioural science, is where psychological insights are added to econometric analysis.

The sub-discipline of behavioural science is situated in the centre of the Venn diagram as it connects with psychology, that which influences the organizational behaviour approach in human resource management. Meanwhile behavioural science is situated within the methodologies and pursuits of economics at the core of labour economics. Behavioural science also tends to consider micro-level components of behaviour that can systematically aggregate to a macro effect.

Sociology was grouped with psychology as an additional exogenous influence upon the study of employment, owing to industrial relations and that sociological theories can underpin managerial decisional and behavioural biases. Psychology and sociology are grouped given that they collectively present the challenges to economic perspectives, as can be seen in the 'trinity of management disciplines' Venn diagram (Molloy, Ployhart &

Wright, 2010, p7). Both psychology and sociology can also be exogenous academic influences on management disciplines.

The economic perspective as shown in the 'trinity of management disciplines' Venn diagram (Molloy, Ployhart & Wright, 2010, p7) is well represented in labour economics. It is important to note that from a certain perspective, the points of intersect 1, personnel economics, and intersect 2, behavioural science, are currently predominantly interacting within the circle of labour economics, while the intersect of organizational behaviour is operating within the circle of human resource management. Most interaction between disciplines has been between industrial relations and labour economics, intersect 3, personnel economics and labour economics, intersect 1, as well as behavioural science and personnel and labour economics, intersect 3.

It must be noted however, that while behavioural science is placed here at the centre of the Venn diagram, it is not intended to show that behavioural science is at the centre of employment analysis or that employment analysis should be conducted solely through behavioural science. This Venn diagram differs from that seen in the 'trinity of management disciplines' Venn diagram (Molloy, Ployhart & Wright, 2010, p7) given that only labour economics and human resource management represent employment analysis directly, with the former representing the macro-level and the latter representing the micro, broadly speaking. Psychology and sociology are exogenous academic influences upon the study of employment in both labour economics and human resource management, and thus the emergence of behavioural science is also an exogenous influence.

It is the emergence of this new exogenous influence in behavioural science that is of interest and creates new opportunities for the integration of macro and micro levels as well as the furthering of the field as a whole. It is these new opportunities and implications for employment research that have been created by the emergence of, and indeed adoption of, behavioural science that are being explored.

2.6 Comparing the Core Pursuits of Behavioural Science and Employment Related Sub-Disciplines

Another way to consider the potential interactions between the sub-disciplines within the broader study of employment is to compare their core concepts, methodologies, target topics and contexts. Similarity matrices are a way of identifying common themes between different discourses (Ryan & Bernard, 2003). This technique is often used in the analysis of qualitative data responses. A simple matrix of the very key aspects and core pursuits of each sub-discipline acts as an additional tool in highlighting the potential for interaction. This is

an important part in highlighting the potential for behavioural science to interact with the wider study of employment and act as a mediator. HRM is included as a core focus of employment study, while the HRM sub-disciplines of organizational behaviour and industrial relations are compared alongside.

Two matrices were therefore constructed. For the purposes of comparability and simplicity, two matrices were drawn that contained only three items for each sub-discipline. It is acknowledged that in the first matrix comparing key aspects of the sub-disciplines could contain more criteria that could be compared and produce similarities between sub-disciplines. The matrix constructed, however, focusses on the three key aspects of methodology, context and core approach. Equally in the second matrix, only the three most integral pursuits of the sub-disciplines are compared, leaving some scope for interaction in minor pursuits that were not considered.

Table 2.1: Comparison of Key Aspects of Labour and Employment Related Sub-Disciplines

Labour Economics	Personnel Economics	Behavioural Science
Methods and techniques from economics[a] (macro and micro).	Methods and techniques from economics[a] (micro).	Methods from economics[a].
Context of market equilibrium[b].	Context of market equilibrium[b], rational maximizing behaviour, and economic efficiency.	Context of considering the extent of bounded rationality and utility.
Neoclassical supply and demand of wages and labour.	Wider cost benefit.	Economic decisions and psychological[c] challenges to models.

Industrial Relations	Human Resource Management	Organizational Behaviour/Psychology
Methods draw from sociology[d] and political science.	Methods and techniques from sociology[d] and psychology[c].	Methods from psychology[c] and sociology[d].
Context of market imbalance.	Individual or strategic.	Interface between human behaviour and the organization.
Assumes natural conflict between institutional arrangement and employees.	Skills, firm performance, strategic (rational and formulaic).	Human behaviour (marcro, meso, micro).

Common themes [abcd]

There were four common themes identified when comparing the key aspects of the sub-disciplines that study employment.

Common theme (a) highlights that, unsurprisingly, all three of the 'economics' disciplines share similar methodological bases. This highlights the potential for behavioural science to interact with personnel economics and labour economics. It also highlights the

inevitable interaction between personnel economics and labour economics. It is between these three sub-disciplines that active interaction has been most prevalent to date.

Common theme (b) highlights the further closeness and likely interaction between personnel economics and labour economics. The important thing to notice from this comparison is that behavioural science differs. This is an important distinction of behavioural science; in that it recognises that the balance of markets is limited by bounded rationality. Given this distinction, it is important to notice the contextual focus of industrial relations. The context of market imbalance in industrial relations, within the limitations of bounded rationality, agrees with the context of behavioural science. This highlights one potential area of study where behavioural economics can act as a mediator between two closely interacting sub-disciplines.

Common themes (c) and (d) both underline the similarities of industrial relations, human resource management and organizational behaviour, in this case in the form of the methodologies they use. It is also important to note the clear distinction here between the top row of 'economics' disciplines and the bottom row of 'human resource management' disciplines. This comparison clearly highlights the disciplinary divide between these two subsets of disciplines. However, it is also important to consider that common theme (c) is in some ways represented in the focus of behavioural science, given that behavioural science is focussed on psychological challenges within bounded rationality. Given that this is the case, it is possible to consider that behavioural science could be complimentary to the 'human resource management' sub-disciplines in the form of industrial relations, organizational behaviour, as well as the human resource management focussed analysis in employment research. In addition, behavioural science could, at the same time, be complimentary to the two other 'economics' disciplines in labour and personnel economics, given their shared methodological pursuits.

Analysing the key pursuits of the respective disciplines through a similarity matrix has drawn out some of the ways in which the disciplines might be able to interact and added further to the modelling of these sub-discipline dynamics. The most salient issues identified were the macro-micro bridge of studying behaviour and the polarity of methods and theories between the 'economics' and 'human resource management' sub-disciplines. Behavioural science incorporates aspects from either side of the divide, as well as incorporating human behaviour into its models, challenging labour and personnel economics in a way that is more complimentary than the current polarity of the 'human resource management' disciplines.

Table 2.2: Comparison of Core Pursuits of Labour and Employment Analysis Sub-Disciplines

Labour Economics	**Personnel Economics**	**Behavioural Science**
Labour markets[a] (external labour markets).	Labour markets[a] (internal labour markets).	Time preferences.
Labour/employment supply and demand.	Compensation/ pensions/ wages[b].	Social preferences.
Wage[b]/income supply and demand.	Productivity[c].	Reward/risk/ loss Aversion.

Industrial Relations	**Human Resource Management**	**Organizational Behaviour/Psychology**
Institutional arrangements.	Recruitment and choice.	Leadership.
Employee relationship.	Training.	Motivation and co-worker relations[d].
Employee voice and power.	Co-worker relations[d] and productivity[c].	Decision-making.

Common themes [abcd]

Again, there were four common themes identified within the similarity matrix for comparing the core pursuits of labour and employment analysis disciplines.

Common theme (a) was that personnel economics and labour economics share the analysis of labour markets, with one being external and the other internal. Common theme (b), in terms of the analysis of wage, was also between personnel economics and labour economics.

Common theme (c) highlighted the shared pursuit of productivity between personnel economics and human resource management. This similarity exists potentially due to human resource management and personnel economics working at the same micro level. It may also be a reflection of how personnel economics moved in to fill the disciplinary gap between labour economics and the study of human resource management.

Common theme (d) displays the shared pursuits between organizational behaviour and human resource management. This shared pursuit perhaps highlights the need for, or is a consequence of, organizational behaviour being the most substantial contributor to human resource management.

One other common theme that is however not directly highlighted by the similarity matrix, is that the 'social preferences' of behavioural science can be heavily linked to the scenario of co-worker relations and could be applicable more broadly to other pursuits within the matrix. Furthermore, the core pursuit of wages is already heavily linked to existing literature in time preferences and risk preferences in behavioural science (Hesketh, 2000;

Schoenfelder & Hantula, 2003; Shelley & Omer, 1996). This matrix therefore highlighted some of the existing links between disciplines as well as identifying the ample scope for interaction between behavioural science and other disciplines.

2.7 Existing Interactions with Behavioural Science by Practitioners

In addition to the theoretical, methodological and paradigm contributions that behavioural science might be able to make to the study of employment, there is also emerging interaction by human resource management practitioners with behavioural science. The adoption of behavioural science in human resource management practice is of additional relevance as to why employment scholars might be interested in behavioural science as well as why establishing a structured behavioural science framing may be useful. Indeed, the behavioural science framing for investigating employment scenarios illustrated in chapter 3 of this thesis is intended to be approachable both to scholars of employment as well as practitioners.

The U.K.'s Chartered Institute for Personnel and Development released two recent reports pertaining to the integration of behavioural science into human resource management practice. 'Our Minds at Work: Developing the Behavioural Science of HR (CIPD, 2014), noting the rise of behavioural science and the success of the U.K.'s Behavioural Insights Team, aimed to look at the potential for behavioural science to inform human resource management. This included the areas in which behavioural science may have the potential to impact. This extended from selection and recruitment into the organization, including pay and reward, performance management, employee engagement, team building and project working, diversity and equality. The report tackled why and how behavioural science should be engaged with by human resource management, citing the success of the books 'Nudge' (Thaler & Sunstein, 2008) and "Thinking, Fast and Slow" (Kahneman, 2011), in addition to the success of the Behavioural Insights Team.

The research report 'A Head for Hiring: The Behavioural Science of Recruitment and Selection (CIPD, 2015) was released in follow up to the initial 2014 report and authored by the Behavioural Insights Team. This report goes on to highlight specific cognitive biases and how they may impact on recruitment decisions. These included temporal discounting, status quo bias, base rate neglect, sunk cost fallacy, affinity bias and the endowment effect. The structured framing in chapter 3 of this thesis extends these investigations further. The 2015 report also highlights the importance of person-job and person-organization congruence.

The engagement with behavioural science in the Chartered Institute for Personnel and Development continues with a recent podcast '7 Feb 2017, Behavioural Science, Episode 122: Explore how insights from behavioural science can be applied in your organization to help improve communication, learning and leadership.' Having worked and authored with the Chartered Institute of Personnel and Development in 2015, the Behavioural Insights Team went on to launch their first behavioural product in 2017, 'Applied', a recruitment platform that aims at removing behavioural biases in recruitment.

2.7.1 Examples of Online Tools

There have been many online tools appear that are aimed at helping to mitigate unconscious bias in recruitment.

Applied: The platform provides support throughout the recruitment process starting with the designing of job descriptions to attract diversity in applicants. It then creates predictive work tests using a library of work tests based on the actual role. The tool then tracks diversity in applications coming in, including data on unfinished applications. Anonymized applications are compared one question at a time and the best responses are highlighted to reduce cognitive load. Help is given in structuring interviews, with the intention of leading to less ad-hoc responses based on less structure and likely in-group bias. Individual judgements are prompted in interviews before eventually combining the thoughts of all interviewers, reducing biases like groupthink, where individual views can be drowned out by a pressure to gain consensus. Feedback is automatically shared with candidates. Candidate performance is then monitored, allowing firms to track which recruitment elements were most predictive of success.

Blendoor: A mobile job matching app that hides candidate's details to circumvent unconscious bias and facilitate diversity in recruiting, mitigating unconscious bias by hiding data that is not relevant and highlighting data that is.

Diverseo - Reduce unconscious biases in HR decisions – the 7 steps™ tool: A service tool aimed at reducing unconscious bias by reducing mental interferences. With the seven steps being concentrate, write the criteria, weight the criteria, identify candidates, list the facts, analyse and rate, decide.

GapJumpers: Uses blind auditions. The only thing employers can measure is candidates' performance on a skills-based test. The aim is to combat biases such as those based on gender, educational and racial stereotypes.

Gender Decoder for Job Ads: Society has certain expectations of what men and women are like and this seeps into the language we use. The example given is "bossy" and

"feisty": we almost never use these words to describe men. The decoder presents itself as a quick way to check whether a job advert has the kind of subtle linguistic gender-coding that has this discouraging effect.

Interviewing.io: Chooses candidates based on past performance in rigorous, live technical interviews. The tool predicts ability on these interviews rather than a resume. Selected candidates are then interviewed by the firm anonymously using a technical phone screen.

Launchpad Verify: Tracks decision-making behaviour and uses data to identify inconsistencies, uncovering conscious and unconscious bias, in order to mitigate its influence over decisions. The dashboard offers insights into assessment reliability, provides actionable feedback on reviewer behaviour and assigns confidence levels to reviewer scores.

Marshall e-learning Unconscious Bias Tool: Developed in partnership with the Employers Network for Equality & Inclusion, this free tool enables managers to ask staff to reflect on their own biases and help businesses achieve a clear understanding of how best to manage their employees' personal biases.

Pymetrics: An assessment tool, which is a series of games that job applicants or employees play. The neuroscience games assess the cognitive and emotional strengths of candidates and data science algorithms match them to their ideal jobs. The game design is intended to reduce bias embedded in traditional assessments - for example, women and minorities fare worse than men on standardized tests. Blind anonymous auditions can be set up to mitigate conscious and unconscious biases. The prediction algorithm does not use demographic information to assess career fit. Statistical tools are added in attempt to reduce residual bias.

Search Party: When firms search for candidates, anonymous profiles are displayed that just show enough data to make a hiring decision while removing bias inducing information like gender and ethnicity.

Textio: This software provides a platform for employers to enter their job descriptions, and offers feedback as they type. It uncovers key phrases and spots biases. It highlights words and phrases and classifies them as "negative," "positive," "repetitive," "masculine" and "feminine." It also offers insights about strengths and problems with job descriptions, like good use of active language or too many clichés and jargon. Job descriptions receive a score, along with recommendations for how to improve.

Unitive: Step one is to prioritise job skills using an easily stackable, drag and drop interface. Prioritising skills also allows job descriptions to be effectively written. The aim is for recruiters to stay focussed and not be swayed by less important criteria or personal

characteristics that are less predictive of job success. A database then provides pre-written, crowd-sourced job descriptions that relate to specific skill sets whilst providing feedback on diversity indicators, for example, male-themed language. There is then a blind resume review. The platform hides applicants' names, gender, and other personal identifiers. Help is given to help teams pre-plan interviews with questions that focus on the most important hiring criteria that will determine job success. It is proposed that more structured interviews lead to more consistent and accurate candidate evaluations. Scoring is revealed after everyone provides their independent evaluations of a candidate. All data is shared and the highest-scoring candidates are identified.

Wave Interview Guide: Gives recruiting managers access to personality assessments to structure their interviews. It is designed for use in selection interviews and panel interviews. Recruiters can access psychometric data to assist in the prediction of performance by focusing on most relevant competencies. The platform provides data on an individual's motives and talents, to assess organizational fit.

2.8 Summary of Chapter

This chapter demonstrated five areas in which behavioural science can contribute to the study of employment and why behavioural science may be of interest to employment scholars, helping to fulfil research objective 1. Firstly, it is the emergence of behavioural science itself as a discipline that has relevant connections to management scholarship. Secondly, there are calls for more interdisciplinary research between different sub-disciplines that study employment. The third emerging paradigm is calls for the integration of different levels of scholarship, especially in management. Fourthly, as part of integrating different sub-disciplines as well as levels of analysis there are calls to integrate methodologies. Fifthly, in addition to these academic and theoretical paradigm contributions, there is emerging consideration of behavioural science in human resource management practice.

Psychology and organizational behaviour became the dominant paradigms through which human resource management is studied (Gerhart, 2005; Kaufman, 1999a; Weber & Kabst, 2004). With the result interaction of labour economics and personnel economics with human resource management remains limited, in part owing to theoretical and methodological differences (Kaufman & Miller, 2010; Mitchell, 2002). As a result, whilst uptake in personnel and labour economics of behavioural science had been emerging (Backes-Gellner, et al., 2008; Dohmen, 2014), engagement between human resource management as a specific area of employment study remains limited.

Separate economic and behavioural faculties for studying employment emerged in the 1960s (Haire, 1960; Kaufman, 1999a), however, over time additional sub-disciplines have emerged to fill the some of the analysis space between them. That congruence of disciplines continues and now extends to calls for the integration of both the economic and psychological perspectives (Kaufman, 1999b) and the macro and micro divides (Aguinis et al., 2011; Hitt et al., 2007; Wright & Boswell, 2002).

There are also calls for integrating strategic human capital development and organizational behaviour to create strategic organizational behaviour (Ployhart, 2014), calls to extend the behavioural theory of the firm into micro directions (Gavetti et al., 2012; Greve, 2013), calls for work in a subfield of 'behavioural strategy' (Levinthal, 2011; Powell, Lovallo, & Fox, 2011), as well as calls for multilevel theories of human capital (Barney & Felin, 2013; Coff & Kryscynski, 2011; Molloy, Ployhart, & Wright, 2010; Ployhart & Moliterno, 2011). There is now a trend toward the development of more comprehensive and integrative theories that address organizational phenomena from multiple levels of analysis (Aguinis, 2014; Aguinis et al., 2011; Foss, 2010; Foss, 2011; George, 2014; Van de Ven & Lifschitz, 2013), to which behavioural science could be able to contribute.

There is clearly highlighted potential for behavioural science to act at the interdisciplinary intersection of the study of employment. Existing examples show some of this potential, with behavioural science concepts being applied to pensions (Thaler & Bernartzi, 2004), retirement (Bidwell, Griffin & Hesketh, 2006), job search (Paserman, 2008), wages (Schoenfelder & Hantula, 2003), and bonuses (Hesketh, 2000; Shelley & Omer, 1996). Existing examples within behavioural science, such as 'Save More Tomorrow' (Thaler & Bernartzi, 2004) constitute some of the most prominent examples used within behavioural science and clearly relate to the study of employment.

The scope is wide. Behavioural economics could potentially be applied across different sub-disciplines as well as different research areas within the study of employment. Its potential, combined with increasing calls for integration between employment sub-disciplines (Aguinis, 2014; Aguinis et al., 2011; Barney & Felin, 2013; Coff & Kryscynski, 2011; Foss, 2010; Foss, 2011; Gavetti et al., 2012; Greve, 2013; George, 2014; Hitt et al., 2007; Kaufman, 1999b; Levinthal, 2011; Molloy, Ployhart, & Wright, 2010; Ployhart, 2014; Ployhart & Moliterno, 2011; Powell, Lovallo, & Fox, 2011; Van de Ven & Lifschitz, 2013; Wright & Boswell, 2002), is likely to see behavioural science interacting with human resource management and employment. Such interaction is already clearly emerging, with reports for the Chartered Institute of Personnel and Development discussing the integration of behavioural science into human resource management practice (CIPD, 2014; 2015).

CHAPTER 3: THE APPLICATION OF A BEHAVIOURAL SCIENCE FRAMING TO RESEARCH ON EMPLOYMENT

3.1 Introduction to Chapter

The purpose of this chapter is to present new knowledge by demonstrating how behavioural science could be applied to studying employment problems, establishing a structure for using a behavioural science to help frame research on employment (from the perspectives of, for example, job seekers, employees, employers or employment service agents).

To be able to establish a how employment scenarios may be framed and investigated using behavioural science, behavioural science is first broken down into its relevant constituent parts and concepts. Using this conceptualization, the employment cycle is then used to demonstrate that the use of a behavioural science framing can provide insights at different stages of organizational and career decision-making, providing an additional layer to structuring a behavioural science framing for research on employment. Throughout, both practical and theoretical implications are considered to demonstrate the framing as being useful for both human resource management practitioners as well as employment scholars.

The rest of this chapter considers the conceptualization of behavioural science, then presents examples of behavioural science biases, focusing on each core facet of behavioural science in turn. At each stage, new and existing examples of how those biases my interact with employment decision-making are given. Initially these examples are framed around the core facets of behavioural science. Examples are then shown across the employment cycle.

3.2 Conceptualizing Behavioural Science

In employment, decision-making biases can be particularly important, such as a recruiter being influenced by the gender, ethnicity and appearance of an applicant (Clair, Beatty & McLean, 2005; Greenhaus, Parasuraman & Wormley, 1990; Joshi, Son & Roh, 2015; Koch, D'Mello & Sackett, 2015; Marlowe, Shchneider & Nelson, 1996). However, typically these types of bias have commonly been studied in disciplines such as organizational behaviour, and are specific to, and only occur, in the context of gender, ethnicity, appearance etc. The biases studied in behavioural science, whilst influenced by context, are universal components of decision-making that can arise across contexts. They are not components of personality, individual difference or social conditioning as those studied in cognitive style literature in business and management (Armstrong, Cools & Sadler-Smith, 2012). They are a series of mechanisms people might use within every day

decision-making. It is specifically these kinds of components of decision-making we focus on in behavioural science.

The behavioural science framing set out here specifically considers such cognitive and other biases that can systematically lead to deviations from a hypothetically optimal judgment despite the decision-maker's best efforts. In other words, decision-makers are unable to calculate or achieve their maximum utility, where utility is the optimum way to meet a preference given the options available, even if they attempt to be rational. Hence people are not always able to behave fully rationally as 'Economic Man'. As Kahneman (2003) argues, cognitive biases assume that judgments are made intuitively and that intuition is guided by perception.

More generally, linked to cognitive biases, people can have limited willpower; they can be tempted and can be myopic, although they may take steps to overcome these limitations (Jolls, Sunstein & Thaler, 1998). For example, in a changing environment it can be difficult to judge the likelihood of outcomes as well as to value future events; and a change in our immediate environment can alter the process we use to make a decision. A further example is that we care what others think, as well as about our own identity, making it difficult for us to place accurate valuations on other identities. Such influences upon judgement and decision-making can occur across different contexts and settings.

In addition to broader cognitive biases, decision-making often follows systematic heuristic rules, which are used to reduce the search space of a given problem (Groner, Groner & Bischof, 2014), in an uncertain or changing immediate environment, to make calculations based on incomplete information. For example, a heuristic rule may be to assume that objects seen with less clarity are further away. However, clarity can be determined by visibility, so clarity is not always consistent with distance and decisions based on this heuristic may be inaccurate (Tversky & Kahneman, 1974). Therefore, heuristic rule-based decisions may not lead to fully rational, or optimal, decisions.

Hence, people exhibit bounded rationality, limited by the resources they have with which to make a decision: they suffer from biases, such as over optimism and self-serving notions of fairness, as well as social comparison and a need for social belonging. Simon (1982) suggests that decision-makers usually settle for a satisfactory, rather than optimal, decision based on what information they have and can process within practical limitations, rather than making a complete evaluation. Bounded rationality has three interrelated dimensions. The first is processing capacity where memory and recall affect the ability to assess all relevant information. The second is cognitive economizing, where decision-making is limited by cognitive speed and time to make decisions, leading to the development

and use of heuristics. The third is cognitive biases where the decision-maker can unconsciously distort information that is presented. These can be applicable across decision-making and organizational settings (Foss & Weber, 2016).

In summary, while the need to reduce behavioural science down to its essential constituent components precludes a comprehensive discussion of behavioural science, the structure to the framing proposed here takes it to include the use of psychological insights that demonstrate influences on how decisions may be made, rather than assuming a purely theoretical rational decision-making model on employment issues. This may lead to an option being given an incorrect value, or where an incorrect comparison is made between options, perhaps due to prior preferences, beliefs or because of fatigue or impatience.

Many, often overlapping, cognitive issues and biases that affect behaviour have been analysed using behavioural science (e.g. Pesendorfer, 2006). The results suggest that individuals deviate from the standard economic model of rationally maximizing utility in three main respects. These are due to social and cognitive biases, time preferences and biases, and risk preferences and biases (Camerer & Loewenstein, 2004; DellaVigna, 2009). Here we focus on these three core facets in behavioural science and how they are relevant to employment-related decision-making and the implications they may have. It is argued in this thesis that considering these specific components of decision-making can add additional insights and perspectives to existing contextual analysis, paradigms and methodologies.

3.3 The Application of a Behavioural Science Framing to Employment Research

These concepts and components of decision-making can shed light on employment decisions by individuals, for example, job seekers, employees, employers or employment service agents. They can also help uncover issues that may lead to decisions that are inconsistent with an apparent rational choice, such as accuracy in processing information, difficulty in predicting responses, changing decisions based on time scales or risk preferences. They potentially enhance the understanding of social and cognitive comparisons and references, for example behaviours that respond to social or organizational structures. Whilst many of these concepts are recognized by human resource and other management researchers and practitioners, understanding precisely how they are understood and operationalized within behavioural science can help clarify and expand upon the exact nature of the concepts. They can also open up access to new bodies of research, as well as laying foundations for greater cross-disciplinary exchange between management sub-disciplines and behavioural science.

The remainder of this section considers the three main groups of biases: cognitive

and social biases, time preferences, and risk preferences in turn. It is demonstrated how each might affect decisions as a potential component in the decision-making process. Examples are provided to demonstrate how the integration of these mechanisms into decision-making might affect employment decision outcomes.

3.3.1 Cognitive and Social Biases

Cognitive and social biases can be derived from a person's own subjective social reality or be used by people as a means of simplifying cognitive tasks and decision-making. Cognitive biases are mental processes, including heuristics, that can lead to a subjective, or biased, judgment of the information presented. In contrast, social biases are determined by a response to social influences, including social comparisons with others. Considering cognitive biases first, table 3.1 summarizes key cognitive biases of interest to employment research and provides examples of potential implications for employment decision-making. The examples are only illustrative of the substantial in-depth behavioural research underpinning each concept that could be linked or integrated more fully with employment and other management research.

Table 3.1: Cognitive Biases

Cognitive Bias	Description	Reference	Some Potential Implications for Employment Decision-Making
Anchoring	A form of priming whereby exposure serves as a reference point and a reluctance to deviate from that value.	Tversky & Kahneman, 1974	The presentation of an outstanding resume can determine the evaluation of other resumes.
Availability Heuristic	The decision-maker relies upon knowledge that is readily available rather than examining other alternatives.	Tversky & Kahneman, 1973	Quality of performance is assessed at face value.
Base Rate Fallacy	Failure to adequately consider usual occurrence (base rate) regardless of specific situation.	Bar-Hillel, 1980	An error in performance could overweight a negative performance appraisal. Errors are a usual occurrence.
Contrast Effect	Moderate examples are rated more extreme in the context of polarized examples.	Simonson & Tversky, 1992	Mediocre performance could be rewarded in the context of other poor performances.
Decision Fatigue	Decision quality reduces throughout a long session of decision-making.	Vohs et al., 2008	Intensity of verbal communication or even the weight of clipboard can impact the evaluation of candidates.
Distinction Bias	The magnitude of small differences can seem greater when comparing side by side than their actual real world difference.	Hsee & Zhang, 2004	A candidate's resume could be rejected due to slight differences in direct comparison with another resume. Yet this divergence makes no real change to the suitability of the candidate.
Halo Effect	A global characteristic influences the assessment of individual traits.	Nisbett & Wilson, 1977	A thorough individual can be assumed to have been thorough in all individual tasks.
Less-is-Better Effect	Where a normatively less valuable option is judged more favourably than a valuable alternative.	Hsee, 1998	A shorter resume content may be judged more favourably.
Peak-End Effect	Recollections can be most strongly affected by the peak and last momentary assessments of an event.	Kahneman & Frederick, 2002	Judgment of interview performance can be determined by a peak moment or ending.
Processing Difficulty Effect	Information that is processed with more difficulty is more accurately remembered.	Henderson & Ferreira, 1990	More complex or detailed information on a resume will require more concentration and thus may be remembered more clearly.
Representative Heuristic	The estimation of an event based on assumed similarity with a known prototype.	Tversky & Kahneman, 1974	Judging the likely success in hiring a particular candidate can be exaggerated by comparisons to similar populations.

Studies have shown that initial impressions can unduly influence the final evaluation during interviews (Levashina et al., 2014). Such reliance on initial information can be found in the 'anchoring bias' (commonly used in retail where an unrealistic price for a product is deliberately set and then offered at an apparently discounted lower price). This bias suggests that in decision-making procedures such as interviews, a value or attribute is presented and subsequently serves as an 'anchor' for final decisions (Green et al., 1998), for instance if an interviewee with a degree is presented for an entry level job, other applicants may be compared to this. The degree is not essential to the job or quality of the candidate at this level but those without one appear less strong. The anchoring effect refers to a reluctance to deviate from a given 'anchor value' in making judgments (Derous et al., 2016; Eroglu & Croxton, 2010).

Information can be made more salient and more available depending on the extent of efforts to fully evaluate information. For example, information that is easiest to process or most readily available can make information more salient or dominating and thus affect the evaluation of alternatives. The 'halo effect' (Nisbett & Wilson, 1977) can be where an impression of a person's character spills over to affect the judgment of their specific performance; or where a physically attractive job candidate is assumed to have other positive and emotional attributes (Dion, Berscheid & Walster, 1972; Hochschild, 1983). The 'peak-end' effect, where the overall impression of an experience is disproportionately affected by the most intense ("peak") and final moments ("end") (Stone et al., 2000), can skew formal performance analysis. The 'availability heuristic' (Tversky & Kahneman, 1973), where the immediate examples that come to mind readily over-influence a performance evaluation, can affect a manager's view of an employee depending on which moment is most easily recalled. For example, a salient 'one-off' failure at a specific task might negatively influence views of an otherwise good employee.

Information can also be judged in comparison to a similar set of information. Where similarity is assumed, errors can occur, including neglecting information that is not similar or exaggerating differences. For instance, judgment may be subject to a 'contrast effect' in which ratings of an otherwise moderate stimulus becomes more extreme in the context of other, more polarized stimuli (Kenrick & Gutierres, 1980). This could mean an average job candidate could be deemed as high quality when considered amongst poor quality candidates. This may be exaggerated by 'distinction bias' where the difference is judged greater when comparing side-by-side than if they were objectively measured individually.

In 'base rate fallacy', there is a tendency to neglect background information on what usually occurs (base rate), such as an employee's usual past performance, and focus on

specific examples or situations in isolation (Bar-Hillel, 1980). For example, if a young trainee turns up late, this does not mean all future similar recruits are as likely to do the same. Base rate neglect is commonly attributed to representativeness (Gigerenzer, 1996). The 'representative heuristic' (Tversky & Kahneman, 1974) is the tendency of individuals to identify an uncertain event, or a sample, by the degree to which it is similar to the parent population (Jegadeesh & Titman, 2011). We can therefore, for example, assign roles to individuals because we assume their skills and interests are consistent with others that share the same personality or other traits (Tversky & Kahneman, 1974). This may lead to what Becker (1971) termed 'taste' discrimination, where a decision-maker may judge job applicants by their perception of the characteristics of a group (for example, their views on older workers, ethnic groups etc.) (Lahey, 2008).

Cognitive difficulty can also influence decision-making. 'Less-is-better effect' is where a normatively less valuable, smaller set of information or options is preferred, which could lead to a preference for a shorter resume rather than a more comprehensive one. 'Processing difficulty effects', where the attention required to process longer or more complex information makes it better remembered, might conversely mean that information on an applicant with a larger resume is better recalled. In 'decision fatigue' (Vohs et al., 2008), the ability to fully judge information reduces over time, which may link to evidence that intense verbal communication or even the weight of a clipboard could alter candidate ratings (CIPD, 2015).

Secondly, considering social biases, these are where a social influence is adhered to, or a social belief is reaffirmed. For example, in the 'bandwagon effect', the tendency to adopt things because others do, could lead to the adopting of another organization's training strategy even when that is not fully appropriate for your organization. Table 3.2 presents some significant social biases that influence employment related decisions.

Table 3.2: Social Biases

Social Bias	Description	Reference	Some Potential Implications for Employment Decision-Making
Affinity Bias	The tendency to relate to those who have something in common.	Stocker, 2015	Those with similar interests can be advantaged when measuring in-group performance.
Availability Cascade	A tendency for groups to ignore wider empirical evidence to favour more available individual cases.	Kuran & Sunstein, 1999	Analysis of individual examples of career progression can ignore the usual pattern by which careers progress.
Backfire Effect	When people react to unwelcome information by supporting their original belief more strongly.	Nyhan & Reifler, 2010	An unusual career path presented in a resume could reaffirm a belief in a more traditional career path, resulting in the unusual resume being viewed worse.
Bandwagon Effect	A social pressure to mimic early adopters.	Simon, 1955	A decision to follow a particular training strategy because many other organizations have started it.
Confirmation Bias	A tendency to focus on information that enforces one's own preconceptions.	Nickerson, 1998	A mistake by an inexperienced employee could reaffirm a belief that only experienced members of staff can work independently.
Egocentric/ Self-Serving Bias	A tendency to attribute positive events to one's own character but attribute negative events to external factors.	Miller & Ross, 1975	In negative outcomes, a manager may put greater emphasis on appraising other employees' performance negatively.
Groupthink	Consensus seeking overrides adequate consideration of alternatives.	Janis, 1971	The decision to hire a candidate can be determined by mitigating stronger and weaker preferences.
In-Group Bias	The tendency for people to give preferential treatment to others they perceive to be members of their own group identity.	Brewer, 1979	Promotion, performance appraisal and hiring can all be influenced by bias based on e.g. gender, schooling, background etc.
Out-Group Homogeneity	In-group members are seen as diverse whilst outsiders are seen as similar.	Park & Rothbart, 1982	Performance ratings can be transferred across all who operate differently to the in-group.
Social Comparison Bias	The tendency, when making hiring decisions, to favour potential candidates who do not compete with one's own strengths.	Garcia, Song & Tesser, 2010	Individuals who might compete with an interviewer's own strengths become less likely to be hired.
Social Desirability Bias	A tendency to give socially desirable responses instead of true preferences.	Fisher, 1993	Workplace satisfaction may not be reported accurately.
Status Quo Bias	The tendency to maintain a previous decision by actively choosing the default or doing nothing.	Kahneman, Knetsch & Thaler, 1991	Performance may be constrained by a lack of innovation.
System Justification	The tendency to defend existing social, economic, and political arrangements. Alternatives disparaged.	Jost & Banaji, 1994	Hiring from a particular pool of candidates can become routine.

People care about social belonging and can often more easily relate to those who they believe are like them or have something in common with them. This 'affinity bias' can be activated consciously or unconsciously (Stocker, 2015). A hiring decision could therefore be influenced by a common interest not relevant to the quality of the candidate. For example, hiring decisions can be affected by 'in-group' bias, the tendency to give preference to those within the same group identity as yourself, that conversely includes derogation of those who do not (Buttelmann & Böhm, 2014), or by 'out-group homogeneity', where in-group members are conceptualized as more diverse than out-group members (Greenstein, Franklin, & Klug, 2016). Perceiving out-group members as homogeneous is a defining attribute of stereotyping (Isbell, Lair & Rovenpor, 2016); with 'social desirability bias' (Fisher, 1993), being associated with individuals saying what they think is expected of them, which could lead to over reporting of performance improvement and employee motivation and satisfaction (CIPD, 2015), as well as unfair selection and recruiting effects.

Social biases can also be derived from the desire to simplify the social structures in

which people live and work. The likelihood of existing practices being reaffirmed, even when they are not optimal, can be increased through: 'availability cascade', a social phenomenon where empirical data is ignored by groups in favour of information that is more available to them because of dramatic examples of individual cases (Barr, 2013); and 'backfire effect', where there is a tendency to reject evidence against an existing belief. For example, specific available examples of employee performance or commitment in some of the older workforce could be ignored and instead a belief about the qualities of a part of the younger workforce is reaffirmed. 'System justification', where existing social and procedural practices are defended, can lead to a 'status quo bias' (Kahneman, Knetsch & Thaler, 1991; Suri et. al, 2013). 'Status quo bias', the tendency to maintain the current or previous arrangements, can lead to hiring candidates similar to those previously employed or even re-hiring previous employees (CIPD, 2015). Paradoxically, 'system justification' can be strongest amongst those who are most harmed by the status quo (Jost, Banaji & Nosek, 2004). A 'bandwagon effect', the tendency to follow early adopters of a specific practice, could lead to running a specific recruitment scheme, even if that is not best suited to that particular organization. 'Groupthink' (Janis, 1971), where pressure to gain consensus reinforces views tending towards uniformity and censorship (Sunstein & Hastie, 2015), can lead to decisions, such as those in hiring, that do not examine the merits of all alternatives and candidates equally.

A strong preference to affirm self-identity can also lead to errors in decision-making. 'Egocentric bias' in which individuals tend to attribute positive outcomes to themselves and negative outcomes to others (Burger & Rodman, 1983; Ross & Sicoly, 1979), can lead to a negative evaluation of the performances of others being emphasized over the negative performance of the auditor themselves. 'Confirmation bias', the tendency to be attracted to information that supports your own views, could lead to a 'self-serving bias' (Miller & Ross, 1975), where, for example, subsequent events are used to confirm that hiring someone was the right choice as well as analysing new information in an efficient, but shallow way (Hernandez & Preston, 2013). Conversely, however, there is 'social comparison bias', a tendency to not hire those with similar traits in order to avoid direct comparisons and threats to self-positivity (Jia et al., 2015).

Performance and incentive schemes can also be influenced by cognitive and social comparisons in more nuanced ways, such as through employees' responses to levels of reciprocal effort and reward, as well as how that reward or effort ranks compared to what others get. This could be exacerbated by gratitude effects such as the perceived costliness of help (Wood et al., 2008). For instance, does an effort get a reward that takes effort or is easy

to give, and how does that reward compare to what others received for the same effort? The sense of responsibility for success can also impact the level of satisfaction and motivation with rewards, with a sense of low responsibility for success making rewards feel less deserved (Chow & Lowery, 2010). The status of a higher ranked position compared to peers is valued (Englmaier & Schüßler, 2016; Hounkpatin, Wood & Dunn, 2016), but can also establish an in–group bias amongst those of similar rank. In addition, 'system justification' and/or 'social desirability bias' based on rank can influence decision-making, where those of higher rank are more likely to defend the system that resulted in their elevated position, while those of lower rank may give reponses expected of their rank position or in order to increase their rank position.

Comparisons with external options can influence employee satisfaction with rewards or punishments. Rewards can have different influences based on employees' risk preferences. For example, rewards given for risk taking behavior can be limiting for risk-averse individuals, who do not like to take risks, and be potentially regarded as unfair or rewarding 'luck'. In addition, individuals who are more selfish or more reciprocal may respond differently, this is because expectations that rewards should reflect effort may be different, with selfish individuals being more focused on the individual benefits of rewards rather than whether they represent a fair reward.

Personal identities have a role as motivators, with the potential for increased identity being a substitute for monetary rewards; as well as workers being 'insiders' and 'outsiders' ('in-group' bias) influencing reciprocity, with an individual welcoming the competitive advantage gained from being in-group, depending on their fit within an organization's culture. Non-monetary incentives like medals, awards and inflated job titles can possibly replace monetary incentives, as there is a human need for social recognition. It has been found that relationships between individuals and groups can be important in determining attitudes and behaviours towards rewards (Kehoe & Wright, 2013). Such relationships can be shaped by 'in-group bias' and gratitude reciprocity.

The social and cognitive biases listed in tables 3.1 and 3.2 illustrate existing bodies of literature as well as potential uses of behavioural science concepts to employment research. In the case of these social and cognitive biases, there is scope to establish new and expand existing research agendas, linking these ideas with social constructs and biases already identified in the management literature. There are further potential linkages, including with strategic management, as well as how these particular mechanisms might interact with other biases based on gender, ethnicity etc.

3.3.2 Time Preferences and Biases

Time preference is the relative value placed on something at different points in time, for instance being given $100 today compared to getting the same amount in a month. Standard economics models usually assume that people's preferences are stable over time (Stigler & Becker, 1977), it is expected that the valuation of receiving something in the distant future will be valued less than receiving it in the nearer future, with that devaluation determined by the willingness to wait for that amount. In this case future rewards only become more valuable if they are high enough to compensate for the time and opportunity-cost of waiting for the reward. It is expected in standard economic models that time devalues constantly, say at a fixed discount rate or even exponentially.

In behavioural science, people are considered to have non-constant time preferences (Loewenstein, 1999) and decreasing impatience at the level of preferences. For example, the decrease in value between the present and one day away is much greater than the decrease between days ten and eleven (Prelec, 2004). Hyperbolic discounting, an example of a non-constant and falling rate of time preference (Karp, 2005), suggests that people are 'present biased'. When presented with different options there is a stronger devaluation in short time-scales and less of a devaluation in the future; that is to say people are more impatient in the near future and more patient in the distant future than in the exponential model. Hyperbolic discounting has a greater weighting towards immediate rewards; however, once immediacy is overcome, the patience required in the future is influenced by the patience preceding it, with patience increasing over time (Kirby & Herrnstein, 1995; Laibson, 1997).

Table 3.3 shows specific time preference biases that may be relevant to the study of employment. These biases consist of cognitive difficulties as well as preferences in viewing or predicting future or past events from a present time point. In predicting the future we can be both over-optimistic about outcomes and victims of our impatience. Our cognition or views of past events can be skewed by the most salient information or memory and nostalgia.

Table 3.3: Time Preferences and Biases

Time Bias	Description	Reference	Some Potential Implications for Employment Decision-Making
Hyperbolic Discounting	Tendency for people to have a greater impatience for more immediate payoffs relative to later payoffs.	Laibson, 1997	A candidate may choose to take a job with more immediate salary benefits, as opposed to a job with greater longer-term prospects.
Planning Fallacy	Tendency to underestimate task-completion times. Also a cognitive bias.	Sanna & Schwarz, 2004	Important in goal setting and performance monitoring. Managers could take on, or set, too many tasks.
Serial Position Effect	Recall is more efficient for those presented early (primacy effect) or late (recency effect) compared to those presented in the middle.	Murdock, 1962	Already established as an effect in interviews. Important to group dynamics as well, given those keen to speak first/early may be recalled more.
Rosy Retrospection	Remembering the past more favourably than it was viewed at the time. Also a cognitive bias.	Mitchell & Thompson, 1994	Staff recollection of a 'rosy' workplace prior to recent or current re-organization could impact motivation or commitment.

The first two biases listed in table 3.3, 'hyperbolic discounting' and 'planning fallacy' primarily relate to planning for the future. Typically errors in future planning occur either because of over-optimism or impatience. 'Planning fallacy', for instance, is where there is an over-optimism about future work performance. Procrastination is a significant contributor (Pychyl, Morin & Salmon, 2000), where in order to compensate for the loss of not taking action today, there might be an over optimism about future capabilities to make up for lost time today. Procrastination can be exacerbated by inertia, where the initial commencing of an action is difficult. Within employment, this can lead to errors in goal setting, and performance targets need to consider the influence of these biases as they appear to be a common trait.

The second two biases are primarily in how we review information from the past, where errors most commonly occur in our ability to recall information. In 'rosy retrospection', emotions attached to memories lead to potentially rating past events better than at the time of the event. This can be magnified by the fact that past events can be viewed with certainty, but future events are uncertain, or risky. 'Serial position effects' are where past events may be remembered differently, depending on the order they happened, with information presented early or late being best remembered (Innocenti et al., 2013). These could, for example, have implications in performance appraisals, with past performance being skewed by the emotions attached, and in hiring, with the interview order affecting recall as people may best remember the first and last candidates.

3.3.3 Risk Preferences and Biases

Risk preferences can be defined as one's preference for, and judgment of, uncertain or risky options. There may be systematic biases that move decisions away from the rational optimal choice, as people may use heuristics, or experience biases when faced with calculating probabilities and risk in uncertain outcomes. One of the best-known behavioural science concepts is 'prospect theory' where losses and gains are evaluated in relation to a reference point, for example current wealth. Initial losses or gains from that current wealth are weighted heavily, and also losses are weighed heavier than gains (Kahneman & Tversky, 1973; Tversky & Kahneman, 1974; Kahneman & Tversky, 1979). Put simply, the increased value of going from losing a lot to losing a smaller amount is less than going from losing a small amount to not losing at all. Similarly, the value of a small gain compared to no gain is greater than going from small gain to a big gain. The process in 'prospect theory' includes 'loss aversion' where the probability of gains is overweighed so the pain of losing is higher (Tversky & Kahneman, 1991). People thus have a greater preference for avoiding a loss than

pursuing an equivalent gain. Certainties are over-weighted in addition, with greater certainties being preferred (Kahneman, 2003b), which can impact the judgment of risk and uncertainty.

Table 3.4 illustrates specific risk preferences and biases, indicating how they might influence an individual's judgment of the risk of a possible outcome, depending on their calculation of uncertain outcomes, often influenced by how outcomes are presented, for example as a loss or gain. Individuals tend to seek to avoid losses more than potentially achieving an equivalent gain, and struggle to judge probabilities when faced with risk and uncertainty (Kahneman & Tversky, 1973).

Table 3.4: Risk Preferences and Biases

Risk and Uncertainty Bias	Description	Reference	Some Potential Implications for Employment Decision-Making
Endowment Effect	The tendency to demand much more to give up an object than one would be willing to pay to acquire it. Links to Prospect Theory.	Tversky & Kahneman, 1991	Incentivizing the retention of current staff could be valued more highly than the cost of replacing them.
Framing Effect	Drawing different conclusions from the same information depending on how options are presented, including risky choices, attributes and goals. Links to Prospect Theory.	Tversky & Kahneman, 1981	Staff payoffs being presented as efficiency gains rather than a loss of capacity.
Loss Aversion	Losses are more painful than equivalent gains. Links to Prospect Theory.	Tversky & Kahneman, 1991	In the case of pensions, the loss of having to make payments could be seen as greater than the gain of having security in the future.
Neglect of Probability	When faced with an uncertain prospect there is a conflation between the fear of negative outcomes and the likelihood of them happening.	Sunstein, 2003	Refusal to consider hiring someone from a particular group that has not been represented in the workforce before.
Optimism Bias	A tendency to overestimate the likelihood of positive events and underestimate the likelihood of negative.	Sharot et al., 2007	Pension savings could be low where other savings for an individual are high, on the unrealistic assumption that those other savings are safe from negative events.
Prospect Theory	There is sensitivity to losses and gains in relation to the initial endowment as a reference, with losses being most sensitive. Loss Aversion included. Sensitivity decreases with magnitude.	Kahneman & Tversky, 1979	Performance-related pay could be skewed in assessment, given a focus on individual losses or gains and their magnitude.
Pseudocertainty Effect	An outcome can be preferred due to a perceived certainty instead of a probable outcome.	Tversky & Kahneman, 1981	A certain reward may be preferred over an equally probabilistic chance of a higher reward.
Sunk Cost	The sunk cost effect is manifested in a greater tendency to continue an endeavour once an investment in money, effort, or time has been made.	Arkes & Blumer, 1985	Having invested time, training and finances in an individual or initiative, the preference would be to not lay off that individual against an objectively better individual in whom less was invested.
Zero-Risk Bias	Preference for reducing a small risk to zero instead of a greater overall reduction in a larger risk.	Baron, 2003	When deciding whom to hire, there might be a preference to ensure that all essential and desired criteria are matched, neglecting potential fit with the organization.

In standard economic models, the expected value would rate the value of taking a risk by calculating the reward value and the probability of losing. For example, a $1 bet with a $100 pay-out, at a chance of winning of 80 to 1, would mean the expected value of placing that bet would be $100 divided by 80, so $1.25. In this case the $1.25 is higher than the $1 cost of placing the bet, so the risk of the bet would be taken. However, under expected utility theory, depending on peoples' preferences for risk, they can either avoid the potential loss from the uncertain outcome more than this optimal rational calculation, or seek the reward at too great a risk (Von Neumann & Morgenstern, 1944).

'Prospect theory' is concerned with the value that people place on an outcome that

is either a loss or a gain, as opposed to the probabilities, that stay constant, and shows that people tend to show diminishing sensitivity to losses and gains. They also exhibit 'loss aversion', where losing something is weighted greater than gaining a similar thing (Abdellaoui, et al. 2007; 2013; Langer & Weber, 2001). 'Loss aversion' is a strong factor in creating errors in decision-making under risk or uncertainty. This could, for example, lead to staff payoffs being viewed differently depending on whether they are presented as an efficiency gain or a loss of capacity (the later may raise more opposition), where 'loss aversion' is triggered by way of presentation of information through the 'framing effect'.

A 'sunk cost effect' is the tendency to continue with an endeavour after an investment has been made, even if the investment cost should rationally be excluded for decisions, including an increased perception of the likelihood of success (Arkes & Hutzel, 2000). This is similar to the 'endowment effect', where giving away an object requires more value than it took to acquire it (Dommer & Swaminathan, 2013), stemming from the higher weighting placed on the loss than on the gain of an object. These could lead to keeping poor performing staff longer than is optimal or undervaluing the acquisition of new staff compared to losing existing staff.

In addition to 'loss aversion' there can be poor estimation and calculation of probability. It can be that due to the difficulties in calculating outcomes under high levels of uncertainty that there is a 'neglect of probability', where a fear of a negative outcome is conflated with the probability of it happening (Rosenbaum, 2015). There can also be a focus on judging the probabilities of specific items leading to a potential 'zero-risk bias', where the risk of a single item is reduced as low as possible instead of a larger reduction in the overall risk across all items. This could lead to, for example, only hiring candidates from a familiar pool, despite the potential missed out on by casting a wider recruitment net.

The 'pseudocertainty effect' creates an illusion where there is a perception of a higher certainty despite the same probable outcomes (Kahneman & Renshon, 2009). This can result in uncertain outcomes being weighted as if they were certain (Miljkovic, 2005). Incentives and behaviours linked to performance-related-pay could be affected by this. Finally, 'optimism bias' is defined as the tendency to overestimate the likelihood of favourable future outcomes and underestimate the likelihood of unfavourable future outcomes (Bracha & Brown, 2012). This could result in decision-makers taking more risk than optimal.

Tables 3.1 to 3.4 provide a brief overview of some potentially significant contributions of biases and insights in the behavioural science literature, illustrating what constitutes them, as well as how they could be applied to the study of employment. As

discussed, the examples listed help set out a structure for using a behavioural science framing in investigating employment decisions. The examples have the potential to further existing, or create new, research agendas, being able to be applied across a multitude of contextual settings. The following section considers how these biases and insights can be linked to specific theoretical and empirical examples of employment issues across the employment cycle. The examples given both in the tables and the following empirical elaborations highlight the wide scope for a framing of behavioural science to engage with employment research across a range of academic approaches to the study of employment.

3.4 Contributions of the Behavioural Science Framing Across the Employment Cycle: A Research Agenda

In order to identify an indicative research agenda for greater integration between these behavioural science concepts and management and employment research, it is useful to consider some examples of existing contexts and applications across the employment cycle. For each of these, theoretical and practical paradigms, contributing each stage of the employment cycle, including the potential implications of the components of decision-making contained within behavioural science, are illustrated.

3.4.1 Pursuing a Job

Standard economic job search theory assumes that the unemployed have perfect information about the effect of job search efforts and the associated likelihood of job offers. It is argued however that individuals may have differing subjective beliefs on the likelihood of job offers depending on the individual's 'locus of control' (Caliendo, Cobb-Clark & Uhlendorff, 2015). Locus of control (Rotter, 1966) is the expectation of internal or external control. Those with external locus of control are likely to attribute life events to external forces, rather than their own decisions. This can be effected by the creation of an 'out-group homogeneity' by those with low locus of control, with these individuals considering that all employers are the same. Network diversity can be important to job search success, and so to the integration of potentially excluded groups including young workers and women returning after maternity. Unemployed job seekers are not always able to network with work- elated personal acquaintances (Lindsay, 2010), potentially re-enforcing an 'out-group homogeneity'. Job search could also be strongly impacted by 'base rate fallacy' where a rejection is not taken in the context of the usual occurrence of rejections.

Organizational behaviour, however, will often use the theory of planned behaviour to explain job search behaviours. Attitude, subjective norms, and self-efficacy are seen as

the most proximal determinants of job seekers' intentions. Situational and social context are highlighted as likely moderators to these determinants (Van Hoye et al., 2015). The effects of on self-efficacy can be similar to those of locus of control, but can, in addition, be effected by a 'self-serving-bias'. In the state of high self-efficacy but an unsuccessful job application, there may be a tendency to attribute those negative events to external factors. Subjective norms can be socially determined and reinforced through social biases such as 'confirmation bias', where there is a tendency to focus on information that re-enforces one's own preconceptions.

With the general perception being that job quality may have declined (Bazen, Lucifora & Salverda, 2005), the potential benefits of 'high road' HR practices of upskilling and job enrichment are missed (Findlay et al, 2017). There may be a responsibility of service employers to 'abolish the McJob', ensuring that even entry-level positions offer some opportunity for personal advancement (Lindsay & McQuaid, 2004). One exemplar scenario related to the pursuit of a job is when an individual is considering taking a job with lower pay but better long-term prospects but prefers one that pays more immediately. This is potentially non-optimal as they would reduce their own opportunity for future income increases. Several behavioural science core concepts can shed light on such decisions. 'Hyperbolic time discounting' (Laibson, 1997) suggests that people are present biased and have a greater impatience for immediate reward than a long-term larger reward. Similarly, people who are less willing to accept a small pay fall, even with a high probability of future pay rise, may be influenced by 'loss aversion' (Kahneman & Tversky, 1979); and also 'effort aversion' (Comerford & Ubel, 2013) where individuals may avoid choosing effortful work even when they predict that it will provide them with a better working experience.

In addition, these concepts could be applicable where someone on long-term welfare is considering applying for a minimum wage job or remaining on, say, a current, similar level of welfare allowance. Given the small immediate reward, they may be unlikely to accept that job, despite future likely wage increases meaning a significantly higher salary in the future, thus taking the job would be optimal. Indeed, Paserman (2008) found that those on low or medium wages spent more time in unemployment, as the immediate reward of a return to a low paid job is not sufficient to offset the immediate effort. In other circumstances people are often willing to accept a low paid internship or apprentice type position if the future rewards are large enough, such as junior lawyers or accountants. However, social biases and status suggest that there are reasons for this other than the certainty and scale of future monetary rewards. These examples illustrate how behavioural science concepts may be pertinent to job search behaviour.

3.4.2 The Hiring Process

Human resource management practice as well as research into employment decision-making can be approached through a range of practical and theoretical paradigms.

Human resource management (HRM) scholars have argued for a strategic perspective focusing on both individual recruitment and selection decisions and their wider impacts on the organizations themselves (e.g. Ployhart, 2006; Ulrich, Younger & Brockbank, 2008). The basic premise of strategic human resource management is that a particular form of human resource management is required given a particular organizational strategy. Better congruence between human resource management and an organizational strategy should result in better performance (Delery & Doty, 1996). Models of strategic human resource management note that corporate level strategic human resource management can be influenced by top management's beliefs and that different employee groups can be affected differently by the same human resource management system (Taylor, Beechler & Napeir, 1996).

Such influences between top management beliefs and certain employee groups can be strongly affected by 'in-group bias' where preference is given to those who share the same identity. It can be equally effected by 'out-group homogeneity, where those who do not share the same identity are treated equally as 'others', irrespective of their differences. Top level management's beliefs can also be socially derived, so can be susceptible to a range of social biases including the 'bandwagon effect', where there is a tendency to follow early adopters. This could lead to the adoption of a certain training or recruitment scheme, even if it is not suited to the organization's strategy, directly at odds with the aims of strategic human resource management.

Importantly conceptual models of theoretical frameworks for strategic human resource management acknowledge behavioural inputs and outputs, with human resource behaviours being considered a 'throughput'. In the case of a role theory perspective for understanding human resources, human resource management practices and actual role behaviours can be mediated by role information (Wright & McMahan, 1992). What behaviours occur may depend on how information is both presented and received. This information exchange could be skewed by risk biases such as the 'framing effect' where information will be received differently depending on whether it is presented positively or negatively. One example of a form of strategic human resource management model is 'green human resource management' (Renwick, Redman & Maguire, 2013). In this, there is reliance on, and incentivising of, environmental training. Again, this will depend on the time preferences and organizational commitment of employees. Rewards and performance

evaluation based on environmental behaviours and initiatives are also suggested but this can raise issues of fairness and gratitude reciprocity, as well as 'in-group bias' or a 'halo effect', where good performance in environmental behaviours lead to better assessment of other individual traits.

In the case of transaction cost economics, where firms strive to minimise costs of managing employment while meeting their employment needs (Lepak & Snell, 1999), errors in hiring, monitoring performance, and compliance, can decrease the efficiencies both before and after recruiting the employee. Ex-ante predictions of job candidate success can be influenced by cognitive biases such as the 'representative heuristic', assuming that an individual's performance will match that of other individuals in the same prototype. They may also be affected by a social bias such as 'bandwagon effect', where processes to achieve success are mimicked from early adopters. They could be influenced by risk and uncertainty biases like 'neglect of probability', where the fear of negative outcomes are conflated with their likelihood.

Ex-post analysis through performance appraisals can be impacted by the cognitive bias of the 'contrast effect', where mediocre performance may be rated as good when put into the context of other poor performers. It can be affected by the social bias of 'self-serving bias' in addition, where managers may be susceptible to rating employees' performance as worse than it is in the context of negative outcomes. Typically, hierarchical arrangements and relations that emerge in the management of the organization through market transactions, can be constrained by opportunism, atmosphere, informational asymmetry, bounded rationality and uncertainty (Willamson, 1973).

An example of how a core concept in behavioural science might apply to a hiring process would be in considering the content of resumes. Given the large numbers of resumes received for many positions, and thus the large amount of information to consider, cognitive biases and heuristics are likely in making decisions on whether or not to interview a candidate. These may include 'distinction bias' (Hsee & Zhang, 2004) or 'contrast effect' (Simonson & Tversky, 1992), whereby the content of an individual resume may be viewed differently depending on how and what it is compared to. For example, if it is considered in the context of a set of very weak resumes. There may also be a 'less–is-better' effect (Hsee, 1998) where less content is preferred when compared with another set of content. 'Anchoring' (Tversky & Kahneman, 1974) is also likely, whereby exposure to a certain value or quality, in an initial job candidate impacts subsequent judgments of the value of later candidates. Some of these may present themselves as social biases; 'in-group' and 'affinity bias' is likely to be common, whereby a candidate is hired on the basis of their

similarity with the reviewer's own group identity, on factors such as gender, race, previous employers or social background (Brewer, 1979).

The essential and desired criteria of an advertised position, collectively termed selection criteria, also represent a possible scenario whereby asymmetry of information within the recruitment process can cause adverse selections (Akerlof, 2002). Asymmetry of information arises when not all stakeholders have equal relevant information (Rasmusen, 2001). For example, given the rise of the internet and online applications, human resource managers often have to select from a much greater pool of candidates. However, traditional economic theory suggests that the supplier (candidate) knows the true quality of him/herself. Asymmetry of information, for example in the quality of the labour force, makes it harder for a candidate to know the value of his or her own 'quality' in relation to the specific job. Also the human resource managers are unable to estimate the true quality of a specific candidate, given the excess and asymmetry of information. In summary, there can be too much contrasting information to process fully and completely.

The excess of candidates may act in two ways. First, the hiring decision-makers are subjected to choice overload and selecting the right resume may not even result in the selection of the most appropriate candidate. Second, applicants are applying across large pools of jobs, with limited consideration for knowing whether this specific job is suited to them. This presents a dilemma for those involved in setting selection criteria for a post and there is a risk preference associated with the criteria setting. Selection criteria that are too difficult to match, or too easy to match, could result in sub-optimal candidates being hired given the loss of certainty over the suitability of candidates and job descriptions. Potential risk biases might include: 'loss aversion' (for example, the risk of reducing the pool of candidates through too many criteria could seem greater than finding a small list of excellent applicants through having more selection criteria); and 'zero-risk bias' (for example, the preference to reduce the risk of not meeting a single specific desired criteria to the extent that it excludes a candidate who is outstanding in all other areas).

The greater competition, in addition to the asymmetrical information, may also result in candidates applying for positions that are not suited to them. Those jobs may be non-optimal because hiring decision-makers may recruit a candidate that is not worth a certain grade of pay or a candidate may take a job that is below their skill level and pay grade. This dynamic has been analysed using experimental games, such as a signalling game for a Bayesian equilibrium, a stylized version of the 'Market for Lemons', and a two-player sequential game for optimal contracts, where the receiver (human resource manager) has to make decisions based on imperfect information from the sender (the candidate) on a range

of attributes, given the signalled natural variation across the population. The perceived quality can alter given the signal from the natural population and make it difficult to know what to signal, for example a qualification can mean a wide variation in skill levels (Özdurak, 2006). Potential risk biases include: 'zero-risk bias', where, for example, if a promoted post is presented, potential candidates may decide to forgo opportunity and increase their risk of not getting promoted, in preference for entirely avoiding the risk of an out of place application. This may also be affected by the cognitive bias of 'base rate fallacy', where the signal of usual occurrence from the natural population is ignored in the specific situation.

One of the responses to this asymmetry of information and cognitive overload, given the rise of online and e-recruitment increasing the number of applications, especially that it is likely to lead to further bias, is the use of online tools to reduce unconscious bias. Existing online tools actively try to engage with and reduce unconscious bias, especially through reducing cognitive load or focussing recruiter's attention and resources on the most important attributes.

Uncertainty about future job performance is a substantial component of decision-making when recruiting new employees. Thus, uncertainty reduction theory has been used as a lens to theorise employers' information seeking and subsequent gains in attributional certainty (Carr, 2016). When faced with uncertainty, individuals employ strategies to seek out information, thereby increasing their ability to predict likely future behaviour and performance (Rubin, 1977).

In the context of employment decision-making, such as in the context of hiring, decision-makers often use non-compensatory rules, specifically conjunctive rules (Brannick & Brannick, 1989; Ganzach, 1995; Hitt & Barr, 1989). Conjunctive rules entail rejection of any object that fails to meet a minimum criterion on an attribute. This also means that evaluation is based on negative attributes, often associated with negativity bias (Skowronski & Carlston, 1987). Negative information can be weighted more heavily in impression formation, including in interview contexts (Fiske, 1980; London & Hakel, 1974; London & Poplawski, 1976; Motowidlo, 1986), indicating the existence of conjunctive rules. Conjunctive rules are said to be cognitively less demanding for decision-makers (Elrod, Johnson, & White, 2004). With conjunctive rules, information seeking is likely to be determined by a single negative attribute, opposed to a linear compensatory judgement between existing skills, knowledge and attributes against personality traits and an organizations culture. Given the large volumes of candidates needing to be assessed due to the use of online applications and advertising, they are likely to be used.

Other online tools try to provide personality assessment around which recruitment decisions can be based. Typically, person-organization fit is measured through congruence of personality and traits of the applicant and the organization. Person-job fit is measured by assessing existing skills and experience against the demands of the job. The desire for person-job or person-organization congruence can differ depending on the length of contract tenure desired (Sekiguchi & Huber, 2011), subjecting it to potential time bias such as 'hyperbolic discounting', where a greater emphasis may be placed on immediate needs than is optimal. However, the use of job testing can result in 'confirmation bias' and 'self-serving bias' in response to the test (Ployhart & Harold, 2004; Ryan & Ployhart, 2000), where an applicant will blame a bad score on the test rather than themselves. This combines with frustration, with unsuccessful job applicants often complaining about the lack of transparency in their search for a position, and a lack of feedback about the flaws of their profiles (Martinez-Gil, 2014).

3.4.3 In Work

Behavioural outcome variables of organizational citizenship behaviour and turnover intentions have been considered in employee-level human resource management interventions. This differs from the dominant analysis of organizational-level outputs such as productivity and corporate performance, arguing that employee perceptions may be more proximal predictors of attitudes and behaviours (Nishii, Lepak & Schneider, 2008). Social exchange theory is one explanatory framework used to analyse employee perceptions. Social exchange theory is based on norms of reciprocity in relationships (Alfes et al., 2013). Such reciprocity can be effected by gratitude, depending on the perceived costliness of help and comparisons to what others received for the same effort.

Social exchange theory has been used to explain the impact of talent management on the psychological contract. In this analysis, it is suggested that generational effects can influence the psychological contract of talent leading to different attitudinal and behavioural consequences. It is suggested that the skills competition within generation X and Y makes extensive talent management activities more crucial for talent retention in this generation than for 'baby boomers' (Festing & Schäfer, 2014). Such an effect may be mediated by time preferences and organizational commitment, as highlighted with trade-offs between long term benefits of training against short term salary benefits. For generation X and Y, greater competition can make it harder for them to know their true value, creating an asymmetry of information. Talent management can be influenced at the individual, organizational, as well as national, international, and sectoral levels (Al Ariss, Cascio, Paauwe, 2014).

Insights into influences on employee and organizational performance such as positive discretionary factors of employees in AMO (ability, motivation, and opportunity) theory (Appelbaum et al., 2000), might include the effects of behavioural factors including, 'peak-end effects' (judging a performance by its peak or final moment), 'egocentric bias' (attributing failures to the performance of others), 'planning fallacy' (the tendency to overestimate future performance) or 'pseudo certainty effects' (where there might be a preference for a certain reward because of a perceived certainty).

In the job demand-resource model, burnout is known to negatively affect job satisfaction and organizational commitment, and creates such undesired behaviours as personnel turnover and absenteeism (Bakker, Demerouti & Verbeke, 2004). The demand-resource balance can be heavily impacted by the estimation of task completion times. It could therefore be heavily effected by 'planning fallacy', where there is a tendency to underestimate task completion times. One proposed resource for buffering job demands is strengths use (van Woerkom, Bakker & Nishii, 2016). Perceived strengths and weaknesses can be dictated by the 'representative heuristic', where there is an assumed similarity to a known prototype of person. Or again by the 'halo effect' where a positive individual characteristic effects the assessment of other traits positively.

Human capital theory, emphasizes human capital costs of developing skills and knowledge through training, relative to the return on that investment through productivity (Lepak & Snell, 1999). Both organizational commitment and time preferences and biases can affect the long term return on investment in staff. 'Rosy retrospection' can exaggerate the perceived quality of past workplaces, reducing organization commitment to the current employer. An example in which the core behavioural science concept of time discounting has been considered is in vocational training. In 'hyperbolic time discounting' individuals are expected to behave short-sightedly and be more impatient for immediate short-term over longer-term rewards. A small body of work has considered the time preference of hyperbolic discounting within vocational training settings (Hesketh, 2000; Hesketh, Watson-Brown & Whitely, 1998; Saunders & Fogarty, 2001). These studies consider whether individuals might prefer to take on further vocational training, which in turn might sacrifice more immediate salary benefits and leisure time, in return for longer-term salary benefits as a consequence of that training.

A further example may be in discrimination, for instance subjective evaluation of performance and its relation to compensation and the relationship with line-managers (Baker, 2002). 'Affinity bias ' may result in different treatments for different individuals, and 'in-group' biases may result in promotion advantages, as well as hiring and layoff

benefits, for some groups (Giuliano, Levine & Leonard, 2011). There is considerable work on 'professional sociality' and personality within the workplace. These have also been tested using dictator and ultimatum games, where a player with control allocates sums of money to a recipient player without control, often showing a tendency towards expectations of fairness from the recipient beyond what might be considered optimal or rational (Bénabou & Tirole, 2006). For example, a recipient may reject the money being offered as they deem the offer to be unfair. In this case they are forgoing the chance of some money, in favour of no money, in order to punish the dictator (who will also receive nothing in the face of rejection) because the offer is deemed unfair. This work on 'professional sociality' may benefit from the insights of social preference biases, such as: 'in-group' bias (those with similar personality traits being preferred); and 'bandwagon effects' (where a pressure exists to follow early adopters (DiMaggio & Powell, 1983; McNamara, Haleblian & Dykes, 2008).

Similarly, non-monetary rewards to work, such as challenging work or compatible working colleagues (Pfeffer, 1998) may be influenced by the biases of both managers and employers, such as 'self-serving bias' (attributing negative effects or performance to external factors rather than themselves). This could lead to misperception of ability and thus what is an appropriately challenging task. Gratitude and satisfaction for career advancements, developments, and rewards, can also be determined by 'social comparison bias' (where managers may prefer to hire those who do not compete with their own strengths for fear of competition and comparison) (Englmaier & Schüßler, 2016; Wood et al., 2008; Chow & Lowery, 2010). In this instance, there could be a perceived undervaluation of skills, thus influencing gratitude and reciprocity. Some employees may report that time flies as they are absorbed and fully concentrated on work (Breevaart et al., 2014), although this might be influenced by a 'social desirability bias' where they are giving socially desired, rather than their true, responses. These social comparisons can create non-rational or sub-optimal assessments of the quality of work.

3.4.4 Leaving Work

In the resource-based view of the firm, knowledge based competencies are linked directly to achieving a competitive advantage. Core competencies are developed internally and are of high value as well as non-transferable (Lepak & Snell, 1999). Such internal investment and emphasis on high value, non-transferrable knowledge and skills is susceptible to 'sunk cost' and the 'endowment effect'. In 'sunk cost' there is a reluctance to lay off a worker in whom time and money has been invested, even in the context of a better performing worker who has had less time and money invested in them. The 'endowment

effect' might value the cost of giving up existing employees as higher than the cost of replacing them.

The movement across many sectors from an industrial to an information society, has resulted in parts of the workforce increasingly becoming more educated with higher professionalism and a decrease in organizational loyalty (Baugh & Roberts, 1994; Furnham, 2000; Dockel, Basson & Coetzee, 2006). The concept of organizational commitment has attracted considerable interest in an attempt to understand and clarify dedication to the organization (Mester et al., 2003). Job uncertainty may cause risk-averse behaviour by people rather than focusing on potential optimal outcomes or preferences. In particular, there are estimates of individual and personal risk, given the loss of social and cultural institutions to belong to (Beck, Giddens & Lash, 1994) and their social identity (links to and sense of belonging to a social group) (Akerlof & Kranton, 2000). Reduction of personal risk could be conducted through specific risk biases, e.g. 'framing effects': in the face of structural redundancies, an individual could seek to reduce or increase organizational commitment depending on whether this is seen as a loss of institutional security or a strengthening of their own position in the organization.

An important empirical example of the application of behavioural science in employment decision-making is 'Save More Tomorrow' (Thaler & Benartzi, 2004), concerned with improving people's retirement savings planning. The success of this strategy has led to further consideration of the application of behavioural science to employment. This provides an eminent example that there is scope to influence the field of individuals' decision-making in the workplace. This initiative drew on the heuristics of procrastination, inertia and 'status quo bias' as well as 'hyperbolic time discounting' to improve pension savings rates. Basically, it used the way that individuals value the future compared to the present as a way of initiating an improvement in pension savings. Pension contributions rise with salary, thus delaying some payment, and increasing pension saving is presented as a reduction in future gains rather than an immediate loss, reducing 'loss aversion' (the preference to avoid losses more than seek gains).

3.5 Summary of Chapter

This chapter set out to demonstrate that a structured framing of behavioural science should be of interest to scholars studying employment and to management scholars more generally, and vice versa, fulfilling research objective 1. Examples of how behavioural science can be integrated into potential employment scenarios and investigations are presented and applied. This is intended as a first step in answering calls to integrate

behavioural theory, using the particular focus of behavioural science. As a growing field, behavioural science plays an important role in responding to invitations for applying behavioural theories as well as integrating sub-disciplines and macro or micro focuses. The examples given show that a significant range of insights from behavioural science can be applied across all stages of the employment cycle and that they have wide ranging implications across theories and concepts. These illustrations present both tools and a starting point for management scholars, particularly in employment, who want to engage with behavioural theories in a way that has the potential to interact with both micro and macro-economic analysis. It is hoped that new research agendas can be drawn from the structured framing and examples discussed here, as well as adding additional insight to existing research agendas and theories.

In demonstrating and conceptualizing a behavioural science framing for research on employment, it has been shown that the concepts studied within behavioural science have wide ranging potential implications in employment scenarios across the employment cycle. A behavioural science framing has potential to provide insight into theoretical frameworks across different management sub-disciplines. In some cases, behavioural science provides a means to challenge the processes and assumptions in theoretical models and approaches

There are many existing examples of how behavioural science can provide useful insights into employment problems and scenarios. Through investigating this scope further through a behavioural science, a range of further implications were identified, potentially setting out new research agendas. New insights and ways of viewing employment problems can also give practitioners new ways of approaching the presentation of problems and scenarios in practice. Equally a behavioural science framing allows scope for practitioners to critically reflect on their own practice further. Adding to recent moves towards training practitioners and staff in their unconscious bias from tools like Launchpad Verify and Marshall e-learning Unconscious Bias Tool.

The rest of this research uses this behavioural science framing for approaching research on employment to consider a single employment scenario. To be able investigate an issue in sufficient depth while demonstrating the scope to approach employment scenarios from a range of perspectives and methodologies using a framing of behavioural science for investigations, a single issue needed to be focussed on. This issue therefore predominantly covers a single component of behavioural science, at a single stage of the employment cycle, in a single sector. However, more than one component of behavioural science became relevant throughout conducting the empirical investigations and are therefore incorporated into the design of the experiment and data analysis.

CHAPTER 4: SOCIAL BIAS IN ACADEMIC RECRUITMENT

4.1 Introduction to Chapter

The aim of this chapter is to set out the context in the literature for the empirical investigations carried out in order to apply a behavioural science framing to research on employment. The approach taken was to focus on a singular issue. This issue was both pertinent to human resource management, while indicating that a less than fully rational, or sub-optimal decision-making process might be occurring, with possible links to behavioural science biases. The issue to be investigated was the contrasting views on the use of journal publication ratings in determining successful academic candidates for tenured positions. In broad terms, it is argued that publications in top rated journals have become 'golden eggs' that can enhance the chances of getting jobs and grants (Hitt & Greer, 2011; Vale, 2012). It was our intention to investigate whether that focus, interacting with behavioural science biases, could result in additional lower rated journal publications detracting from a resume assessment, rather than adding to it. This would not be fully rational, as objectively additional work and content presented in addition to the expected high rated publications should be seen as a positive contribution to the candidate's portfolio.

4.2 Recruitment and Behavioural Science

In employment, decision-making biases can be important, including recruitment being influenced by the gender, ethnicity and appearance of an applicant (Clair, Beatty & McLean, 2005; Greenhaus, Parasuraman & Wormley, 1990; Joshi, Son & Roh, 2015; Koch, D'Mello & Sackett, 2015; Marlowe, Shchneider & Nelson, 1996). However, as previously highlighted in section 3.2, while these types of bias commonly studied in disciplines such as organizational behaviour, they are specific to the context of gender, ethnicity, appearance etc. The biases studied in behavioural science, whilst influenced by context, are universal components of decision-making that can arise across contexts. They are not components of personality, individual difference or social conditioning as those studied in cognitive style literature in business and management (Armstrong, Cools & Sadler-Smith, 2012).

Behavioural resume-based experiments are commonplace in recruitment literature. Hiring and human resource management is an area in which the use of resumes in an experimental design is common (Bertrand & Mullainathan, 2004; Oliphant & Alexander, 1982). Early work found the existence of and discrimination against certain stereotypes, discussed in the context of cognitive processes (Larkin & Pines, 1979). Work in the study of discrimination has also highlighted that stereotyping can be a product of attention and

reducing cognitive load (Fiske, 1993a; Fiske, 1993b). Such cognitive and social biases have also been found to affect both hiring in academia (Lawrence, 2002; Mooney, 1991; Park & Gordon, 1996; Wennerås &Wold, 1997).

The way that behavioural science might treat hypothetical resume based recruitment studies differently to these organizational behaviour and psychology based experiments can be best conceptualized using an example. Ruffle & Shtudiner (2014) use experimental resumes to test the impact of the addition or omission of photographs on job applications, given differing genders and level of perceived physical attractiveness. Their findings suggest attractive females are the distinct outlier with a meagre 9.2% response rate to job applications, about six percentage points lower than those of both plain and no-picture females. Job selection (difficulty), 'dumb blonde', and negative signalling hypotheses were ruled out. The concluding hypothesis of the study provided jealousy as the mechanism behind this, given that the target HRM offices were populated predominantly by young females.

However, using a behavioural science framing to investigations, alternative hypotheses could be explored. For example, 'social comparison bias', a tendency to hire candidates that do not compete with one's own strengths, could be a plausible hypothesis. If those young females who are successful in human resource management departments perceive their success as being based on being a young attractive female, then hiring someone who competes with those strengths would not be desirable. This is not jealousy per-se. There is also no data on how HRM recruiters perceived their own attractiveness, strict sorting on the basis of female attractiveness could result in 'in-group bias' and 'out-group homogeneity' effects. Attractive women could be perceived as 'others', conversely their perceived lack of fit to the current in-group could result in a protection of that in-group, resulting not wanting to recruit that individual. There could also be a 'backfire effect' based a social expectation that 'only an attractive woman would try to use a photo', where there could be a strengthening of the notion that phots should not be used and their inclusion is a negative.

The study of bias in recruitment is common, including the use of experimental resumes. However, in using a framing of behavioural science, different conclusions can be drawn, thus informing new hypotheses.

4.3 The Assessment of Academic Resumes

"If I don't write for our top journals, I might as well be writing a letter to my mother" (Walsh, 2011, p218). These were the words highlighted by James P. Walsh in his paper

Embracing the Sacred in our Secular Scholarly World, reflecting on his 2010 Presidential Address to the Academy of Management. These words were intended to reflect the restrictions upon academia caused by journal rating and constant auditing of performance through them.

There are many journal rating systems now available ranging from ABS list (Association of Business Schools), ERA (Excellence in Research for Australia) to Thomson and Reuters Impact Factor. Academia, in the field of management and elsewhere, has arguably become dominated, and in some cases constrained, by the use of journal ratings metrics in areas such as staff recruitment and promotion (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). It is argued that publications, in journals highly rated in these systems, are favoured and candidates can be hired or not on the basis of this. This is in addition to the multiple university ranking systems, some of which are heavily weighted by journal rating systems such as publication citations (Kalaitzidakis, Mamuneas & Stengos, 2003). The combination of these systems of auditing is potentially restraining and dictating hiring decisions.

For the purposes of this research, the use of metrics to assess journal quality will be referred to as journal ratings. Journal ratings can be particularly challenging to obtain, as well as rapidly changing, for new channels of research (Serenko & Bontis, 2009; 2013). This can be further exacerbated by subjectivity towards the quality of journals (Brinn, Jones & Pendlebury, 1996) as well as differences in perception across countries (Alexander, Scherer & Lecoutre, 2007). The use of journal ratings, and the subjective responses to them, have led to some coming to argue that journal rating is now thus a source of discrimination in academic hiring (Ozbilgin, 2009).

This continues to be an ongoing discussion, with concerns being raised that journal rating systems do not always reflect a difference in quality or contribution of the work produced. Journal ratings favour those in the English language and writing can often be tailored with particular journals in mind, solely because of that publication's rating (Adler & Harzing, 2009; Butler & Spoelstra, 2014; Ferrara & Bonaccorsi, 2016; Mingers & Willmott, 2013; Tadajewski, 2016; Tourish & Willmott, 2015). The constraining of research to particular outlets exacerbates recent concerns about the fairness of access to knowledge (Harzing & Adler, 2016). However, since a reversal of the trend to use journal metrics to assess publication quality is unlikely, there are increasing calls for fairer and more inclusive metrics (Harzing & Alakangas, 2016).

4.3.1 Quantity vs Quality (Rating) of Publications

Perception of what was desirable in an academic resume has not been constant over time or between disciplines and countries. Within academic hiring, in the 1980s it was considered that too much attention was being paid to the number of publications on a person's resume, and too little attention was paid to the quality of the papers. It is argued that one consequence of this was a proliferation of the scientific literature without a proportional increase in knowledge (Reidenberg, 1989). In this era, the metric for research productivity that was being used was the numerical output of volume of papers.

Owing to these criticisms of using the number of publications as a metric for assessing publication records (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989), the use of journal ratings became the new metric for assessing publication records on an academic resume. However, it is now argued that journal quality ratings and impact factors are having an influence on academic careers hiring decisions. Since a critique was made of the impact of journal ranking lists (Adler & Harzing, 2009) as well as their social impact of broader university rankings (Espeland & Sauder, 2007), there has been a fierce debate on funnelling research into high impact journals. It is argued that the rise of journal impact factor lists is accompanying fierce institutional competition and has caused journal impact factor to become a new source of discrimination (Ozbilgin, 2009).

One of the reasons stated for creating and using ranking systems usually includes fairness in universities' hiring, promotion, and tenure decisions. Most rankings evaluate individuals and universities based on articles published in a subset of journals (Adler & Harzing, 2009). The most aspired to rankings claim to measure what is labelled as research productivity, with the definition of productivity often reduced to simply counting publications in high impact-factor journals along with citations in the limited set of journals that such systems recognize (Rynes, 2007). Published papers are the most important metrics in gaining grants and promotion (Long, Allison & McGinnis, 1993). In addition, it is argued that publications in top rated journals have become 'golden eggs' in resumes that can enhance the chances of getting jobs and grants (Hitt & Greer, 2011; Vale, 2012).

However, whilst the peer review process in a top rated journal is seen to regulate the quality of research, it has been argued that perhaps we have outsourced too much responsibility for quality to peer review (Willmott, 2003: Vale, 2012). Although the top rated journals receive higher rates of submissions and therefore can be more selective in the process of choosing 'scientific excellence', scientific excellence may not always be that which easily satisfies reviewers (Van Raan, 2000; 2005).

Ratings are used to aid internal and external reviews of research activity and the

evaluation of research outputs. 'Fetishism' towards journal rating is arguably stifling other research (Willmott, 2011) as specialised journals tend to have lower citation impact, or are less well known. They are therefore avoided by young researchers trying to build an impressive promotion file (Segalla, 2008). It is possible, as with the issues associated to publication bias and p-values, where there is preference to publish results with statistically significant p-values, that research that is of value to both knowledge and the academic themselves is discarded (Driessen et al., 2015; Ioannidis, Stanley & Doucouliagos, 2016). Academia has been 'seduced' by academic journal rating with universities 'craving' academics who publish in high ranking journals in order to improve the university's status (Nkomo, 2009). Articles that display larger initial effect sizes, which are revealed by later studies to be not so large, leading to the decline effect (Schooler, 2011) are often very highly cited and thus in top journals. It is therefore also argued that a pressure to publish in prestigious, high-rating journals could contribute to the unreliability of science. With this being the case, promotion and hiring may now be based on the candidates best at marketing their research (Brembs, Button & Munafò, 2013).

The development of national research quality evaluations and metrics with corresponding effects on financial resources for universities and individuals has clear implications for economic, human resource management and research practice (Michael Hall, 2011). There is an aggregation of individuals to an institutional level, despite convincing arguments for incorporating a more encompassing set of publications, including books, book chapters, conference proceedings, and a much wider range of journals (Adler & Harzing, 2009). In the case of universities, journal quality guides appear to largely reduce an academic's research to a series of discrete scores based on each paper's journal rating. These scores are treated as 'magic numbers', somehow encapsulating all that needs to be known about an individual's research (Hussain, 2011).

Critiques of how publications records are assessed have changed as the dominant discourse has changed. The use of quantity of publications on an academic resume as the dominant practice for judging a publication record was critiqued for not sufficiently controlling for the quality of the work produced. Subsequently, once the use of quality, predominantly using journal metrics, became the measure of assessment, critiques of this practice emerged, suggesting that it constrains research and can be discriminatory to certain fields and niche areas of study. There is an ongoing perception of publication record on academic resumes, where often there is a wrangle between the quantity and quality of publications produced

4.3.2 Change in the Discourse Over Time

The discourse, that it is hypothesized here to have possibly created a preconception about what to expect of a publication record, changed over time. Prior to the early 1990s, the number of publications was the metric by which publication records were assessed. However, criticism emerged of this by the early 1990s, suggesting that assessing the quantity of publications does not account for the quality of those articles (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989). A shift then occurred where quality, particularly via means of journal rating metrics, became the focus for assessing publication records. However, by the late 2000s, criticism of this practice emerged as it was arguably constraining research and could be discriminatory to niche areas (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). We therefore have a timeline that the discourse on the assessment of publication records in academic recruitment began with a focus on the number of publications. In response to criticism, from the mid-1990s until the mid-2000s, journal rating became the prominent metric. After the mid-2000s, criticisms emerged of the focus on the use of journal metrics to assess publication records on resumes in academic recruitment.

It is also noted that there may be other factors interacting with the change in discourse on what to assess on a publication record in an academic resume. In the early 1990s, universities were said to be changing from traditional, liberal institutions comparatively unbowed by commercial demands or political ideology into modern dynamic organizations, responsive to 'customers', students, and research councils (Peters, 1992). Changes in universities can be related to broader processes of social and institutional development (Halsey, 1992), including the political economy through concepts such as "modernization," "specialization," "professionalization," "rationalization". These were widely deployed to characterize the dynamics of organizational change in higher education, coupling between capitalist values and priorities, mediated by political ideologies and the organization. Control of academic labour, funding control, as well as other ideological influences, restrict and mediate pressures toward the commodification of academic work (Willmott, 1995).

This also coincided with the expansion of academia in the U.K. The passage of the Further and Higher Education Act 1992 allowed all polytechnics and Scottish central institutions to become universities and award their own degrees rather than degrees governed by the Council for National Academic Awards (CNAA). The mutual benefits of research and teaching acquired a new sense of urgency in the U.K as a result of two changes in the way that universities were funded by the Universities Funding Council (UFC): the separation of funds for teaching and research and the selective funding of research. At the same time,

with the withering away of the binary line that divided higher education for 25 years, polytechnics and colleges, which were funded only for teaching, demanded funds to support their research (Elton, 1992). These pressures may have exerted different expectations in emerging academics at the time and the need to differentiate on the basis of research.

The UK's funding councils for research developed a new framework for research evaluation which replaced the research assessment exercises (RAEs), conducted six times across UK higher education institutions (HEIs) between 1986 and 2008. The new proposals, Research Excellence Framework (REF), envisaged assessing more explicitly the economic, social and cultural 'impact' of research as well as its scientific quality. Given the behaviour-shaping effects of research evaluation, measurement could restrict academic autonomy at the level of research units. It is also argued that the REF could constitute an important space for negotiating science–society relations and the relationship between academia, state and industry (Smith, Ward & House, 2011). The introduction of RAEs in the late 1980s may have shaped the discourse and expectations of academics in the early 1990s. In addition, the reconfiguration of this assessment in 2008 away from RAE towards REF could have been a response to criticisms of the constraints placed on academia by the use of journal ratings and may have reverse impacts upon the discourse.

4.3.3 Cohort Effects

There are typically two ways in which institutional and organizational beliefs can be measured. The first is measuring the current climate, the second is tracking culture over time. Climate refers to a contextual situation at a point in time and its link to the thoughts, feelings, and behaviours of organizational members. Culture, in contrast, refers to the evolution of contexts and situations over time that become embedded in beliefs. Thus, it is rooted in history, collectively held, and sufficiently complex to resist attempts at direct manipulation (Bock et al., 2005; Dennison, 1996). The effect of historical discourses on how to assess publication records may therefore remain embedded into beliefs over time, even as new discourses emerge. The measurement of how those in the organizational setting assess publications records today is likely to reflect the current climate overall. However, within this there could be legacy effects where the previous discourse to measure journal rating is part of cultural system that is still impacting on part of the current climate.

Cohort replacement is a common device for understanding aggregate change in attitudes and beliefs (Brewster & Padavic, 2000; Wilkie, 1993). Cohort replacement theory predicts that opinion trends are a product of the ongoing replacement of older by younger cohorts. Attitudes are assumed to persist over the life course (Brim & Kagan, 1980), shaping

the acquisition of subsequent preferences and beliefs. In contrast to cohort replacement theory, social structural theory focusses on processes of attitude changes that occur during adulthood, with major social organizations validating some attitudes while discouraging others (Bobo & Hutchings, 1996) The third mechanism is attitudinal changes, whereby individuals adopt new attitudes as part of a larger process of belief system change. New attitudes are generally accepted or rejected by evaluating their desirability in comparison to prior beliefs (Wildavsky, 1987). Thus, attitude change among individuals tends to be constrained by pre-existing patterns of attitudes giving salience to specific clusters of attitudes (Sniderman, Brody & Tetlock, 1993). In the organizational context ideological learning can mediate much of the effect of cohort replacement (Brooks & Bolzendahl, 2004). It is therefore likely that the current climate of how publication records are assessed will be influenced in different ways. Cohorts will not exclusively hold a single viewpoint, with some changing prior beliefs to match new discourses about the use of journal metrics to assess publication records. The overall trend might depend on the composition of cohorts and how they have been influenced over time.

A cohort consists of people who share a common experience during a specified period of time. Often the term cohort can refer to a human birth cohort. However, while those of similar birth year can expose individuals to similar social changes, people of different ages can also belong to the same cohort, such as those who received their graduate training at the same time. (Glenn, 2005). A generational cohort is characterized by a homogeneity of attitudes, since predispositions established early in life have a certain degree of durability (Cutler, 1969). Culture and development across the lifespan play crucial roles in shaping the self, sometimes changing as people age, especially as they move through adolescence and young adulthood (Foster, Campbell, & Twenge, 2003; Ozer & Gjerde, 1989). Young adults have instability in the self, with stability generally increasing with age until late adulthood where it can again become unstable, which can be attributed to the timing of major life events and transitions. (Hooghe & Wilkenfeld, 2008; Vollebergh, Iedema & Raaijmakers, 2001). Social influences at crucial times in an individual's development has the possibility to create a cohort. Those who are still formulating their views about academia and what is expected on an academic resume might be more impacted by the prevalent discourse on publication record assessment at that time. The views formed in this development stage may be robust even as new discourses emerge.

Age-period-cohort (APC) analysis has played a critical role in studying time-specific phenomena in sociology, demography, and epidemiology for the past 80 years. Broadly defined, APC analysis distinguishes three types of time-related variation in the phenomena

of interest. Age effects are variations associated with different age groups. Age effects may be produced by any combination of biological aging, cognitive processes, movement to different age-related roles or age discrimination. Period effects are variations over time periods that affect all age groups simultaneously. Period effects may be caused by changing physical or social environments, changes in measurement techniques or group composition. Cohort effects are changes across groups of individuals who experience an event. Cohort effects may be caused by historical differences in social or physical environments during critical earlier years, or differences in size or structure of cohorts. Which of these causes are producing the effects can only be decided on the basis of outside evidence from either historical, experimental or theoretical sources (Palmore, 1978). There is regularity in age variations in many social outcomes across time; however, in contrast, period and cohort effects reflect the influences of social forces. Period variations often result from shifts in social, historical, and cultural environments. Cohort variations are conceived as the essence of social change and may reflect the effects of early life exposure to socioeconomic, behavioural, and environmental factors that act persistently over time to produce differences in life course outcomes for specific cohorts (Ryder 1965; Yang et al., 2008).

Ages, periods, and cohorts do not have either direct or indirect effects on demographic or social phenomena. Age is a good proxy for aging or more generally for physiological states, amount of exposure to certain social influences, or exposure to social norms. Cohorts can potentially be formed at key stages of life development or moments of change. Age is closely related to physiological state and predictions can be made of the way that age should be related to vital events, primarily social theories that would relate to period or cohort. (Hobcraft, Menken & Preston, 1982). Age effects represent aging-related developmental changes in the life course, whereas temporal trends across time periods or birth cohorts reflect exogenous contextual changes in broader social conditions. (Yang, 2008). Age, period and cohort effects have been used in labour economics to help inform life cycle behavioural equations given the variances in the valuation of non-market time allocation (Heckman, 1983). The effect of the change in the discourse regarding the assessment of publication record over time as a social influence will therefore have acted in multiple ways. The change towards the use of journal metrics to assess publication records might have affected all individuals at that time equally, as possibly part of a new pressure exerted on academia. Or it might have impacted substantially on the practices of developing academics at the time, altering the view of what is expected to build an academic career.

4.3.4 Institution and Faculty Types

Advice on formulating a resume for academia can suggest to list all possible relevant experience on teaching as well as conference papers, work in progress and future research. It highlights that publications will be a major element of that resume. Advice also highlights that there may be different approaches whether the institution to which you apply is more postgraduate focussed or undergraduate focussed. This advice however is limited to interviews. It is also noted that there may be differences depending on the way a faculty gains national visibility (Parley & Zanna, 1987).

Research focussed institutions view publication record as more important than teaching when considering applicants, whereas teaching focussed institutions prefer the opposite. The importance of publication record in hiring decisions appears greater in the natural sciences. Within the social sciences, teaching and research appear to take equal weighting, whereas teaching is often more important in the humanities. In addition, this research has shown that teaching experience carries the most salience in interview (Meizlish & Kaplan, 2008). This may account for more encompassing advice at interview stage.

4.3.5 Reducing Uncertainty in Recruitment

Research narratives can illustrate how research careers in higher education are formed and conditioned by institutional demands, forms of career capital, and the actions of researchers (Angervall & Gustafsson, 2014). Research has also suggested that, when confronted with a pile of job applications, recruiters follow a strategy of picking applicants with positive characteristics ('diamonds') rather than eliminating applicants with negative characteristics ('lemons') (Eriksson & Rooth, 2014). Recruitment practitioners can use applicant's fit with the organization as a key criterion in hiring decisions (Montgomery, 1996). Research has indicated that assessments of fit can determine interviewers' hiring recommendations and that applicants are also concerned with assessing their fit with organizations (Judge & Cable, 1997). An applicant's image of organizational fit can initially be based on random information derived from secondary sources (Barber, 1998). Greater applicant–organization image congruence is hypothesized to increase perceived fit and attraction (Judge & Bretz, 1992; Tom, 1971; Turban & Keon, 1993). Better fit with the organization may lead to employees being more satisfied with their jobs and having longer tenure (Chatman, 1989; 1991) (Collins & Stevens, 2001).

The production and scrutiny of resumes is now a central and routine part of academic life. It is noted that these resumes are written with a certain context and certain recipients in mind and can never be entirely complete. Readers are therefore expected to read between

the gaps, for example when considering the position of Senior Lecturer, questions of the presentation and recognition of 'exceptionality' are raised. The construction of resumes can thus be rule governed, including inclusion and exclusion criteria. Advice is now routinely given on how academics can present themselves in the best light, including a balance between quantity and quality. Conformity and rule setting has inevitably become a part of the process. The academic resume has become a non-simple function between two worlds. Quality is supposed to elude quantification, embedded in interpersonal understandings of colleges. That is to say that quality should not be missed in assessment of a candidate. On the other hand there are pressures to produce a high quantity of publications. The academic therefore treads a narrow path between over-presentation of an academic self and failing to present themselves adequately in the document (Miller & Morgan, 1993).

Employment decisions are fraught with uncertainty. In hiring, there is often an asymmetry of information (Akerlof, 2002), where recruiters can find it difficult to know the quality of a candidate and potential applicants can struggle to know the value of their skillsets. The decision-maker must usually make a selection based on limited and possibly biased information. Selection errors have multiple costs, from the resources invested in training, an unsuitable employee, to the loss of opportunity associated with passing up a candidate who may be a better employee. Consideration of these potential costs could influence the hiring process. The costs of errors for hiring decisions are applicable to both stigmatized and non-stigmatized groups. Personnel decisions can be based on stereotypes, with in-group favouritism being a robust phenomenon. Self-esteem and social identity are a driver, however when there is a high likelihood of failure by hiring an in-group member, then this risk to self-esteem is generally avoided (Lewis & Sherman, 2003). Doubt, risk and potential cost are central to many important decisions including when an individual must select a candidate for a job. Discrimination can arise from both positive treatment of in-group members and negative treatment of out-group members (Brewer, 1979).

4.4 Social Biases Implicated in Academic Resume Assessment

Discrimination tends to be a product of a biased or subjective view, often resulting from a cognitive or social bias. These biases may, for example, be a result of assumed associations and similarities to a 'stereotype' or parent population; a firm belief or 'rule of thumb' leading to alternatives being rejected or ignored; or an adherence to a social norm, group, structure or hierarchy. It is therefore important to acknowledge that both socially and cognitively determined biases can influence the decision of who to hire. This is important

both in exploring the determinants of a hiring decision, as well as when considering the experimental design of this research.

Biases can also result in decision-makers assigning a subjective, inaccurate and non-optimal value or calculation in decision-making. Biases more generally are prior tendencies to hold an opinion that is not entirely impartial. This typically can result in a lack of desire to accurately value alternative outcomes, options or points of view. Certain biases in employment decision-making are well known and studied, such as gender, ethnicity and appearance (Clair, Beatty & McLean, 2005; Greenhaus, Parasuraman & Wormley, 1990; Joshi, Son & Roh, 2015; Koch, D'Mello & Sackett, 2015; Marlowe, Shchneider & Nelson, 1996). Social bias can be a result of the tendency for social comparison, belonging and adherence to social norms. We care what others think, as well as about our own identity, making it difficult for us to place an accurate valuation on other identities. This can lead to stereotyping.

Social biases have been found to affect both hiring in academia (Lawrence, 2002; Park & Gordon, 1996) as well as the peer review processes that lead to the journal metrics upon which hiring may be based (Wennerås &Wold, 1997). Research suggested a gender gap between men and women achieving a higher rank academia, with achieving a higher rank being more determined by quantity not quality of publication, with women expected to produce a higher quantity for the equivalent rank (Mooney, 1991). Meanwhile advancement in rank is determined by publication productivity and not teaching, with this research excluding institutions where teaching is the primary mission (Long, Allison & McGinnis, 1993). Gender discrimination in resume literature has gone on to use academic resumes as a method for collecting experiment data. Resumes have also unusually been used as a form of data for mapping research grants in academia (Gaughan & Bozeman, 2002).

Academia is therefore an appropriate and active area for investigating discrimination or biases in hiring decisions. Academia, in the field of management and elsewhere, is argued to have become dominated by the use of journal ratings metrics (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). It is debated that publications, in journals that rate highly in systems of journal metrics, are favoured and candidates can be hired or not on the basis of this. In addition, it is argued that publications in top rated journals have become 'golden eggs' in resumes that can enhance the chances of getting jobs and grants (Hitt & Greer, 2011; Vale, 2012).

Rhetoric has led to game playing, under the assumption that some journals are better than others, and a reliance on journal ratings as a source of measuring competitiveness, and possible coercion (Lawrence, 2002; 2003; 2008; MacDonald & Kam, 2007; Nkomo, 2009;

Peng & Dess, 2010; Wilhite, & Fong, 2012). Analysis has been made of this, including specific biases that may contribute to it (Sugimoto & Cronin, 2013). Journal ratings are arguably being used to quantify the quality of science (Wilhite & Fong, 2012). It is argued that many tenure committees are making decisions based on the journal in which articles are published, rather than on the quality of the article itself. Research in low rated journals, including that in some open access outlets, may leave a scholar vulnerable to the negative assessment of having demonstrated insufficient evidence of research competence and productivity (Harzing & Adler, 2016).

In the event of any social expectations to treat publications in lower rated journals negatively, or a strong perception that one should focus on high rated journal outlets, it might be that lower rated publications in addition to the same high rated publications, could detract from that resume rather than adding. This is despite it being rational and objective to consider these additional low rated publications being additional content and achievements, over and above exactly the same high rated content. One way in which this might present itself is in the form of a negative impact created by the addition of lower rated journals, as a response to broader social belief in publishing in high rated journals. This social bias is not a miscalculation of the value of those publications or a rational response to genuine pressures exerted by a system. Instead the social bias is where low rated publications are valued incorrectly because of a strong prior belief, for example that only publications in high rated journals should be considered for career progression, leading to a poorer valuation being given to the merits of alternatives. There are however several ways in which such a negative social bias might come about.

Table 4.1: Behavioural Science Social Biases Implicated in the Assessment of Academic Resumes

Social Bias	Description	Reference	Link to Assessing Academic Resume Content.
Backfire Effect	When people react to unwelcome information by supporting their original belief more strongly.	Nyhan & Reifler, 2010	A particular belief in publications within high rated journals may cause the addition of low rated publications to amplify the desire for high rated.
Confirmation Bias	A tendency to focus on information that enforces one's own preconceptions.	Nickerson, 1998	Preconceptions based around journal rating may cause a focus towards publications in highly rated journals on a given resume.
In-group Bias	The tendency for people to give preferential treatment to others they perceive to be members of their own group identity.	Brewer, 1979	Individuals with high rated journal publications may treat those with similar publication records preferentially.
Social Comparison Bias	The tendency, when making hiring decisions, to favour potential candidates who do not compete with one's own particular strengths.	Garcia, Song & Tesser, 2010	A potential counterweight to in-group bias towards hiring similar individuals based on publication rating.
System Justification	The tendency to defend existing social, economic, and political arrangements. Alternatives disparaged.	Jost & Banaji, 1994	Those who have been hired as a product of institutional demand for high rated journal publications are likely to look for high rated publications.

A 'confirmation bias' (Nickerson, 1998), where information is sought that confirms existing beliefs, could result in a focus towards only high rated publications, if only they are seen of worth. A sufficiently strong preference or belief towards high rated journal publications could lead to a 'backfire effect' (Nyhan & Reifer, 2010) whereby a prevalence of lower rated journals may in fact re-enforce a belief that one should be aiming to publish in higher rated journals. In the case of a 'backfire effect', the strongest negative social bias towards lower rated journals may arise if a belief in high rated publications is strong enough to cause a negative reaction when low rated publications are presented. A 'system justification' (Jost & Banaji, 1994), where existing structures are defended, could be activated if a person reviewing an academic resume was hired on the basis of a small number of highly rated journal publications themselves. This 'system justification' could be exacerbated by 'in-group bias' (Brewer, 1979), where there is a tendency to create shared group identities and a preference for individuals within one's own group, if that group has particularly high rated journal publications. That said in contrast to these hypotheses on academic hiring, a 'social comparison bias' (Garcia, Song & Tesser, 2010) in hiring suggests that some individuals may chose to hire individuals that do not compete with their own individual strengths. In this situation, the effects of 'in-group bias' would be reversed.

In the case of 'confirmation bias' and 'backfire effect', they require a pre-existing belief or expectation. In terms of the context of this study, this would be influenced by the

discourse on expectations of publishing in highly rated journals (Hitt & Greer, 2011; Vale, 2012). If expectations of high rated publications are now institutionally and individually influential (Lawrence, 2002; 2003; 2008; MacDonald & Kam, 2007; Nkomo. 2009; Peng & Dess, 2010; Wilhite, & Fong, 2012) you would expect that adherence to this discourse could have embedded expectations of publication records.

In summary, if journal rating has become a part of the system by which we measure and audit research productivity, it is likely that there would be knock-on effects from the repetition of this discourse. The current debate thus far has considered many of the effects of the discourse and system effects but not the resulting effects on preconceptions. This includes that preconceptions can lead to a 'backfire effect' reaction to information that contradicts those preconceptions. It is from this process that the main hypothesis for this study was derived.

4.5 Summary of Chapter

Contributing to research objective 2, the narrative and discourse regarding best practice for the assessment of academic resumes, and in particular the assessment of publication records on that resume, has changed over time. Prior to the early 1990s, the number of publications on an academic resume was seen as the metric for assessing the strength of a publication record. However, that switched to a focus towards the ratings of the journals within the publication record. Journal rating is intended to control for the quality of the research within the publication records, with high rated journals being subjected to higher rejection rates and arguably therefore greater excellence through stricter peer review. However, by the mid-2000s criticism of the use of journal metrics emerged, arguing that reliance on peer review does not necessarily mean greater scientific contribution and that the use of metrics can be discriminatory towards niche fields. It is argued that candidates may be hired solely on the basis of publications in high rated journals (Hitt & Greer, 2011; Hussain, 2011; Vale, 2012). This has substantial effects on careers with writing often being tailored with particular journals in mind, solely because of that outlet's rating (Adler & Harzing, 2009; Segalla, 2008). Academics can tread a difficult path between quantity and quality, as measured by journal metrics, in building a publication record. Presentation of low rated journal publications has the potential to be 'over presentation', given sufficiently strong institutional demands for high rated journal publications (Miller & Morgan, 1993).

This investigation needed to demonstrate the use of behavioural science biases as a framing for challenging human resource management issues and designing investigations, contributing to research objective 3. Firstly, behavioural science cognitive biases were

considered extensively in the design of the study. In the main, the consideration of cognitive biases had many implications for the type of experiment, especially the number of resumes each participant would receive, as comparing and contrasting two or more resumes side by side could trigger a range of behavioural science cognitive biases. However, at the same time this exercise demonstrated that these cognitive biases would indeed have potential to impact the assessment of resume content in a great number of ways. This could potentially highlight areas for further research

It was, however, not the main intention to investigate potential cognitive biases in addition to social biases. There are difficulties in isolating any effects within the randomized control trial experiment chosen. While cognitive biases could be a part explanation for assessing more or less resume content differently, including low rated journal publications being listed in addition to high rated ones, the sources of discrimination in the literature surrounding journal rating (Hitt & Greer, 2011; Ozbilgin, 2009; Vale, 2012), were argued to have become institutionally and socially embedded. It was therefore the intention to focus on possible social biases, as studied in behavioural science, that could interact with these social institutions. In basic terms, there were a set of behavioural science biases pertaining to adherence to social discourse and norms that could be triggered by a focus on assessing the quality of candidates by the number of publications in high rated journals. Some of these biases could result in a negative reaction, if presented with low rated publications, as the candidate is not adhering to these expectations. The existence of any possible socially derived bias would be investigated using different perspectives and methodologies in the empirical investigations.

It is hypothesized that the discourse on how to assess publication records will be interacting with social biases. Social biases in behavioural science, in particular 'confirmation bias' and 'backfire effect' have the possibility to be activated, if a belief that high rated journals are the sole objective of a publication record is sufficiently strong. This may be supported by the notion that recruiters may adopt a strategy of picking applicants with positive characteristics ('diamonds') rather than eliminating applicants with negative characteristics ('lemons') (Eriksson & Rooth, 2014).

CHAPTER 5: METHODOLOGY

5.1 Introduction to Chapter

This chapter aimed to describe in detail why and how the empirical investigations for this research were carried out. The empirical investigations centred on a significant issue focussing on a single component of behavioural science and employment scenario. This was to be able to investigate an issue in sufficient depth while demonstrating the scope to approach employment scenarios from a range of perspectives and methodologies using a framing of behavioural science to inform investigations. A mixed-method approach was therefore taken. The chosen empirical investigation was to examine a potential behavioural social bias that would result in low rated journal publications, being added to the exact same high rated publications, detracting from an academic resume. There were five possible social biases that could affect the assessment of academic resumes, 'backfire effect', 'confirmation bias', 'in-group bias', 'social comparison bias', and 'system justification'. All of which needed to be considered in the design and analysis of the empirical investigations.

The exploratory nature of this research and empirical investigation required a mixed-method and enquiring methodology. A randomized control trial survey design was used, collecting a range of data types, each providing a different way to analyse the source of decision-making. At the first stage of investigations, behavioural science cognitive biases were utilized to be able to control for these potential confounds and target investigations on exploring the sources of possible social biases. The overall investigation was to assess the presence of the hypothesized 'backfire effect', where the presentation additional of low rated publications cause a negative reaction. Factor analysis was then conducted on the Likert scaled responses to statements about the candidate to unearth the underlying factors in assessing the strength of the candidate resume. Factor analysis results as well as other quantitatively derived indications of how candidates were assessed were used to help inform coding of the qualitative free text candidate feedback in the survey. Each stage of empirical investigation was used to clarify results and better understand the origin of findings, ruling out other possible sources of bias. The conceptualization and foundation for further investigations was based on the behavioural science framing and the use of behavioural science biases to consider the origin of results and ask new research questions.

5.2 Integrative Design

In using a mixed-method approach, there are differences depending on the temporal dimension of how and when the combining of both quantitative and qualitative data are combined (Clark & Ivankova, 2015).

Mixed-method data collection can happen through parallel data gathering where qualitative and quantitative data are collected at the same time. Data can also be collected through sequential data gathering where one type of data is collected first and then this is used to inform the collection of the other or next type of data. In the literature on mixed-methods research, a sequence refers to a temporal relationship between qualitative and quantitative methods of data collection and analysis (Hong, et al, 2017). Different data types were collected in parallel during the randomized control trial survey in this research.

Component design is an approach to mixed options evaluation which conducts qualitative components of the evaluation separately to quantitative components, and then combines the data at the time of report writing. This option is often less useful than using an integrated design, where the different types of data are used to inform other data collection, analysis and interpretation. Integration is defined as the process of bringing qualitative and quantitative approaches together and can be achieved at the level of the design, data collection and analysis, as well as in interpretation and reporting (Hong, et al, 2017).

The purpose of combining data can be to enrich investigations using qualitative work to identify issues or obtain information on variables not obtained by quantitative surveys. Hypotheses can, for example, also be generated from qualitative work to be tested through the quantitative approach or vice-versa. Data is also often combined to use qualitative data to understand unanticipated results from quantitative data. Triangulation is defined as the mixing of data or methods so that diverse viewpoints or standpoints cast light upon a topic. The mixing of data types, known as data triangulation, is often thought to help in validating the claims (Olsen, 2004). In this research, different data types were used to generate and validate new hypotheses.

Triangulation can be defined as an attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint (Cohen, Manion & Morrison, 2013). Denzin (1978) identified four different types of triangulation. Data triangulation is the use of a variety of data sources and data sets in a study. Data may be both qualitative and quantitative, gathered by different methods or by the same method from different sources or at different times. This study used data triangulation, opposed to investigator triangulation or theory triangulation, or indeed methodological triangulation, which is the use of multiple methods to study a single problem

or phenomenon (Niglas, 2000), given that this study used a single RCT survey method. Triangulation of quantitative and qualitative data has been used in conjunction with randomized control trials (Tonkin-Crine et al., 2016) as well as the use of survey designs (Olsen, 2004).

5.3 Epistemological Approach

Interpretivist approaches to organizational research are common and are associated with ethnography, hermeneutics, phenomenology and case studies. Positivist approaches are also common and are associated with inferential statistics, hypothesis testing, mathematical analysis, as well as experimental and quasi-experimental design. Survey research is a traditional positivist method (Lee, 1991). This empirical research utilized survey research and an experimental design.

In the positivist paradigm knowledge is verified through direct observations or measurements. In constructivism knowledge is context and time dependent (Coll & Chapman, 2000). In general, qualitative research is based on a constructivist ontology where meaning lies in cognition and information is screened, translated, altered, or rejected by the knowledge that already exists (Lythcott & Duschl, 1990). Positivism assumes that science quantitatively measures independent facts about a single reality (Healy & Perry, 2000). Positivism discerns natural laws through direct manipulation and observation. As such, positivists separate themselves from the world they study. Positivism embraces the rule of nominalism, asserting that words, generalizations, abstractions, etc. are linguistic phenomena and do not give new insight into the world (Kolakowski, 1972),

Realism, as a philosophical paradigm, has elements of both positivism and constructivism (Healy & Perry, 2000). Realism is also known as critical realism, postpositivism, or neopostpositivism (Krauss, 2005). While positivism concerns a single reality and constructivism multiple realities, realism concerns multiple perceptions about a reality (Healy & Perry, 2000). Realism recognizes that perceptions have a certain plasticity (Churchland, 1986). The critical realist sees that our knowledge of reality is a result of social conditioning, operating in two different dimensions, one intransitive and relatively enduring; the other transitive and changing (Krauss, 2005). This empirical research is conducted from a stance of critical realism.

It is argued that there are three traditional research approaches that can affect triangulated research. Typically, researchers can be stuck between the empiricist and rationalist approaches of positivism in quantitative data or constructivist in qualitative data, struggling to reconcile the different epistemological bases. A realist alternative has been

offered (Sayer, 1992). Realism argues that social objects are often affected by the way they are construed, but that they also have an ongoing real existence that is not constituted entirely by how today's researchers construe them (Sayer, 2000). Realism is plural with respect to methodologies and with respect to theories, and therefore offers a good platform from which to embark on integrated mixed-methods research (Olsen, 2004). The most prominent manifestation of realism is the critical realist tradition (Denzin & Giardina, 2008). Critical realism aims to identify the structures that generate the discourses and events in the social world (Bhaskar, 1989).

Critical realism views neoclassical economics to have a closed system ontology (Lawson, 1997). In contrast, critical realism has an open-system approach where the social realm is partly defined by regularities and partly be underlying events (Downward, Finch & Ramsay, 2002). Critical realism is an established movement in social science disciplines (Archer et al., 1998; Cruickshank, 2003), economics (Lawson, 1997), management (Ackroyd and Fleetwood, 2000), and marketing (Hunt, 1992). A critical realist perspective argues for 'mechanistic explanations' (Bunge; 1997), which describe the mechanisms underlying the phenomena concerned. From a critical realist perspective, a basic purpose of testing a theory is to investigate how far its proposed mechanisms are consistent with observable events (Sayer, 2010). Since the core behavioural assumptions of a theory often form the foundation of its mechanistic explanations, it is crucial that these assumptions are tested by testing a behavioural assumption. In contrast, in assumption-omitted theory, tests are usually conducted on reduced models that are devoid of behavioural assumptions. Such behavioural assumptions constitute the foundation of the mechanistic explanations of a theory and should play a pivotal role in theory development. To what extent an assumption is realistic has to be determined empirically (Tsanng, 2006). Given the intention use a framing of behavioural science to conduct exploratory and mixed-method empirical research, a critical realist perspective is appropriate.

5.4 Survey Design

Hiring and human resource management is an area in which the use of resumes in an experimental design is common (Bertrand & Mullainathan, 2004; Oliphant & Alexander, 1982). Early work found the existence of and discrimination against certain stereotypes, discussed in the context of cognitive processes (Larkin & Pines, 1979). Work in the study of discrimination has also highlighted that stereotyping can be a product of attention and reducing cognitive load (Fiske, 1993a; Fiske, 1993b). Such cognitive and social biases have also been found to affect both hiring in academia (Lawrence, 2002; Park & Gordon, 1996)

as well as the peer review processes that lead to the journal metrics upon which hiring may be based (Wennerås &Wold, 1997). Research also suggested a gender gap between men and women achieving a higher rank in academia, with achieving a higher rank being more determined by quantity not quality of publication and different expectations for quantity between males and females (Mooney, 1991). Gender discrimination literature has gone on to use academic resumes as a method for collecting experimental data. Resumes have also been used as a form of data for mapping research grants in academia (Gaughan & Bozeman, 2002). The analysis of academic hiring using experimental setting and hypothetical resumes is therefore appropriately used in these empirical investigations, as is the analysis of possible sources of bias.

The use of a randomized control trial and hypothetical resumes (Steinpreis, Anders & Ritzke, 1999), as well as survey design (Hesli et al., 2006), have been used before in investigating academic career decisions. The randomized control trial in this research was a survey design, where all components of the survey, including the position outline for which the resume was to be considered remained identical. The only change between the treatment and control groups was that one randomly assigned resume had only four high rated publications on it, the other had the exact same four highly rated publications, plus eight low rated publications. The names, co-authors and grants on the resumes all remained identical. Using a randomized control trial (RCT), the effect of lower rated publications on resumes was tested by the addition and exclusion of lower rated journals on randomly assigned resumes, asking participants to consider that resume for an outlined position. The resulting questions could therefore remain consistent, with responses being dependent on the addition or exclusion of lower rated content on the randomized resume. You would expect that if the addition of lower rated content was not biasing responses, given that the remaining content on the resumes was identical, including high rated publications, then there would be no change.

5.4.1 Cognitive Biases Implicated in Resume Assessment

As aforementioned, when using a framing of behavioural science for conducting this employment research it was clear that there was the possibility for cognitive biases, like those studied in behavioural science, to influence how an academic resume may be perceived. Given that it was the intention to isolate a potential social bias influence in academic resume assessment it was important to control for the potential confounds created by cognitive biases in assessing academic resumes.

Table 5.1: Behavioural Science Cognitive Biases Implicated in the Assessment of Academic Resumes

Cognitive Bias	Description	Reference	Link to Academic Resume Assessment
Anchoring	A form of priming whereby exposure serves as a reference point and a reluctance to deviate from that value.	Tversky & Kahneman, 1974	Presentation of an outstanding resume could cause the rejection of adequate resumes.
Base Rate Fallacy	Failure to adequately consider usual occurrence (base rate) regardless of specific situation.	Bar-Hillel, 1980	In normal occurrence, the pursuit of publication can be traded off with the acquisition of grants. Failure to consider the amount of grants obtained by a candidate when considering the candidates publication productivity could lead to judgment errors.
Contrast Effect	Moderate examples are rated more extreme in the context of more polarized examples.	Simonson & Tversky, 1992	An adequate resume could be judged as inadequate when in the context of an outstanding resume.
Distinction Bias	The magnitude of small differences can seem greater when comparing side by side than their real world difference.	Hsee & Zhang, 2004	The differences between resume content will be magnified when they are evaluated against each other.
Less-is-Better Effect	Where a normatively less valuable option is judged more favourably than a valuable alternative.	Hsee, 1998	A smaller amount of resume content may be judged more favourably.
Processing Difficulty Effect	Information that is processed with more difficulty is more accurately remembered.	Henderson & Ferreira, 1990	More complex or detailed information on a resume will require more concentration and thus may be remembered more clearly.

Had participants been shown more than one resume to compare, then their responses could have been confounded by the cognitive shortcuts based on comparisons as identified in table 5.1. These cognitive biases might make participants rely on the amount and comparison of information that is presented on the resume rather than the content contained within it. Comparing between two contrasting sets of information can result in information being weighted differently when in the context of other information, compared to how they would be assessed in isolation. The valuation in isolation is the true objective, rational, observation. The comparison with other information results in a biased value being placed in reference to the other information.

In order to take into account and control for some of the cognitive shortcuts as outlined within the cognitive bias table (table 5.1), participants considered a single resume for an outlined position, with the resume being randomly assigned to them. They would be assigned one of two resumes. Both resumes were identical except the publications on the resume would change. The first resume contained all the publications of the candidate,

including those in high and low rated journals. The second had only the high rated journal publications included. This was the main treatment effect in this experimental study and created the treatment and control groups. In the case of 'base rate fallacy', all other information about the candidate, including information on grants remained consistent and participants were informed that they were being shown the research component of a resume only. This was to mitigate against trade-offs being made between different career objectives and the usual occurrence of career trajectories.

While it can be noted that in hiring scenarios, it is usual to compare candidates against each other, given that it was the intention to isolate the effect of the social bias to be investigated, it was more important to control for and design out these potential cognitive biases. These cognitive biases illustrate possible issues created by comparing resumes side by side, and may provide some useful and important critique of this practice. Indeed, building on the study of unconscious bias in behavioural science, online tools such as Applied and Unitive encourage individual scores to be collated at the end.

5.4.2 Investigating Social Bias

In lieu of any 'in-group bias' or 'system justification' (table 4.1) the potential clash between considering a specific institution's criteria, and institution more generally, or one's own institution's criteria, two binary yes/no responses for whether the participant thought the candidate was hireable on the basis of the randomized resume were collected. One asking if the participant thought that the candidate was hireable for the outlined position at any institution at the outlined level, the other asking if the participant thought the candidate was hireable at their institution.

Participants were also asked to rate how much they agreed with a series of Likert scale statements about the candidate. They were asked to rate how much they agreed with each statement using a sliding Likert scale response, at a range of 0-100. The questions were intended to investigate different aspects of how the participant was reviewing the job candidate outlined to them. There were statements trying to illicit whether the candidate resume was meeting the expectations of the participant. For example, "I believe this person has a research profile expected of a career path." There were also statements pertaining to the consistency of the candidate. This was trying to investigate whether participants were concerned about a level of inconsistency in the candidate's performance, with the publication record being the most likely measure for different assessments of consistency. There were therefore statements like "I believe this person has not shown a consistent level of performance in their career." There were also statements asking participants to assess the

potential of the candidate. For example, "I believe this person has the potential to be academically renowned in the future". This was to see whether participants were more concerned with the potential of the candidate, or whether the candidates existing resume meets the criteria. There were also therefore statements on whether the candidate met the criteria for the outlined position such as "I believe this person meets the criteria outlined for this academic post".

As with the simple yes/no questions regarding hiring the candidate, these questions were asked in two contexts. The first being whether the candidate resume was appointable for the outlined academic post more generally. The second being whether the candidate resume would be considered for the outlined academic post at the participants' own institution. The reason for separating out the contexts was again to investigate whether if asking participants to consider their own department exaggerated certain opinions and biases. In particular, social biases and expectations may be strengthened by 'in-groups' and particularly embedded institutional beliefs. It is also interesting to note if any negativity or positivity towards a candidate for a job at a specified level is strengthened or weakened by participants having to consider that individual at their own department or environment, opposed to at any institution at this level.

The reason for adding questions on expectations were to assist in investigating the possible identified social biases. It is by being presented with information that conflicts with your expectations of what 'should' be done or conflicts with accepted practice or discourse, that is likely to trigger the types of relevant behavioural economics social biases identified. For example, through a 'backfire effect', where people react to unwelcome information by supporting their original belief more strongly, could result in a re-enforcement of a belief that high publications should be targeted, if low rated publications are presented.

During the online Qualtrics survey experiment, having seen the candidate's resume and decided the suitability of the candidate for the outlined job position, participants were asked to provide feedback on the candidate resume as to how the candidate may be able to improve their application's chances of success in the future. The feedback was given in the form of free text. This amounted to a large amount of written content that could be used for analysis of qualitative data. This data could be used to investigate further the way in which candidate resumes were assessed using a framing of behavioural science.

There was an opportunity at the end of the Qualtrics survey to provide a small amount post experimental feedback. Additional variables were added for further insight. Information was collected on the number of hiring decisions the participant had sat on in the last three years; the participants position; the number of years the participant has been a faculty

member; the number of years the participant had been in academia; the participant's age; the gender of the participant and the number of years since completing a PhD. This data was collected to be able to investigate possible cohort effects from the cultural shift in the measure of research productivity from quantity to quality. It was also collected to analyse if different roles in the department as well as levels of understanding of hiring processes played a role. In addition to this information, a response was requested that indicated the participant's perception of their own university and department rating. This was to investigate the expectations of resume content given a certain university rating. However, participants' anonymity was assured.

5.4.3 Overview of Survey Questions

1. I've read and understood the information and consent to take part in the study. (Y/N)
2. Please confirm that you have viewed the Curriculum Vitae (Document) and are considering it in relation to the role outlined above. (Y/N)
3. I believe this person meets the criteria outlined for this academic post. (0-100)
4. I believe this person has a research profile that is expected of a career path. (0=100)
5. There are aspects within this research profile that would dissuade me from supporting an appointment. (0-100)
6. I think there is a chance this person would not fulfil their career potential. (0-100)
7. I believe this person has not shown a consistent level of performance in their career. (0-100)
8. I would expect this person to be considered for the outlined position. (0-100)
9. I believe this person has a research profile that reflects consistently high quality. (0-100)
10. I believe this person has the potential to be academically renowned in the field. (0-100)
11. Do you believe this person is appointable based on the criteria? (Y/N)
12. I believe this person meets the criteria for appointment at this level in my department. (0-100)
13. I would actively encourage this person to apply for such a position in my department. (0-100)
14. I believe this person has the desired research profile for appointment in my department. (0-100)
15. I would actively dissuade an appointment board in my department from appointing this person at this level. (0-100)

16. I believe this person will not have the potential to collaborate with me. (0-100)

17. I believe this person has the potential to contribute to our department. (0-100)

18. The research profile of this person is of nature that is expected at our department. (0-100)

19. I think this person has an adequate research profile for this appointment. (0-100)

20. I consider this person to be appointable at my department based on our expectations for research profile. (Y/N)

21. If this person was unsuccessful in an application to this post, what advice would you give to help them strengthen their CV (resume) for future applications? (Free Text)

22. Are you? (Male/Female)

23. How old are you? (Free Text)

24. In what year did you get your PhD? (Free Text)

25. What is your position with your department? (Lecturer /Senior Lecturer/ Professor/ Emeritus Professor) (Assistant Professor/ Associate Professor/ Chair/ Emeritus)

26. For how many years have you been an academic? (Free Text)

27. For how many years have you been at your current department? (Free Text)

28. How many appointments have you sat on in the last three years? (None/ 1-2/ 3-5/ 5 or more)

29. How would you rate your department? (Within top 20 in the U.K./ Between 20th and 50th in the U.K./ Between 50th and 100th in the U.K./ Lower than 100th place in the U.K.) (Converted to U.S.A. for those participants)

30. How would you rate your university? (Within top 20 in the U.K./ Between 20th and 50th in the U.K./ Between 50th and 100th in the U.K./ Lower than 100th place in the U.K.) (Converted to in the U.S.A. for those participants)

31. Of which management school sub-division do you belong? (Economics/ Finance/ Accounting/ Human Resource Management/ Strategy/ Operations/ Entrepreneurship/ International Business/ Organizational Behaviour/ Other (Free Text) – Item only included in management survey.

5.4.4 Formatting Hypothetical Resumes

There were alterations made dependent on whether the participant was from the U.K. or U.S.A., where an equivalent country specific conversion of grant funding or position title was given. In addition, depending on the participant's faculty being psychology or management based, equivalent journal publications and titles were given to suit that faculty.

The journal publications added for specific disciplines were equivalent in rating across a range of journal rating metrics, ERA, ABS, ISI impact factor, SJR rank, Eigen score.

Table 5.2: Ratings of Journals Contained in Experimental Resumes

Journal Name	Journal Abbreviation	ABS	ERA (2010)	SJR Area Rank	TR (ISI) IF Disciplinary Area Rank (2014)	TR (ISI) Impact Factor (2014)	Eigen Score		No. of Entries on Complete Resume
Psychology									
							(Eigen Factor)	(Article Influence)	
High Rated				1042 Total	646 Total (all psychology areas)				
Psychological Science	PSYCHOL SCI	n/a	A*	18	28	4.940	0.06739	3.227	2
Cognition	COGNITION	n/a	A*	47	55	3.479	0.02471	1.978	1
Journal of Experimental Psychology: Learning, Memory and Cognition	J EXP PSYCHOL LEARN	n/a	A*	78	99	2.862	0.01560	1.492	1
Low Rated									
Psychological Reports	PSYCHOL REP	n/a	C	686	528	0.560	0.00294	0.202	4
Perceptual and Motor Skills	PERCEPT MOTOR SKILL	n/a	C	721	534	0.546	0.00245	0.175	4
Management									
High Rated				1106 Total	337 Total (business, finance, management)				
Academy of Management Journal	ACAD MANAGE J	4*	A*	6	3	6.448	0.02813	5.738	2
Journal of Management	J MANAGE	4*	A*	9	4	6.071	0.02099	4.548	1
Journal of Management Studies	J MANAGE STUD	4	A*	27	20	3.763	0.01220	2.572	1
Low Rated									
European Journal of International Management	EUR J INT MANAG	1	C	572	284	0.457	0.00044	0.172	4
Cross Cultural Management: An International Journal	CROSS CULT MANAG	1	C	482	296	0.396	0.00100	0.300	4

Table 5.2 shows the different publications selected for the hypothetical resumes. The publications were chosen on the basis of several factors. Firstly, they were chosen for their similar target audience and relative examples were sought for both management and psychology participants. Management based faculty were sent a resume containing publication titles and content appropriate to the management journals listed in table 5.2. Psychology based faculty were sent a resume containing publication titles and content appropriate to the psychology journals listed in table 5.2 (see Appendices for copies of the resumes used as well as the full survey design). This was useful for two reasons. Firstly, this allowed for the creation of a resume with which it was likely that participants would be familiar with the journals contained in it as well as their ratings. In addition, it supported the creation of a hypothetical resume that was convincing and had an obvious career direction. Secondly they were selected to provide a clear distinction between the high and low rated journals. As you can see from table 5.2 the high and low rated journals are obviously distinct through all metrics. This was in order to control for the potential confound that some individuals might view journals of similar enough rating differently, in some cases dependent on what rating scale they prefer. A clear distinction between all publications on all rating scales was therefore necessary.

It is acknowledged that a resume that contains a degree of bi-polarity in quality could be a potential confound in responses to the hypothetical resumes. Participants could view the erratic rating of publications as an undesirable behaviour from a potential candidate. However, the necessity to confirm the distinction between the addition of low rated content was such, the list in table 5.2 was agreed upon.

For the purposes of this study the position of senior lecturer/associate professor was chosen for the outlined post in the survey to consider the candidate resumes for. This was partly in consideration that, for the position of senior lecturer, questions of the presentation and recognition of 'exceptionality' are raised (Miller & Morgan, 1993). At the beginning of the survey participants were instructed that the resume was to be considered for the position of senior lecturer, laying out a job description and essential criteria. This academic position was also given a North American translation so that the position of senior lecturer was comparable to associate professor when sent to the U.S.A. The resume and qualification of the candidate also needed to be translated. The defined candidate was from a British educational background. A 1st class honours degree was translated to be comparable to summa cum laude, albeit that this particular translation is difficult to make. An explanation of a Russell Group University meaning the top 24 research universities in the UK was given. Research grants were also given a conversion in dollars as well as that the ESRC was the

UK equivalent to NSF.

5.5 Determining a Sample

Analysis would need to be conducted between groups. For overall analysis a preferred sample size of at least 124 participants was required given that the study contained a control and treatment group of long or short resume, so 62 in each group. However, analysis between different demographic components of participants would also be of interest such as, gender, age, and rating of university. Demographic questions of this nature were therefore added to the survey design. In lieu of it being of interest to see whether such social biases, and indeed any negativity towards low rated journal publications, are affected by these demographics, a larger sample size would be required.

In addition to these demographic questions, it was also important to investigate these social biases across academic disciplines and across countries. The discourse may be different depending on the discipline, and a change in institution or national specificity could result in there being a different, or even no structure around which a social bias against low rated journal publications could or would form. It was therefore decided that a sample for the empirical work in this thesis would be drawn from populations from two counties and two disciplines. Owing to the fact that different types of university and indeed discipline have different emphasis on research, teaching and other attributes when deciding on the best candidates to hire (Meizlish & Kaplan, 2008; Parley & Zanna, 1987), it was decided that the two disciplines that were chosen to be studied needed commensurate with each other and have similar emphases when considering hiring academics for tenure. The two disciplines were therefore chosen from social sciences. Equally institution type, as well as rating, has an impact on what is emphasized in hiring tenured academic. The universities across the two countries chosen would therefore have to be of commensurate rating also.

Sending resumes across disciplines and across cultures would add additional factors into the study design. The resumes and job outlines needed to be tweaked depending on the discipline and country the participant was from. In the case of discipline, an equivalent resume had to be created with recognizable journal publications and appropriate titles for each discipline. The ratings of the journal publications on each resume had to remain consistent. Furthermore, an equivalent conversion for grant income and job description had to be provided. To be able to check whether the resumes being sent out were commensurate with expectations in different countries, academics within those countries needed to be consulted. In lieu of this there was a need for access to individuals who were familiar with each of the disciplines. This dictated, to some extent, the eventual sample choice. A small

pilot was also run before sending the survey out in large volumes of survey invites out. This also helped to gauge likely response rates.

It was therefore decided that the sample would be taken across psychology and management faculty, both being social sciences. Samples across both disciplines would be taken from both the U.K. and U.S.A. In both countries, only faculty tenured at universities rated in the top 40 in their respective countries, according to QS world ranking at the time of data collection, would be contacted. The sample would also be taken only from tenured academics at these institutions that had a likelihood of sitting on real appointment panels for tenured academics at their university, this involved an exclusion criteria for positions that were unlikely to be involved in such decisions. The aim was to contact those likely to have experience in assessing academic resumes, which comprised of emailing all faculty at assistant professor (U.S.A.)/lecturer (U.K.) or higher. Teaching fellows (U.K.) and lecturers (U.S.A) were excluded as were research assistants, PhDs, adjunct professors and professors of practice.

Given that analysis would be conducted across treatment and control groups, across countries and disciplines, as well as between certain other demographic factors, a much larger sample would be required. Each treatment and control group could be divided three more times over for certain analysis. A minimum sample of 992 participants would therefore be required (124x2=248x2=496x2=922). Expecting a response rate of around 10% it was likely that a minimum of 9,000 academics, meeting the aforementioned criteria, would have to be contacted.

5.5.1 Acquiring Participants

In order to contact that number of academics, an online survey would need to be used. For this, the hypothetical job outline and survey platform would be created on Qualtrics. This tool would be particularly useful given that attached documents could be added to the platform for participants to view. Being able to assess the candidate against the job specification by the resume appearing in a different window could be useful for participants and get a better completion rate. As part of having to view a resume document in a separate window, before answering the questions within the survey, participants were asked to confirm that they were viewing the attached resume document and were considering it in relation to the outlined academic position. Those who failed to confirm this were excluded from the sample. At each stage of the survey, participants could not progress to the next section until responses to all questions had been given, except for the final stage of the

survey pertaining to the demographic questions, where participants could choose not to fill this information in.

The large sample size and online survey would also require participants to be contacted via email. It was preferable that the participants were contacted at their own email address and approached directly by their name and title. This was to encourage participation rates and be personable in requesting their time and effort. The only way to accumulate such information was by going through, individually, faculty websites that met the criteria for our sample. A large database of names, titles and faculty type was therefore eventually created through this means to establish the target sample for the research.

During this process, it also became a concern that there was an eventual possibility of a selection bias if a selected sample of academics were approached from this database. It was therefore decided to send an approach email and survey to all academics at the top 40 universities in their respective countries, according to QS world rankings at the time of data collections, that met our criteria for job title and faculty discipline. The responses were therefore determined solely by response rate. The high volume of emails needing to be sent precluded writing each email individually. A mail merge was therefore used from the database that was created, sending an email that addressed the participant by name and title directly. It also sent an appropriate approach depending on the faculty discipline of the participant as well as their country. It also sent a link to a Qualtrics survey commensurate with both the national and disciplinary specificity of the participant. The Qualtrics platform was compatible on different platforms, although unfortunately some participants reported some issues accessing it on iPhone.

Whilst contacting all academics that met the criteria for our sample removed any possible selection biases in our sampling method and who we approached, a biased rate of response could still occur. For example, the use of both an online approach through email and a subsequent online survey platform could potentially restrict those with less frequent contact or familiarity with online platforms. This may have to a very slight degree impacted on much older academics, though it is expected that these would have a sufficient contact with email and online proficiency. There may also have been some degree of issue that academics who felt more work pressured were less likely to take the time to fill out the survey, or not complete it. This might have excluded certain academic positions more than others. In addition, we were contacting individuals who potentially had personal involvement, experience and strong opinions on how tenured academics are hired. It is therefore possible that the sample we recruited has an emphasis on those who hold strong views on a particular aspect of academic hiring. Although given that participants only

viewed a single resume, they were not aware of the treatment effects, nor were they instructed to focus on any particular aspect of the candidate. They were simply instructed to review a single resume for a specified outlined post.

Participants were made aware that the position and hiring scenario for which they were considering the resume was hypothetical. Participants would have potentially known if such a post was being advertised, especially when asked to consider their own department. The same hypothetical position was outlined to all participants editing for appropriate schools.

All participants were shown a participant information sheet on the first screen of the online survey, they could not proceed to the survey until it was confirmed that the participant information sheet had been read and understood, as well as confirming their consent to participate in the study given the information. The participant information sheet informed participants that the study aimed to assess how academic resumes were assessed, potentially contributing to both published work and a PhD thesis. A brief description of the requirements asked to complete the survey content was then given. It was acknowledged that certain demographic questions such as age and gender would be asked, but anonymity of the participants was assured as well as appropriate handling of the data collected. It was assured that the data would be stored in an anonymous format and that participants were entitled to withdraw from the study at any point, without a reason. Contact information was given, should participants wish to acquire more information about their participation. It was confirmed at the end of the participant information sheet it was confirmed that this project had been approved by the University of Stirling Management School Ethics Committee.

During ethical approval, it was confirmed that this project does not involve vulnerable groups, sensitive topics, deception which is conducted without participants' full and informed consent, personal or confidential information concerning identifiable individuals. Also, that the research would not induce psychological stress, anxiety or humiliation or cause more than minimal pain, or intrusive interventions which participants would not encounter in the course of their everyday lives. In addition, it was confirmed that the research did note contain a possibility that the safety of the researcher may be in question. The application was logged internally as Appl 3- 2015-16 and was approved on the 16th of October 2015.

5.5.2 Participant Recruitment Summary

Responses were collected from 1,011 faculty staff via an online experimental survey design. Responses were collected across countries and disciplines. There were 288 responses

from U.K. based psychology faculty, 131 from U.S.A. based psychology faculty, 426 from U.K. based management faculty, 166 from U.S.A based management faculty. To control the differences of hiring focus of different types of institution and faculty (Meizlish & Kaplan, 2008), all discipline samples were from social sciences and from top 40 universities in their respective counties, according to QS world ranking at the time of data collection. The 1,011 participants were recruited by emailing 11,324 university faculty and asking them to complete the online Qualtrics survey. The emails were personalized and addressed to the recipient by title and full name. This information and their contact details were collected from faculty web pages. The aim was to contact those academics with the highest likelihood of sitting on appointment panels, which comprised of emailing all faculty at assistant professor (U.S.A.)/lecturer (U.K.) or higher. Teaching fellows (U.K.) and lecturers (U.S.A) were excluded as were research assistants, PhDs, adjunct professors and professors of practice. In order to control for any selection bias all faculty that met these criteria were emailed. This amounted to emailing 1,583 U.K. psychology faculty, 3,851 U.K. management faculty, 1,466 U.S.A. psychology faculty, 4,424 U.S.A. management faculty. The resultant response rate averaged around 9% across all disciplines and countries, however response rates were higher from the U.K. and lower from the U.S.A.

5.6. Quantitative Data Analysis

The hypothesis behind this study is that journal rating, and particularly publications in high rated journals, have become the dominant criteria around which candidates for academic posts are being hired (Rynes, 2007; Ozgilbin, 2009). This is in contrast to the previous discourse that quantity of publications on an academic resume was the measure of productivity by which individuals were hired (Reidenberg, 1989; Mooney, 1991; Long, Allison & McGinnis, 1993). The discourse suggesting that journal rating has become the dominant criteria around which individuals are hired has not considered how this focus could be a social bias. Nor has it considered other potential related social and cognitive biases identified by behavioural science. This is at odds with wider discrimination and hiring literature that tends to situate analysis within the context of cognitive processes.

5.6.1 Overall Hypothesis

This discourse may therefore represent a fruitful opportunity whereby behavioural science social and cognitive biases can be introduced to an empirical hiring situation, whilst contributing to knowledge within a modern discourse. It is also a clear empirical discussion with real world implications. Given that this is an academic discourse within an academic

hiring situation, those writing in this discourse are actively involved in the process of recruitment. The opinions they hold and the advice that they give could have real career outcomes. In addition to all this, the current discourse only considers that those making the hiring decision are positively weighting in favour of high rated publications, not whether they are negatively weighting the low rated content. This would also be an important contribution both to the discourse as well as empirical situations and outcomes. This study therefore aimed to test possible social biases surrounding the quantity of publications vs. quality (high rated) publications debate. The hypothesis would be that there is a social bias negatively weighting against the addition of low rated publications.

The aim of the initial investigations into the data were to test the overall hypothesis. Whether additional low rated publications add or detract from the value of a resume, across countries and across disciplines. Participants were asked if they thought the candidate resume was generally hireable for the outlined position as well as hireable given the criteria at their institution. These were simple binary yes or no responses. These were kept binary as this would reflect an actual hiring decision. These could then be compared to consider to what extent a social bias towards or against content or journal rating was correlated with considering the candidate hireable more generally or at the participant's own specific institution. It is from the responses to these questions that a preference for a resume between treatment and control groups could be determined. The assumption that only high rated publications are a contribution to a resume has real consequences in academia, so understanding any value of low rated journal publications is important. Further underlying evidence of potential social biases would then be investigated further.

5.6.2 Underlying Factors in Likert Scale Statement Responses

As a part of the Qualtrics survey used for the online randomised control trail, participants were asked to rate how much they agreed with a series of Likert scale statements about the candidate. They were asked to rate how much they agreed with each statement using a sliding Likert scale response, at a range of 0-100. The questions were intended to investigate different aspect of how the participant was reviewing the job candidate outlined to them.

There were statements trying to illicit whether the candidate resume was meeting the expectations of the participant. For example, "I believe this person has a research profile expected of a career path." There were also statements pertaining to the consistency of the candidate. This was trying to investigate whether participants were concerned about a level of inconsistency in the candidate's performance, with the publication record being the most

likely measure for different assessments of consistency. There were therefore statements like "I believe this person has not shown a consistent level of performance in their career." There were also statements asking participants to assess the potential of the candidate. For example, "I believe this person has the potential to be academically renowned in the future". This was to see whether participants were more concerned with the potential of the candidate, or whether the candidates existing resume meets the criteria. There were also therefore statements on whether the candidate met the criteria for the outlined position such as "I believe this person meets the criteria outlined for this academic post".

As with the yes/no questions for considering the candidate appointable, these questions were asked in two contexts. The first being whether the candidate was appointable for the outlined academic post more generally. The second being whether the candidate resume would be considered for the outlined academic post at the participant's own institution. The reason for separating out the contexts was again to investigate whether if asking participants to consider their own department exaggerated certain opinions and biases. In particular, social biases and expectations may be strengthened by 'in-groups' and particularly embedded institutional beliefs. It is also interesting to note if any negativity or positivity towards a candidate for a job at a specified level is strengthened or weakened by participants having to consider that individual at their own department or environment, opposed to at any institution at this level.

The reason for adding questions on expectations were to assist in investigating the possible identified social biases. It is by being presented with information that conflicts with your expectations of what 'should' be done or conflicts with accepted practice or discourse, that is likely to trigger the types of relevant behavioural economics social biases identified. For example, through a 'backfire effect', where people react to unwelcome information by supporting their original belief more strongly, could result in a re-enforcement of a belief that high publications should be targeted, if low rated publications are presented.

Some of the statements were written as positive statements about the candidate, others were written as negative statements about the candidate. But participants were still asked to rate how strongly they agreed with the statement in the same direction across all statements. This reversal of positive and negative statements through the statement response section was in order to control for possible errors and systematic clicking. Where some participants might simply be systematically giving similar scores to statements. There were some interesting findings from asking participants to agree with negatively weighted statements about the job candidate. These are discussed more in the results section of this thesis.

In order to investigate possible social biases further, it was useful to utilize the responses to the Likert scale scored responses to these statements. As a first step in investigating shared patterns in the responses to these statements, an exploratory factor analysis would need to be conducted. Factor analysis has been used to investigate job choices (Bellou, Rigopoulou & Kehagias, 2015), organisational commitment and satisfaction (Kaya & Ceylan, 2014), and in the assessment of job candidates (Kwan, 2012). It is therefore an appropriate method for the purposes of this research.

The Likert scale questions, asked to the participants when considering the candidate resume for the outlined position, were a series of statements. Participants were asked to rate on a 0-100 scale how much they agreed with that statement. All 16 statements therefore had responses on a scale of 0-100. This facilitates the running of a factor analysis amongst these same-scaled items. The statements were designed to elicit how the participants felt about the candidate. In particular, they were designed to assess whether the candidate was meeting the expectations of the participant, over and above whether the candidate was simply appointable for the outlined position. Expectations should be linked to institutional demands and are thus important in understanding more precisely what these are. Of the 16 statements given to the participants, 5 were negatively weighted statements, the rest were positive. Negative statements were added to help control for systematic clicking. For the purposes of the analysis of results these negatively weighted statements were reverse scored, and thus listed as reversed. There were some interesting findings from asking participants to agree with negatively weighted statements about the job candidate. These are discussed more in the results of this thesis.

5.6.3 Parallel Analysis

Principal component analysis (PCA) can be a common first step for an exploratory factor analysis (EFA) (Streiner, 2013). However, for the purposes of this study a full EFA was run. The measurement of errors and covariance between observed variables in a full EFA, that are not in PCA (O'Rourke & Hatcher, 2013), was more appropriate, especially given the intention to conduct a confirmatory factor analysis (CFA) thereafter. Simple practice for conducting an exploratory factor analysis, will eliminate factors with Eigen values lower than 1 as being genuine factors in the data. However, this practice has been criticized (O'Connor, 2000). In simple terms this practice can rule out potential factors that genuinely exist in the dataset. For this reason, a parallel analysis was run for this study. In the data for this research, comparing the raw data to 1,000 randomly generated permutations, showed that there were additional factors in the data that existed with Eigen values less than

1, which cannot be explained by randomness. The exploration of additional factors was particularly appropriate given that the aim of this factor analysis was use trends in statement responses to inform further analysis of possible social biases in the qualitative data.

5.6.4 Exploratory Factor Analysis

An exploratory factor analysis (EFA) was used to investigate the number and makeup of factors explaining the differences between the Likert scale statement responses. By doing this it is possible to see how similar responses to certain statements compare with responses to others. This similarity in response pattern to questions displays a covariance and similarity between these items in how they are viewed by the participant. Put simply the similar items can be considered to have been measuring the same source in decision-making. In this case the participant being a senior academic considering the research component of a resume for a hypothetical outlined post. An EFA was conducted for all data, the short resume responses only, and the long resume responses only, to assess any difference between groups given the need to investigate further the effects the treatment within the randomized control trial.

Once the number of these factors within the questions have been decided, the groupings of questions under a common factor must then be eyeballed and given an appropriate name given the content of the statements in each item (Heck, 1998).

5.6.5 Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was then used to investigate how well the items within each of the factors fitted, as well as which of the items within each of the factors fitted more strongly or weakly. This analysis was useful in order to illustrate the overall model as well as to investigate which statement response were most predictive or influential. The main reason for conducting a CFA in addition to the EFA was that it allowed for greater analysis of covariance between question item responses using modification indices, within factors as well as across factors. Importantly, given that the intention was to investigate the complex origins of a social bias derived from a discourse, resulting in different expectations, it was, for example, important to investigate how statements pertaining to expectations related to other expectations such as consistency or the ability to meet criteria. This was to be able to derive a possible locale in decision-making to investigate with further analysis, in particular to inform coding of the qualitative data.

The purpose of running the confirmatory factor analysis was not simply to confirm the structure found in the exploratory factor, as it would be inappropriate to use the same

data set to confirm the factors in the exploratory factor analysis. As aforementioned, it was the measures of covariance through modification indices that were of interest for further investigation. In terms of a true confirmatory factor analysis as would be usually run to reduce the item pool and dimensions of an existing validated scale, some of the items, especially the responses to the negatively weighted statements, would have been dropped if this were the case, owing to model fit. These were however retained to allow for analysis of covariance between these items and other factors as well as the negative weighting of the statements being a prominent explanatory factor for their fit. There was only a single item that was dropped in lieu of poor fit. This item was 'potential collaborate with me', as it appeared collaboration was a factor of its own. This was indicated in the EFA. For purely illustrative purposes this item is shown in the CFA, but not included in the model. It's inclusion in the CFA illustration is to demonstrate the covariance had it been retained. This was to investigate further how the issue of collaboration might have differed given a different resume type.

There is no claim made here that the statements and thus the factors in the responses are intended to be a scale by which the assessment of academic resumes can be objectively measured. However, put simply the exploratory and confirmatory factor analysis are used to explore trends in academic resume assessment, with the sole purpose of helping to inform further analysis of qualitative data as part of an in depth mixed-method illustration of the use of behavioural science as a framing for investigating employment issues.

A CFA was run using the factor structure as found when analysing all data, but was re-run using just the long resume responses (the resume with lower rated publications in addition), and the short resume responses (the resume with only the high rated publications). This was to see what change the resume type to the strength of fit and covariance between items and factors.

The exploratory, and subsequent confirmatory, factor analysis would be carried out on all of the Likert scale statement responses together, including those in the generally hirable at this level context as well as the hirable within the participant's own department context. Whilst those statements ultimately applied to the consideration of different contexts, it is useful to investigate covariance of items between the contexts.

The findings of the exploratory and confirmatory factor analysis could be used as indicators towards the main decision-making processes when assessing the academic resume. For example, it would be important to consider if there was covariance in response to statements pertaining to expectations as a distinct factor. If all responses to the statements were in the same single factor, then the statement responses might simply be reflecting a

general preference towards the candidate, rather than any particular decision-making based around expectations, consistency, potential or meeting the criteria for the position. Any distinct covariance could help identify how the candidate was assessed. These might also provide some level of indication towards supporting evidence for a social bias based on expectation, consistency or potential.

5.6.6 Investigating a Cohort Effect

In investigating the overall hypothesis and results of the expressed preference amongst participants for the long and short resumes, those who reported having been in academia between 10-20 years were indifferent between the two resumes. Whereas those both younger and older preferred the long resume with eight low rated journal publications, in addition to the same four high rated publications a displayed on the short resume. It is assumed that the additional low rated journal publications are rationally and objectively additional content supporting the long resume application, with all other contributions, including high rated publications, being identical to the short resume. It is therefore interesting to consider this potentially 'irrational' result in greater detail. It is possible that some of the social biases outlined, that could weight low rated publications negatively, are present in the 10-20 years as an academic cohort. It is particularly interesting to consider how a social bias could result in low rated journal publications being treated negatively through adherence to perceived social norms and expectations, whilst controlling for cognitive heuristics and biases in processing the information on or between resumes.

It is also important to consider a particular aspect of the discourse that, it is hypothesized here, may have created a preconception about what to expect of a publication record. That discourse changed over time. Prior to the early 1990s, the number of publications was the metric by which publication records were assessed. However, criticism of this emerged by the early 1990s, suggesting that assessing the quantity of publications does not account for the quality of those articles (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989). A shift therefore occurred where quality, particularly via means of journal rating metrics, became the focus for assessing publication records. However, by the late 2000s criticism of this practice emerged (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). This data was predominantly collected in late 2015. Pertinently, those within our sample who had been in academia 10-20 years will have been starting out and developing as an academic between the mid 1990s and mid-2000s. It is therefore likely that this group of academics in our sample were most strongly exposed to a discourse during their early career

pertaining to assessing publication records, that stated high journal rating as a priority. This is because they started to develop as academics after quality and journal metrics became the focus for assessing publication records, but before criticism of this process started to emerge and impact the discourse.

From the perspective of age, period and cohort effect, it is important to be able to utilize the data to be able to distinguish any inference made about a relationship to the change in discourse over time. The findings in the factor analysis of the Likert scale scored statement responses would be used to inform some of the investigations of this possible cohort effect. In the first instance responses to the three factors found in the exploratory and confirmatory factor analysis would be analysed depending on the number of years the participant had been in academia. The reason for this was to investigate whether there was any lower scoring for the long resume, with the low rated publications included, and if so what factors were affected. This was to be able to see which aspects of decision-making might be affected by the addition of low rated journal publications negatively, as well as indeed if a specific negativity existed for those in academia 10-20 years.

The findings of the exploratory and confirmatory factor analysis were also useful for informing other investigations within the data. The construction of factors as well as the modification indices within the confirmatory factor analysis indicated a number of trends within decision-making when considering the candidate resume. Using these trends and covariance, it is possible to identify some of the facets that might have determined a preference towards a candidate resume. These potential facets can be used to inform coding structures for analysis of the qualitative data.

To add further quantitative support to the qualitative data investigations, a simple word count of the written candidate feedback, splitting the feedback between those who had been in academia for 10-20 years and those who had been in academia more and less time, could help unearth any further aspects of resume assessment distinct to the 10-20 years in academia group. Any identifiable trend between those in this group and not, for a particularly highly used word, could also inform coding structures for analysis of the qualitative candidate feedback.

The analysis of the qualitative candidate feedback would be coded by different nodes that would be informed by the trends and covariance in the factor analyses, as well as the word count investigation between those who have been in academia 10-20 years and those who have been in academia more and less years. Those nodes could then be analysed separately to identify further trends within the candidate feedback.

5.7 Qualitative Data Analysis

The approach taken for this exploratory research was to utilize a range of methodological approaches and mixed-method. At each stage a framing of behavioural science was used to underpin investigations, leading to new enquiries. This meant that different types of data collected in the survey needed to be analysed using a range of techniques. The quantitative results on their own were not sufficient to confirm the source of decision-making and any potential social bias implicated in the decision. Other social biases could not be ruled out in explaining the indifference between the two resumes shown by those who had been in academia for 10-20 years. Analysis of the qualitative free text candidate feedback was therefore required to reveal more about how the candidate resume was perceived.

In our survey design, an opportunity was given to provide feedback to the job applicant on how they might be able to improve their application success in the future. This was requested once participants had assessed the candidate resume in relation to the outlined position and determined if the candidate was suitable both at this level more generally as well as specifically in their own department. This free text opportunity retrieved 40,646 words of feedback in total from the 1,011 participants. It is from this that analysis of the qualitative data would be coded. This research aimed to use both qualitative and quantitative data to unearth potential unique characteristics of the resume preference in those participants who had been an academic for 10-20 years.

The qualitative data of candidate feedback would then be coded in relation to these quantitative findings, then compared to the social biases potentially implicated in the consideration of academic resumes (table 4.1). For example, where issues of pre-determined expectations and consistency and potential are linked in the quantitative data, 'confirmation bias' and 'backfire effect' require a pre-existing belief or expectation. In terms of the context of this study, this would be the discourse on expectations of publishing in highly rated journals (Hitt & Greer, 2011; Vale, 2012). If expectations of high rated publications are now institutionally and individually influential (Lawrence, 2002; 2003; 2008; McDonald & Kam, 2007; Nkomo. 2009; Peng & Dess, 2010; Wilhite, & Fong, 2012) you would expect it would indeed become routine practice to look and consider for high rated publications. It is however a very different process to negatively weight lower rated journals. In this scenario you are not simply responding to an expectation for high rated publications, you are displaying a belief about publication that you are re-enforcing by viewing lower rated publications as a detraction from a resume. Identifying this more extreme behaviour could

become an important tool in identifying a social bias rather than a system or standard response.

In investigating the quantitative indications of how a preference for one of the two resumes might be formed, analysis of the responses to the statements about the candidate as well as the three factors found within them, provided some basis for formulating a coding strategy for the candidate feedback responses. It appears in analysing the trends in these factors across the number of years in academia, that a negativity towards the long resume is present for the 10-20 years as an academic group, opposed to a preference for the short resume. The results of the initial confirmatory factor analysis, particularly the covariance between items and factors, indicated that issues of meeting expectations, consistency, and potential were all linked, with consistency and potential being the two aspects that formed the most distinct factor. For this reason, expectations, consistency and potential would form three initial nodes for coding the qualitative data of candidate feedback. Negativity towards the long resume by those who had been in academia for 10-20 years in each of these aspects would be particularly interesting, especially given the trends found in assessing factor responses by years in academia.

The results of an initial word count of the candidate feedback content suggest that issues of quality were distinct considerations in the feedback for the preferred resume in both the 10-20 years in academia group as well as the others group. This suggested that coding in the qualitative data analysis for issues of quality is important to see how these issues differed, as they produced different preferred resumes in each of the two groups. The coding groups for the data are therefore issues of potential, consistency, expectations, and quality.

The initial coding nodes of the qualitative data, derived from the quantitative data, would be explored for additional trends using cluster analysis. It is from these cluster analyses that sub-nodes could then be coded as potentially important factors in decision-making. It is from these sub-nodes that more fine grained analysis of any indicators of social bias could be made. It is expected that a staged process to exploring the qualitative data would be required to narrow down the search space, given that indicators for unconscious social bias are likely to be very nuanced in the candidate feedback. It is the expected subtlety in how social biases might emerge in candidate feedback as well as the exploratory nature of these empirical investigations that determined a single large sampled mixed-method study.

Some investigation and use of illustrative quotes would be used to substantiate and contextualize the findings of the use of coding nodes. Quotes that confirm or illustrate the overall hypothesis, that there could be a negative reaction to the presentation of lower rated

journal publications, would be highlighted. It was important also to highlight quotes that match other issues highlighted in the creation of the nodes, such as specific factors in the factor analysis.

Particularly through the factor analysis, it was clear that having the potential to collaborate appeared to be a separate factor in considering the candidate, which was linked to that candidate's potential to contribute to the participant's own department. The reasons for this separate trend in the data would also benefit from further investigation during analysis of the qualitative feedback for the candidate. It is also important to note differences between those who had been in academia for 10-20 years and those who were not in this cohort.

The behavioural economics social biases identified that might cause a negative reaction to the presentation of low rated journal publications, or stop them from adding to the strength of a resume, needed a prior discourse or expectation to be adhered to. The use of qualitative free text helps investigate directly through the use of words and language, the facets of decision-making when assessing the candidate resume. The way these facets link to the overall findings of this study as well as the quantitative data analysis is useful for adding discussion and strengthening findings.

Using quantitatively derived data such as the exploratory and confirmatory factor analysis of the Likert scale scored responses to the candidate statements to inform qualitative analysis is a mixed-method approach. In the case of this research and thesis this was derived for two reasons. Firstly, as set out in section 1.3.1 Research Objectives, objective 1 was to develop and demonstrate the potential use of a behavioural science framing for research on employment. Demonstrating the use of the behavioural science framing across data types was therefore important. Secondly, it was intuitively the best way to utilize the dataset we had to explore the specific issue of a possible cohort effect, something we had not expected or designed the survey experiment for. The pursuit of this interesting finding led to methodological innovation, given the necessity to utilize the data that was collected in the best way possible.

5.8 Summary of Chapter

The methodological framework for this thesis was designed to demonstrate how using behavioural science as a framing might provide a particular insight into employment problems often being studied by labour economists, organizational behaviourists and human resource managers alike, contributing to research objective 1. It was important to demonstrate to scholars studying employment, and practitioners alike, how the theories and

approaches used in behavioural science might be used to inform research on employment as well as practice. This was in order to extend the initial demonstration of why behavioural science might be extended to human resource management through sub-disciplinary analysis and existing calls for the integration of the study of employment.

A mixed-method approach has resulted for two reasons. Firstly, it was the intention to demonstrate across methodologies and approaches, that behavioural science could be used as a framing to underpin investigations into employment issues. This was in order to demonstrate that behavioural science may be amenable to the methodologies of different disciplines that study employment, contributing to calls for research at the interdisciplinary intersection. Secondly, we did not find the expected overall hypothesis that the addition of low rated journal publications may be negatively weighted. However, the indifference between additional low rated publications on the resume and their omission, within the cohort of academics who had been in academia for 10-20 years, required further investigation. Analysis of the qualitative candidate feedback presented as the most appropriate way, within the data collected, to investigate further the decision-making of a particular subset of our sample. This would build on the quantitative data analysis

The empirical work is analysis on a dataset collected from an online randomized control trial survey experiment. The results gathered were utilized in a variety of ways to investigate the respective hypotheses, as well as the hypotheses that emerged. The initial investigations tested the overall mechanism and hypothesis of the randomised control trial, whether the addition of low rated journal publications on an academic resume was negative when considering the resume for a tenured academic position, compared with the omission of low rated journal publications, to fulfil objective 2. Investigations then used the Likert scale scored responses to statement within the survey designs about the candidate contained in the resume being reviewed for the outlined tenured academic position. Through a parallel analysis, exploratory factor analysis and confirmatory factor analysis, trends in responses to these statements were investigated. This was to gain further insight into the factors that determined the assessment of the candidate contained in the resume.

Using the trends and findings from these pieces of analysis on the survey data investigations were carried out into why those who had been in academia 10-20 years were indifferent to the inclusion or omission of low rated journal publications, and to what extent those in this cohort might be exhibiting the bias in our original hypothesis. This cohort investigation would utilize the full dataset, including a large amount of candidate feedback, using quantitative findings to then inform qualitative investigations, intended to enrich the quantitative findings while contributing to all three research objectives.

CHAPTER 6: QUANTITATIVE DATA FINDINGS

6.1 Introduction to Chapter

This chapter lays out the quantitative data findings in analysing the results from the online randomized control trial Qualtrics survey. The investigation of a possible social bias required multiple investigations into the dataset, including demographic differences to see if a bias might be distinct to a particular group of people. It also required investigations across the different types of data that had been collected, resulting in different methods for data analysis.

In testing the hypothesis of a social bias that might result in a negative reaction to lower rated journal publications being presented on a resume, as the quantitative analysis of the data progressed, further avenues of enquiry emerged. To be able to investigate these new questions, more of the data available in the dataset from the online randomized control trial Qualtrics survey needed to be utilized to answer these new questions. This included conducting an exploratory and confirmatory factor analysis on the responses to statements about the candidate.

It also became apparent that analysis of the qualitative data collected in the survey would be useful to investigate some of the quantitative findings further. As a result, further quantitative analysis was conducted to help support the qualitative data investigations as well as reducing the search space in exploring the possible sources of any potential social bias negatively impacting on the inclusion of low rated journal publications. The rest of this chapter is set out in the order of investigation and new enquiry. In the first instance the overall hypothesis, that a social bias such as 'backfire effect' may cause a negative reaction when additional low rated journal publications are presented, is explored. The overall hypothesis is explored across different demographic variables. The factor analysis of the Likert scaled questions follows, to unearth common covariance between the items indicating patterns of decision-making. The finding that those who had been in academia 10-20 years differed, from those who had been in academia longer and shorter times than this, is then explored. This culminates in analysing trends indicative of a 'backfire effect' amongst those who had been in academia 10-20 years, setting up a basis for coding nodes in analysing the qualitative candidate feedback.

6.2 Results on the Overall Hypothesis

The overall hypothesis of the randomized control trial was that, given a social bias such as 'backfire effect' where people tend to re-enforce their original beliefs more strongly

when presented with information that contradicts those beliefs, it might be that the presentation of low rated journal publications in addition to high rated publications may have a negative impact. The main treatment of the randomized control trial was to either include or omit eight low rated journal publications from an otherwise identical resume that included four high rated publications. If there was a social bias causing a negative reaction against the presentation of low rated journal publications, it would therefore be expected that the shorter resume, with only the high rated publication would be preferred. Such a finding would be a response that is not fully rational, given that the addition of the lower rated journal publications is objectively additional content to add to the candidate's strengths, with all other aspects being identical.

Figure 6.1: General and Departmental Context Candidate Preference Bar Graphs.
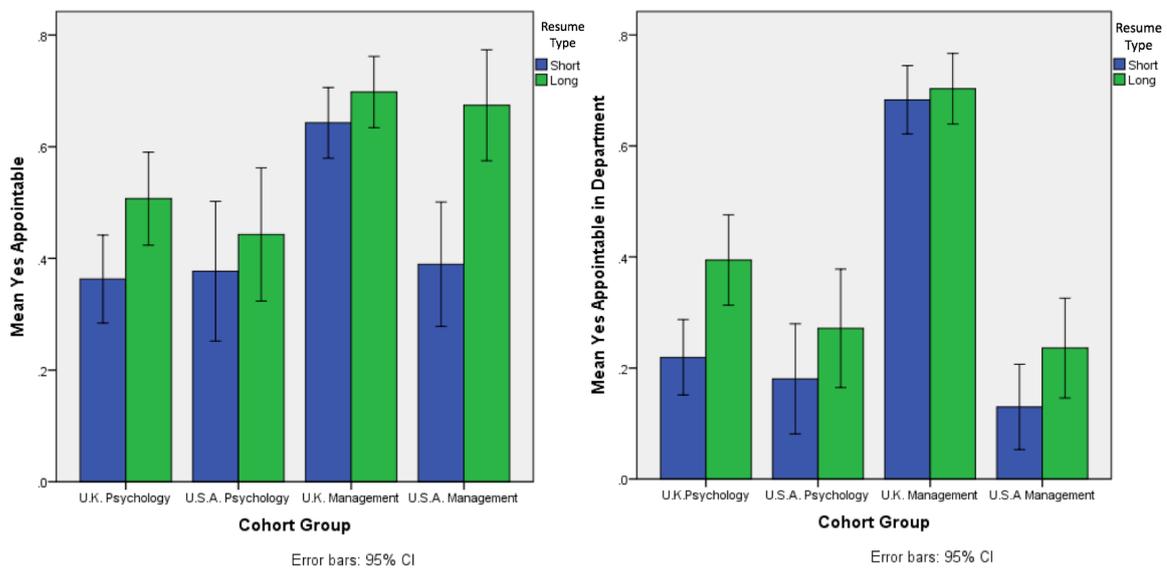
Figure 6.1 shows bar graphs of the main treatment and control effect between different countries and academic disciplines. The results clearly show that across disciplines and countries, the additional resume content of low rated publications adds some value. On average the longer resume was seen as more preferable to appoint across all country and discipline groups, including when asked if the candidate was hireable at this level generally or specifically at the participant's own department. Interestingly however, when looking at the confidence intervals this was not always significantly so, when considering whether the candidate was generally hireable at this level. In this instance the most significant preference for the long resume was amongst U.S.A. based management scholars (N166). In the case of considering whether the candidate was hireable specifically at the participant's own

department at this level, the strongest preference for the longer resume was amongst U.K. based psychology faculty (N288).

It is also interesting to observe that in three of the four country and discipline groups the candidate was deemed as substantially less hireable when considering the candidate specifically for appointment in their own department at this level compared with whether they would be hireable more generally at this level. However, in the fourth cohort, U.K. based management scholars (N426), both the long and short resumes were considered more hireable at the participants department at this level, than hireable at this level generally. Given that it was only the top 40 universities in each country according to QS world rankings at the time of data collection that were contacted, it is perhaps not surprising that there would be a more strict analysis of the candidates suitability for appointment when considering the appointment at the participants' own department, compared with any university. It is reasonable to expect more at a higher rated university. However, the results amongst U.K. based management scholars indicate they were particularly impressed by both resumes.

Participants were asked whether the candidate was hireable at any university at the outlined level of senior lecturer/associate professor or specifically at the participant's own department. This was done to be able to investigate any potential in-group bias or system justification. The premise would be that there could be a preference reversal when considering the candidate resume as a contribution to the participant's own group. In looking at the preference towards the two resumes, considering the candidate at the participant's own department had negative impact on both resumes, with the difference between the resumes remaining similar. At this level of analysis it appears that there were no effect on the difference between the treatment and control groups given the different contexts.

Table 6.1: Average Yes and No Responses to Resumes.

		U.K. Psychology (N288)		U.S.A. Psychology (N131)		U.K. Management (N426)		U.S.A. Management (N166)		Total Average (N1011)	
		Short Resume (N146)	Long Resume (N142)	Short Resume (N61)	Long Resume (N70)	Short Resume (N224)	Long Resume (N202)	Short Resume (N77)	Long Resume (N89)	Short Resume (508)	Long Resume (503)
Hireable Generally at this Level	Yes	36.3%	50.7%	37.7%	44.3%	64.3%	69.8&	39.0%	67.4%	49.2%	60.4%
	No	63.7%	49.3%	62.3%	55.7%	35.7%	30.2%	61.0%	32.6%	50.8%	39.6%
Hireable in Department at this Level	Yes	21.9%	39.4%	18.0%	27.1%	68.3%	70.3%	13.0%	23.6%	40.6&	47.3%
	No	78.1%	60.6%	82.0%	72.9%	31.7%	29.7%	87.0%	76.4%	59.4%	52.7%

As a more general observation pertaining to the robustness of the randomized control trial survey design, the average yes/no responses as shown in table 6.1 showed a 49:51 split or 51% in favour of considering the short resume generally not suitable for appointment as a senior lecturer/associate professor. With this resume containing just the four high rated publications as highlighted in table 5.2. This average preference for the candidate fell to roughly a 41:59 split or 59% in favour of rejecting this candidate at this level in the participant's department specifically. Meanwhile for the long resume, containing the four high rated publications and eight lower rated publications, there was roughly a 60:40 split or 60% in favour of considering this candidate appointable more generally at this level. This fell to a 47:53 split or 63% in favour of rejecting this candidate at this level specifically in the participant's own department. The less preferred short resume, with the low rated publications omitted, was marginally rejected at the generally hireable level. The overall preferred long resume, with the low rated publications included was considered favourable for appointment at the outlined level of senior lecturer/associate professor at a university generally. These relatively even splits suggest that the design of the resumes was appropriately balanced for an application at this level. Either a strong average preference for acceptance or rejection would have suggested the resumes were either too strong or too weak for an application at this level, potentially creating a confound in the data.

Analysis of average acceptance and rejection of the resumes across different country and academic discipline groupings, shows stark differences both in table 6.1 and figure 6.1. U.K. management based faculty comprised a substantial proportion of the data that was

collected and their strong preference towards both resumes has a sizeable impact on the overall average. U.K. based management scholars, were strongly in favour of appointing both the long and short resumes, with that preference increasing further when considering the participant's own department. U.S.A. based management faculty were in favour of appointing the long resume more generally but there was a strong reversal in this preference when considering the candidate at this level specifically in the participant's department. U.S.A. based management faculty were however in favour of rejecting the short resume in the generally hireable context. U.K based psychology faculty were in favour of considering the long resume suitable in the generally hireable context but not the short resume. All other contexts and discipline and country groupings were in favour of rejecting both resumes on average.

6.3 Demographic Analysis

At the end of the online survey, there was an opportunity for participants to provide us with some demographic information to be able to investigate any cohort, in-group or possible system justification effects in the preference towards a resume. This information was not compulsory to complete the survey, however response rates to this information were very high.

In terms of the age component of assessing demographics, there were four different questions containing variables that expressed a measure of age; age, year of PhD, years as and an academic; years in current department. Year of PhD was converted into a measure of years since PhD. It was found when conducting a principal competent analysis on the four age variables as well as a maximum likelihood factor analysis, that these four variables were described by a single factor, explaining 87% and 84% of the variation respectively. In this analysis, years as an academic had the highest factor loading of 0.963 and 0.968 respectively. In lieu of this as well as the desire to have a good metric for academic experience, years as an academic was used to assess the demographic of age.

Table 6.2: Generally Hireable Context Demographic and Descriptive Statistics

		Short Resume				Long Resume				Sig. Between Resumes
		Yes	No	Total	Sig.	Yes	No	Total	Sig.	
	Total	49.2%	50.8%	508		60.4%	39.6%	503		0.000***
Gender	Male	51.0%	49.0%	316	0.371	64.3%	35.7%	305	0.018*	0.001***
	Female	46.8%	53.2%	190		53.6%	46.4%	194		0.185
Years as an Academic	0-10	49.8%	50.2%	207		66.7%	33.3%	195		0.001***
	10-20	53.2%	46.9%	143	0.356	52.8%	47.2%	144	0.035*	0.950
	20+	44.9%	55.1%	158		59.8%	40.2%	164		0.008**
Discipline	Psychology	36.7%	63.3%	207	0.000***	48.6%	51.4%	212	0.000***	0.014*
	Management	57.8%	42.2%	301		69.1%	30.9%	291		0.004**
Country	U.K.	53.2%	46.8%	370	0.003**	61.9%	38.1%	344	0.318	0.019*
	U.S.A.	38.4%	61.6%	138		57.2%	42.8%	159		0.001***
University Rating	Top 20 in Country	52.2%	47.8%	337		61.0%	39.1%	338		0.022*
	20-50 in Country	43.2%	56.9%	146	0.144	60.3%	39.7%	146	0.746	0.003**
	Below 50 in Country	57.9%	42.1%	19		50.0%	50.0%	12		0.667
Department Rating	Top 20 in Country	49.9%	50.1%	361		62.0%	38.0%	358		0.001***
	20-50 in Country	48.4%	51.6%	124	0.915	53.4%	45.6%	125	0.225	0.343
	Below 50 in Country	53.8%	46.2%	13		71.4%	28.6%	14		0.345[a]

* p < 0.05 ** p < 0.01 *** p < 0.001
Note: [a] = 25% of cells expected cell count less than 5 (higher than 20% threshold) during chi-squared analysis. A low N potentially hides a sig. difference.

Table 6.2 shows the average yes/no responses to whether the candidate was considered hireable at this level generally, split by resume type and demographic breakdown. Analysis of these results split by demographic and resume type are shown next in section 6.3.1 and 6.3.2.

6.3.1 Between Demographic Components – Generally Hireable Context

For the short resume the most significant difference was between academic disciplines, with management scholars much more in favour of accepting the both resumes than the preference for rejection in psychology (p=0.000). Country was also a significant difference with U.K. based faculty being on average in favour of accepting the short resume and U.S.A based faculty on average being in favour of rejection (p=0.003).

In the long resume, again the most significant difference between demographic factors was discipline (p=0.000). In the case of the long resume however, psychology based faculty remain relatively indifferent to the candidate (49:51), the significant difference is largely explained by the strong preference for the long resume amongst management scholars. In the case of the long resume, country was no longer a significant factor as there was a strong preference for accepting the long resume across both countries.

There was some significant difference between the demographics of age or the number of years in academia in the long resume (p=0.035) this is accounted for by the strong preference amongst the 0-10 years as an academic group and the 20+ groups for accepting the long resume. The 10-20 years as an academic were indifferent between the two resumes. The 0-10, 10-20 and 20+ divisions of years an academic was determined by spitting the data into even tertiles of frequency then rounding to the nearest decade. This indifference for those who had been in academia 10-20 years is explored further in chapter 7 of this thesis.

There was also some significance of gender in the long resume (p=0.018), with males having a much stronger preference for accepting the long resume. This gender difference was however not the case for the short resume. This appears to be explained by the much higher preference for the long resume shown by males compared with the relative indifference for the short resume for both genders. The candidate resume was male, and there can be different expectations for women and men regarding productivity in terms of the number of academic publications produced (Mooney, 1991). It is possible that males considered the long resume to have a high productivity for a male, but females did not perceive this to be high level of productivity compared with what would be expected of them. Another contribution to this finding may be that management schools were more male dominated than psychology. U.K. management faculty liked both long and short resumes, but U.S.A based management faculty had the strongest preference for the long resume.

It was also investigated as to what extent the relationship with age and gender could explain the gender preference. There was a relatively linear relationship between the proportion of males and females given the years in academia, with an even split between those just starting out as academics declining with the number of years in academia until being dominated by males in the older generation. There was an interesting coinciding trend with the 10-20 years in academia group where the decline in female proportion is halted at this stage and then continues after this cohort. Yet, there was not a higher male or female proportion above and below 10-20 years in academia so is unlikely to explain differences.

University and department rating made no difference within the long and short resume consideration. This can however be largely accounted for by the design of the study

intentionally contacting universities of a similar rating, and indeed focus. Thus, accordingly almost all participants rated their universities and departments in either the top 20 or top 50 in their country, this is consistent with the participant recruitment strategy of contacting only universities in the top 40 in their country according to QS world ranking at the time of data collection. There were so few respondents selecting between 50-100 in their country or lower than 100, that the two were aggregated to form the below 50 grouping.

6.3.2 Between Resumes - Generally Hireable Context

There were many significant differences across each demographic component when presented with either the long or short resume. This was to be expected, as it was the main treatment in the randomized control trial. On average, there was a significantly stronger preference for the long resume containing the lower rated publications in addition to the high rated (p=0.00).

Males strongly preferred the long resume (p=0.001) however females were indifferent between the two resumes.

In terms of age and the number of years in academia, there was some interesting findings. The 0-10 and 20+ years as an academic groups were strongly in favour of the long resume (p=0.001 and p=0.008). The 10-20 years as an academic group were remarkably indifferent between the two resumes (p=0.950). This robust indifference of the 10-20 years as an academic group is of particular note.

Psychology faculty had a strong preference for rejecting the short resume but were indifferent to the long resume (p=0.014). Management scholars however had a preference for accepting both resumes but a very strong preference for accepting the long resume (p=0.004).

U.K. based faculty were relatively indifferent to the short resume but had a strong preference for accepting the long resume (p=0.019). U.S.A. based faculty however were strongly in favour of rejecting the short resume and accepting the long resume (p=0001).

Those who rated their university in the top 20 in their country had a slightly stronger preference for accepting the long resume, although in favour of accepting both resumes (p=0.022). Those who rated their university between 20-50 in their country were in favour of rejecting the short resume and accepting the long resume (p=0.003). Those who rated their university as below 50 in the country were relatively indifferent. Although in this instance the low sample size (N=19, N=12) potentially hides the fact that they had a preference for accepting the short resume and were indifferent to the long resume. It may be

of interest to conduct further research into this preference for the shorter resume amongst those who rated their university lower.

Those who rated their department as being in the top 20 in their country were indifferent to the short resume but had a strong preference for accepting the long resume (p=0.001). Those who rated their department as between 20 and 50 in their country were indifferent to both resumes. Whilst there was no significant difference between those who rated their department as lower than 50 in their country, again the low sample size (N=13, N=14) may obscure the possible observation that they were indifferent to the short resume but had a strong preference to accepting the long resume. Again, it may be of interest to study a sample of academics who are more likely to rate their department lower.

Table 6.3: In-Department Hireable Context Demographic and Descriptive Statistics

		Short Resume				Long Resume				Sig. Between Resumes
		Yes	No	Total	Sig.	Yes	No	Total	Sig.	
	Total	40.6%	59.5%	508		47.3%	52.7%	503		0.030*
Gender	Male	42.4%	57.6%	316	0.317	49.5%	50.5%	305	0.214	0.076
	Female	37.9%	62.1%	190		43.8%	56.2%	194		0.238
Years as an Academic	0-10	40.1%	59.9%	207		51.8%	48.2%	195		0.019*
	10-20	48.3%	51.8%	143	0.045*	43.8%	56.3%	144	0.270	0.444
	20+	34.8%	65.8%	158		45.1%	54.9%	164		0.045*
Discipline	Psychology	20.7%	79.2%	207	0.000***	35.4%	64.6%	212	0.000***	0.001***
	Management	54.1%	45.9%	301		56.0%	44.0%	291		0.649
Country	U.K.	50.0%	50.0%	370	0.000***	57.6%	42.4%	344	0.000***	0.043*
	U.S.A.	15.2%	84.8%	138		25.2%	74.8%	159		0.034*
University Rating	Top 20 in Country	43.0%	57.0%	337		49.1%	50.9%	338		0.113
	20-50 in Country	36.3%	63.7%	146	0.384	43.8%	56.2%	146	0.522	0.189
	Below 50 in Country	42.1%	57.9%	19		41.7%	58.3%	12		0.981
Department Rating	Top 20 in Country	39.3%	60.7%	361		47.5%	52.5%	358		0.027*
	20-50 in Country	42.7%	57.3%	124	0.243	45.6%	54.4%	125	0.414	0.650
	Below 50 in Country	61.5%	38.5%	13		64.3%	35.7%	14		0.883[a]

*p < 0.05 ** p < 0.01 *** p < 0.001*
Note: [a] = 25% of cells expected cell count less than 5 (higher than 20% threshold) during chi-squared analysis. A low N potentially hides a sig. difference.

Table 6.3 shows the average yes/no responses to whether the candidate was considered hireable at this level specifically at the participant's own department, split by resume type and demographic breakdown. Analysis of these results split by demographic and resume type are shown next in section 6.3.3 and 6.3.4.

6.3.3 Between Demographic Components – In-Department Context

When considering the short resume, the most significant demographic differences were between discipline and country ($p=0.000$, $p=0.000$). In terms of discipline, psychology faculty had a very strong preference for rejecting the short resume. In terms of country U.K. based participants were indifferent to the short resume but the U.S.A. based faculty were very strongly in favour of rejecting the short resume. Again, this might be partly explained by the strong preference for hiring for both resumes by U.K. based management scholars ($N=426$).

In considering the short resume, there was some difference between the number of years in academia ($p=0.045$). Again, the participants who had been an academic for 10-20 years were indifferent to the resume whereas those who had been in academia longer and shorter than this number of years were in favour of rejecting the short resume.

6.3.4 Between Resumes – In-Department Context

When considering whether the candidate was hireable at this level specifically in the participant's own department, there were less significant differences between the long and short resumes in each demographic characteristic, compared to considering the candidate hireable more generally. This is partly due to the greater overall tendency to reject both resumes when considering one's own department. Overall there was a slightly stronger tendency to reject the short resume ($p=0.030$).

There was no difference between different resumes when considering one's own department, given a participant's gender.

The number of years as an academic again brings some interesting results, with those who have been in academia for 10-20 years remaining indifferent between the long and short resumes ($p=0.444$). However, those who have been in academia fewer and greater years than this have a much stronger preference for rejecting the short resume ($p=0.019$, $p=0.045$). This continued indifference between the two resumes in the group of participants who have been in academia for 10-20 years is worthy of further investigation.

Psychology faculty had a very strong preference for rejecting the short resume (p=0.001), although they rejected both resumes on average. Management scholars were indifferent between the two resumes, favouring acceptance.

There is an interesting dynamic between the two countries. U.K. based faculty were indifferent to the short resume but favoured hiring the long resume (p=0.043). Meanwhile the U.S.A. based faculty strongly favoured rejecting the short resume, with this rejection being maintained but reduced in the long resume (p=0.034).

University and department rating give very consistent results between the two resume types. Except those who rated their department as being in the top 20 in their country had a slightly stronger preference for rejecting the short resume (p=0.27).

6.4 Summary Overall Hypothesis and Demographic Results

The results in investigating the overall hypothesis, that a negative reaction could be caused by a social bias such as 'backfire effect' when presented with low rated journal publications on an academic resume, show that across countries and disciplines, additional resume content of publications in lower rated journals is preferred to their omission.

U.K. based management faculty were very positive toward both resumes and U.S.A. based management faculty were positive towards the long resume. The hypothetical resumes, containing either just four high rated publications, or those four high rated publications plus eight lower rated publications, were on average across our whole sample considered fairly hireable at senior lecturer/associate professor level. This tended slightly towards rejection for both resumes once participants had to consider the candidate at this level in their own department.

Possibly in part due to the strong preference for both the resumes specifically amongst U.K. based management faculty, country and discipline produced significant demographic differences in the positivity towards the resumes.

It was also interesting to note that males had a stronger preference for the longer resume and those who rated their department highly also had a preference for the longer resume.

There was a fairly robust indifference between the resumes amongst those participants who had been in academia between 10-20 years, compared with the longer resume being preferred by those who had been in academia for fewer and greater years than this. It is of particular interest that those who had been in academia between 10-20 years differed from the overall finding of the study.

6.5 Exploratory Factor Analysis

It was the desire to investigate the possible cohort effect suggested in the indifference between the two resumes shown by those who had been in academia 10-20 years, when investigating the overall findings of the randomized control trail further. It was important to see if the expected overall hypothesis of a negative reaction to the presentation of low rated journal publications might be present to a greater extent in this cohort, albeit creating an irrational indifference, rather than a negative reaction.

It was necessary to investigate whether the mechanism for this indifference was as a result of negative reactions to the presentation of low rated journal publications though 'backfire effect', or a consequence of a potential 'confirmation bias', where the additional content of low rated journal publications may have simply been ignored on the long resume. To be able to investigate this, given the data collected in the survey, it was going to be necessary to use the large amount of qualitative data provided by the participants as feedback for the candidate, should the candidate be applying for the role again. The feedback should reflect on whether there is advice about the negative impact of lower rated journals, or if lower rated journals are simply ignored in the assessment of the resume.

To be able to reduce the search space in coding the large amount of free text data given as feedback to the candidate resume in the randomized control trial, it was necessary to conduct further quantitative analysis to inform the coding for the qualitative analysis investigations. During the survey there were a collection of Likert scale scored responses to statements collected, these statements were written to unearth aspects of decision-making towards the candidate. There were statements trying to illicit whether the candidate resume was meeting the expectations of the participant. For example, "I believe this person has a research profile expected of a career path." There were also statements pertaining to the consistency of the candidate. This was trying to investigate whether participants were concerned about a level of inconsistency in the candidate's performance, with the publication record being the most likely measure for different assessments of consistency. The proposed 'backfire effect' would require a prior expectation of what should be presented on an academic resume, with expectations being created by the discourse on the use of journal metrics in the assessment of academic resumes.

The initial investigation conducted into the Likert scale responses to statements about the job candidate was the exploratory factor analysis (EFA) to find out commonalities and trends behind decision-making. As noted in the methodology section it was decided to conduct a full EFA rather than a principal components analysis, for which a parallel analysis would be conducted to investigate the potential number of factors involved.

6.5.1 Parallel Analysis

Table 6.4: Parallel Analysis: PAF/Common Factor Analysis and Raw Data Permutation

Parallel Analysis All Data (N1011)		Parallel Analysis Short Resume (N508)		Parallel Analysis Long Resume (N503)	
Raw Data	Percentile	Raw Data	Percentile	Raw Data	Percentile
8.393758	.285044	**8.544017**	.424077	**8.310585**	.420261
.708471	.224285	**.736660**	.327508	**.844894**	.334178
.595702	.183472	**.515029**	.270921	**.589669**	.271620
.350290	.148444	**.390395**	.222747	**.342100**	.222580
.195007	.121516	**.223170**	.175837	**.204272**	.178504
.063377	.092152	.086184	.138373	.067329	.140888
.003257	..064589	.033687	.100342	.019185	.099876
-.008920	.040167	.011089	.061191	-.015303	.061521
-.040392	-..015496	-.035749	.028184	-.039949	.027256
-.050535	-.007480	-.042498	-.005937	-.049235	-.005367
-.061055	-.031310	-.057116	-.038916	-.064207	-.036555
-.081912	-.053699	-.075562	-.069827	-.076177	-.069702
-.113082	-.076012	-.096435	-.103121	-.103997	-.102885
-.123030	-.102111	-.138834	-.135202	-.118316	-.134457
-.147065	-.126819	-.148448	-.171080	-.130460	-.170541
-.154395	-.157772	-.165184	-.208012	-.185768	-.210585

A parallel analysis was conducted for a principal axis factoring (PAF) common factor analysis and the randomly generated dataset was drawn from 1,000 raw data permutations. The parallel analysis results displayed here in table 6.4 show that when running the parallel analysis with all data, just those who received the long resume, and those who received just the short resume, there were five factors in the raw data that show higher scores than what was regenerated at random in the 1000 raw data permutations. Simply excluding factors with an Eigen score less than 1 would have identified only a single factor. In all cases the 5th factor found in the parallel analysis was only slightly higher than the random data and the 4th factor was much less strong than the first three.

The second factor was particularly strong in the long resume responses and the third factor was comparatively weak in the short resume compared to the long resume and both resumes combined. Given these permutations as well as the weakness of the potential fourth and fifth factors it was necessary to conduct a number of EFAs on each portion of the dataset (all data, short resume, long resume) to confirm the correct number of factors in the dataset.

6.5.2 Exploratory Factor Analysis - Both Resumes

Table 6.5: Exploratory Factor Analysis: Both Resumes and All Questions

5 Factor Solution		4 Factor Solution		3 Factor Solution	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
8.339	7.570	8.312	7.666	8.275	7.686
.675	5.197	.748	5.256	.692	5.422
.847	4.449	.730	3.668	.764	5.237
.493	4.057	.478	4.305		
.356	2.288				

Table 6.5 shows the EFA loading results for the possible 5, 4 and 3 factor solutions, to be able to investigate the weaker factors indicated by the parallel analysis. Paying particular attention to the rotation sums of squared loadings, it is clear that the fifth factor is very weak. In the four factor solution, however, the fourth factor is actually stronger than the third which required further investigation. The pattern matrix for the four factor solution showed that the fourth factor was explained entirely by the reverse weighted statements being scored similarly and thus grouped together. Given that reversal of statement weighting is likely to have been responded to by more of a cognitive response than a criteria in assessing the candidate, a three factor solution was preferable. Especially with the stronger third rotation sums of squared loadings.

Table 6.6: Exploratory Factor Analysis: Both Resumes and Split Questions

3 Factor General Questions		2 Factor General Questions		2 Factor Department Questions	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
3.943	3.157	3.901	3.420	5.063	5.042
.539	3.055	.526	3.403	.422	2.038[a]
.434	2.820				

Note: [a] *The rotated sum of squared loadings for a two factor solutions suggests that in department questions could be better explained by a singular factor.*

Given that there were two sets of Likert scale statement responses within the survey, one set of eight statements pertaining to whether the candidate was hireable for the outlined

post more generally, and one set of eight statements pertaining to whether the candidate was hireable specifically at the participants' department, separate analysis of these two sets of statement responses is useful in confirming the overall model. Table 6.6 shows the results of this analysis. There was a relatively strong rotation sums of squared loadings for a third factor in the general context questions, however the near identical rotation sums of squared loadings in the two factor solution is indicative that the general questions were explained by two factors. The weak rotation sums of squared loadings for the second factor in the in-department contexts suggests these responses can be explained by a single factor. Thus, overall there were three factors.

In lieu of the in-department questions fitting all into the same factor, it was decided to retain a three factor solution when combining all the statement responses in both contexts rather than analysing each set of statement responses separately. The advantage to keeping all the statement responses together in one model was that, particularly in the later confirmatory factor analysis, covariance between questions in these different contexts and between factors could be discussed.

The number of factors explaining the trends in responses to the statements about the candidate was indicated in the parallel analysis as being anywhere up to five different patterns of covariance in the responses. Subsequent exploratory factor analysis conducted to investigate possible three, four and five factor solutions identified in the data showed that a three factor solution is likely to best describe the pattern in responses when analysing all Likert scaled responses combined together. One of the factors indicated in the up to five factor solution could be explained by the negatively weighted statements being responded to similarly so this could be discounted as a genuine factor. The second discounted factor contained only two items, 'will not have the potential to collaborate with me' and 'potential to contribute to our department', both of which either had strong factor loadings on more than one factor or did not fit the pattern between the two contexts under which the questions were asked. Equally the sum of squared loadings in the exploratory factor analysis indicated most strongly a three factor solution when analysing all statement responses together.

When separating the two sets of Likert scale scored statement responses into the two contexts under which the statements were asked, whether the candidate was hireable at the outlined level at a university more generally or specifically at the participant's own department, a three factor solution overall was also indicated. There were two factors when considering the candidate in the context of hiring at a university at this level more generally and a single factor when considering the candidate as hireable specifically at the participant's own department.

Table 6.7: Three Factor EFA Pattern Matrix: Both Resumes and All Questions

Question	Factor		
	1	2	3
Factor 1: Meets Criteria for Position: In Department Questions			
Desired Research Profile For My Department	**.932**	-.018	.023
Actively Encourage Application at This Level in My Department	**.881**	.088	-.033
Meets Criteria for Appointment at This Level in My Department	**.862**	.242	-.159
Adequate Research Profile for Appointment at Our Department	**.825**	.152	-.033
Research Profile is of a Nature Expected at Our Department	**.817**	-.134	.212
Dissuade Appointment Board in My Department (Reversed)	**.514**	.146	.107
Potential to Contribute to Our Department	**.461**	-.081	.384[a]
Factor 2: Meets Criteria for Position: General Hire Questions			
Meets Criteria Outlined for This Post	.047	**.839**	.017
Would Expect Person to be Considered for Position	.229	**.642**	.077
Research Profile Expected of a Career Path	.144	**.457**	.354
Aspects Dissuade Appointment at This Level (Reversed)	.135	**.366**	.233
Factor 3: Potential and Consistency: General Hire Questions			
Profile Reflects Consistently High Quality	.175	.049	**.650**
Potentially Academically Renowned in the Future	.258	.075	**.569**
Not Shown a Consistent Level of Performance (Reversed)	-.085	.148	**.468**
Will Not Have the Potential to Collaborate With Me (Reversed)	.000	-.032	**.364**[b]
Might not Fulfil Career Potential (Reversed)	.205	.121	**.356**

Note: [a] *There is double loading for the potential to contribute to the department, this might be in part because it is question of potential.*

[b] *Will Not Have the Potential to Collaborate With Me (Reversed) is the only in department question not in factor 1, this might be in part because it is question of potential.*

The pattern matrix for the three factor EFA shown in table 6.7 is based on maximum likelihood, direct oblimin rotation. Factors are determined by loadings greater than 3 (Streiner, 2013). In some cases, there is double loading in the model, this suggests that some of the items were associated with more than, or across, factors. More analysis of this is given in the confirmatory factor analysis (CFA) later in this research by means of covariance in modification indices. Where a double loading is present, the item is fitted to which factor has the highest loading.

The number of factors was set at three given all of the prior analysis, rather than Eigen value based eliminations. The three factors that appeared to be present when analysing

all participants together were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions' and 'potential and consistency: general hire questions.

6.5.3 Summary of Exploratory Factor Analysis on All Data

The parallel analysis indicated up to five factors exist in the raw dataset that would not have occurred in 1,000 randomly generated permutations of the dataset (table 6.4). Under normal extraction based on Eigen vale scores the last four factors would not have been considered as their Eigen values are less than 1. Further analysis of the possible five, four and three factor solutions suggested a three factor solution was the best fit, based on relative rotation sums of squared loadings (table 6.5) and respective pattern matrices. This was then double checked by analysing factors within the general and in-department questions separately.

This confirmed that there were two factors in the generally hireable questions and one factor in in-departmental considerations. Once the number of these factors within the questions have been decided, the groupings of questions under a common factor must then be eyeballed and given an appropriate name given the content of the statements in each item (Heck, 1998). The three factors that appeared to be present when analysing all participants together were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions' and 'potential and consistency: general hire questions.

6.5.4 Short Resume

As shown in the parallel analysis data in table 6.4, the overall scores for up to five possible factors within the dataset were similar across the treatment and control groups of viewing the long and short resume. Further analysis confirmed this as a three factor structure in the Likert scaled responses to the statements about the candidate. Analysis of specific factors for short and long resume allows for the investigation of possible differences in item loadings within factors. If different items were grouped together within the factors, or possibly more items, it is possible that participants that received this resume weighted that factor differently and took additional considerations within that factor. These observations could give important insights into how the presentation of the additional lower rated journal publications on the longer resume might have affected decision-making. Exploratory factor analysis using the statement response data from just those who received the short or long resume was therefore also conducted.

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Table 6.8: Exploratory Factor Analysis: Short Resume and All Questions

3 Factor Solution		4 Factor Solution	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
8.420	7.827	8.458	7.775
.796	5.753	.800	4.106
.541	5.140	.550	5.331
		.555	4.509

The results of exploring possible 4 and 3 factor solutions for all the Likert scaled statement responses about the job candidate in just those who received the short resume are displayed in table 6.8. The rotation sums of squared loadings in this analysis showed that again a fourth factor holds up quite strong, however once again the pattern matrix showed that the reverse weighted questions were an explanation for this.

Table 6.9: Exploratory Factor Analysis: Short Resume and Split Questions

2 Factor General Questions		2 Factor Department Questions	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
3.690	3.554	5.063	5.042
.533	3.438	.422	2.038

Table 6.9 shows the possible two factor solutions for the statement responses split into the generally hireable context and the in-department hireable context. The results of these produced very similar results as the same analysis on all the data. Again, the rotated sums of squared loadings showed a two factor solution for the responses in the general hire context, with the values being very similar. The results again showed a one factor solution in the department questions, with there being a very dominant single value in the rotation sums of square loadings.

Table 6.10: Three Factor EFA Pattern Matrix: Short Resume and All Questions

Question	Factor		
	1	2	3
Factor 1: Meets Criteria for Position: In Department Questions			
Desired Research Profile For My Department	**.905**	.067	-.015
Actively Encourage Application at This Level in My Department	**.888**	-.020	.077
Meets Criteria for Appointment at This Level in My Department	**.869**	-.159	.247
Adequate Research Profile for Appointment at Our Department	**.798**	-.028	.187
Research Profile is of a Nature Expected at Our Department	**.769**	.217	-.106
Dissuade Appointment Board in My Department (Reversed)	**.443**	.183	.144
Factor 2: Potential and Consistency: General Hire Questions			
Profile Reflects Consistently High Quality	.117	**.740**	.058
Potentially Academically Renowned in the Future	.194	**.676**	.024
Potential to Contribute to Our Department	.391	**.455**	-.153
Will Not Have the Potential to Collaborate With Me (Reversed)	-.071	**.395**	.026
Research Profile Expected of a Career Path	.224	**.371**	.362
Not Shown a Consistent Level of Performance (Reversed)	.026	**.359**	.088
Might not Fulfil Career Potential (Reversed)	.294	**.309**	.093
Factor 3: Meets Criteria for Position: General Hire Questions			
Meets Criteria Outlined for This Post	.033	.109	**.789**
Would Expect Person to be Considered for Position	.285	.115	**.568**
Aspects Dissuade Appointment at This Level (Reversed)	.254	.132	**.336**

The results for the participants who received the short resume contained in the pattern matrix in table 6.10 produce some interesting differences when compared to analysing the data as a whole with both resume recipients combined. There was the addition of statement responses to 'research profile expected of a career path' to the 'potential and consistency: general hire questions' factor. This may suggest some linking between expectations and consistency or potential. There is also the interesting addition of both statements pertaining to collaborative ability into the 'potential and consistency: general hire questions' factor. These were 'potential to contribute to our department' and 'will not have the potential to collaborate with me (reversed)'. This could indicate that for those who viewed only the short resume, issues of collaboration were raised in relation to consistency and potential. It could also be the case that the short resume, with only the high rated journal publications, put notions of 'potential' into greater salience, resulting in these two items containing the word 'potential' into greater perspective when considering these two statements.

6.5.5 Long Resume

In investigating the number of factors in EFA for the long resume participants, two and three factor solution possibilities are displayed, in contradiction to the four and three as displayed for all data and the short resume. This is because the rotation sums of squared loading of the second factor in long resume data is lower. The second factor analysis is added to check that in this instance there was not a two factor solution.

Table 6.11: Exploratory Factor Analysis: Long Resume and All Questions

2 Factor Solution		3 Factor Solution	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
8.138	7.687	8.201	7.567
.946	6.683	.825	4.764
		.799	5.236

The results of the possible two and three factor solutions for the long resume data shown in table 6.11 showed some evidence that a two factor solution would be credible with both contexts combined. In this instance, the analysis of the generally hireable context questions and the in-department context questions separately shown in table 6.12, is particularly important.

Table 6.12: Exploratory Factor Analysis: Long Resume and Split Questions

2 Factor General Questions		2 Factor Department Questions	
Sum of Squared Loadings	Rotation Sums of Squared Loadings	Sum of Squared Loadings	Rotation Sums of Squared Loadings
3.815	3.456	5.177	5.174
.634	3.235	.362	1.575

The two factor solution remains robust for the generally hireable context questions in terms of the rotation sums of squared loadings with the two values for each factor being similar. However, the second factor in the in-department question context it is very weak. On balance given the overall findings of the respective EFAs there is sufficient evidence to justify a three factor solution for the participants who had revived the long resume, with two factors in the generally hireable context, and one in the in-department context.

Table 6.13: Three Factor EFA Pattern Matrix: Long Resume and All Questions

Question	Factor		
	1	2	3
Factor 1: Meets Criteria for Position: In Department Questions			
Desired Research Profile For My Department	**.951**	-.026	-.008
Actively Encourage Application at This Level in My Department	**.885**	.086	-.035
Meets Criteria for Appointment at This Level in My Department	**.872**	.215	-.125
Adequate Research Profile for Appointment at Our Department	**.852**	.083	.014
Research Profile is of a Nature Expected at Our Department	**.835**	-.144	.204
Dissuade Appointment Board in My Department (Reversed)	**.593**	.127	.046
Potential to Contribute to Our Department	**.519**	.018	.285
Factor 2: Meets Criteria for Position: General Hire Questions			
Meets Criteria Outlined for This Post	.098	**.859**	-.003
Would Expect Person to be Considered for Position	.237	**.610**	.124
Factor 3: Potential and Consistency: General Hire Questions			
Profile Reflects Consistently High Quality	.211	.033	**.613**
Not Shown a Consistent Level of Performance (Reversed)	-.142	.104	**.600**
Potentially Academically Renowned in the Future	.311	.077	**.504**
Might not Fulfil Career Potential (Reversed)	.147	.056	**.440**
Research Profile Expected of a Career Path	.106	.431	**.437**
Aspects Dissuade Appointment at This Level (Reversed)	.080	.312	**.362**
Will Not Have the Potential to Collaborate With Me (Reversed)	.059	-.060	**.298**

The pattern matrix for the long resume data in table 6.13 shows that the second factor 'meets criteria for position: general hire questions' is explained by only two items. This explains why the rotated sums of squared loadings for the second factor in the three factor solution in table 6.11 was lower than first and the subsequent third factor. This is part of some striking differences between the long resume data and all the data combined. The 'meets criteria for position: in department questions' factor is the same but the generally hireable questions become more heavily linked to considerations of 'potential and consistency'. Again 'research profile expected of a career path' is added to the 'potential and consistency' factor but 'aspects dissuade appointment at this level (reversed)' is also added. It might be that participants who received the long resume were dissuaded by aspects of consistency and potential given content added to the long resume, with lower rated publications being the only added material. This finding may give some indication that the presentation of the long resume that included the low rated journal publications did indeed trigger some different negative responses, compared to the short resume.

6.5.6 Summary of Exploratory Factor Analysis

Exploratory factor analysis pattern matrices are ordered by size, with the strongest factor loading first. This explains the change in order of the factors given the different sections of the dataset used, specifically in the short resume data. The 'potential and consistency' factor has stronger loadings in the short resume data, upping that to factor two in the list of factors in the pattern matrix in table 6.10. However, the difference between the loadings of each item onto the factors in the short resume and long resume data pattern matrices can be partially explained by the long resume having so many items in the 'potential and consistency' factor. This makes it harder for each item to fit this factor, given the larger variation amongst a higher number of variables within the factor.

Reversed order questions had similar responses, creating some difficulty in assessing the number of factors. Generally, participants were less willing to agree with negatively weighted statements. This may have potential implications for how statements such as selection criteria are viewed and thus important implications for how human resource management practitioners word such statement in job adverts. However, it also possible that these results could be explained by a degree of mistakes by participants who have not observed the negative weighting of the statement and answered as if it were positive.

Overall a three factor solution was found in the pattern of responses to the statements regarding the candidate resume for the outlined academic post. The three factors that appeared to be present when analysing all participants together, both resumes and both hiring contexts, were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions' and 'potential and consistency: general hire questions'. These factors remained when analysing the short and long resume data separately but had different sized factors with some items becoming associated with the 'potential and consistency: general hire questions' factor. In the case of the short resume data, the item 'research profile expected of a career path' was added, suggesting that career expectations and potential and consistency may have been linked. In the long resume data the 'aspects dissuade appointment at this level (reversed)' item was added in addition. This might indicate that the addition of the low rated publications, that were omitted from the short resume, created a dissuasion towards the long resume in relation to the 'consistency and potential' of the candidate.

The larger number of items added to the 'potential and consistency: general hire questions' factor in the long resume data, left only two items in the 'meets criteria for position: general hire questions factor. This meant that this factor within the three factor solution in the exploratory factor analysis was a little weaker.

6.6 Confirmatory Factor Analysis

Minimum thresholds in sample sizes for a confirmatory factor analysis (CFA) range from 200-300 (O'Rourke, & Hatcher, 2013). In all cases the confirmatory factor analyses (CFAs) run here exceed those thresholds, the sample sizes being 1,011 (all data), 508 (short resume) and 503 (long resume) respectively.

During the exploratory factor analysis (EFA) there were two variables that particularly struggled to fit the model, 'Potential to Contribute to Our Department' and 'Will Not Have the Potential to Collaborate With Me (Reversed)'. The two items had levels of double fitting across different solutions, owing to their closeness with the 'potential and consistency: general hire questions' factor as well as the' meets criteria for position: in department questions' factor. Creation of second factor in the in-department questions of these two variables was not favourable in both the EFA and subsequent CFA investigations, as the creation of the additional factor did not best explain the overall trends in the data. Given that 'Will Not Have the Potential to Collaborate With Me (Reversed)' did not co-vary with the in-department questions (table 6.7) and had only a very weak association confirmed in forming a new factor (Figure 6.2), it was decided to drop 'Will Not Have the Potential to Collaborate With Me (Reversed)' as it appeared to be its own factor. Furthermore, there was covariance between reverse scored questions that was causing some fitting in the model seen in the EFA, which is confirmed in the confirmatory factor analysis. All of these findings supported the removal of the 'Will Not Have the Potential to Collaborate With Me (Reversed)' item from the overall model when conducting the confirmatory factor analysis.

For the purposes of comparison, despite the EFAs returning the same factors with different item loadings for long and short resumes, the CFAs presented here retain the factor structure from the EFA on all responses. This is to allow for direct comparison of the strengthening an weakening of these items within that factor structure.

Factor analysis (exploratory and confirmatory) and structural equation modelling (SEM) are all statistical techniques to reduce the number of observed variables, such as the Likert scaled responses to statements about the candidate, into a smaller number of latent variables by examining the covariation among the observed variables. Common factor is used for the latent variable because the effects of unobserved variables are shared in common with one or more observed variables, forming a single common factor.

Confirmatory factor analysis is a confirmatory technique. It is theory driven. Therefore, the planning of the analysis is driven by the theoretical relationships among the observed and unobserved variables. In the case of this analysis the confirmatory factor analysis is informed by the results of the exploratory factor analysis. A major component of

a CFA is the use of the measurement model to examine the extent of interrelationships and covariation among the latent constructs. This means in using a CFA covariance between observed latent constructs can be assessed. As part of the process, factor loadings, unique variances, and modification indices are estimated for one to derive the best indicators of latent variables prior to testing a structural model. (Long, 1983; Schreiber et al., 2006)

Figure 6.2: Confirmatory Factor Analysis for Both Resumes
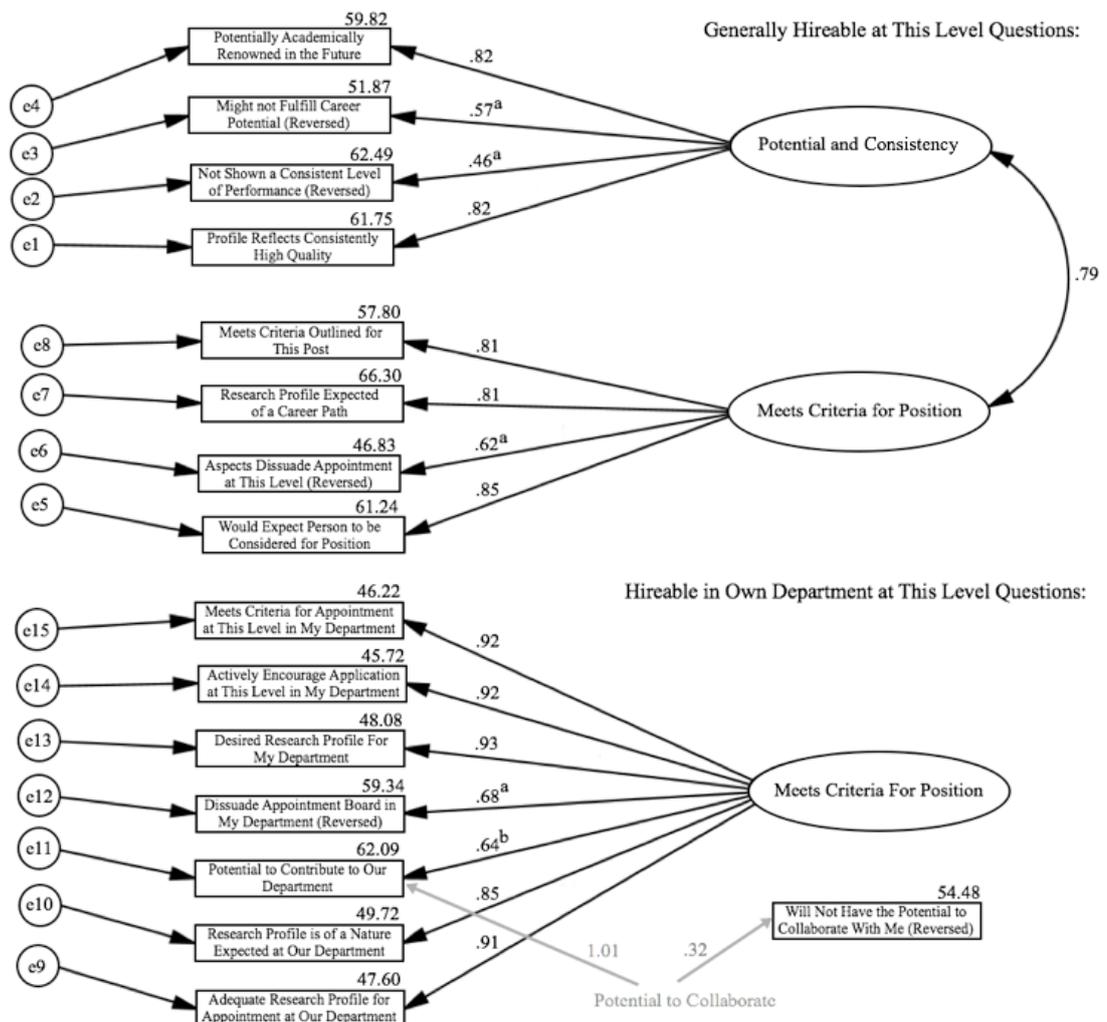
Note: [a] *The reversed score questions were all co-varied and returned lower standardized factor loadings.*

[b] *The lower standardized factor loadings can be explained by the difficult fit of 'Potential to Contribute to Our Department' and its covariance with questions on potential.*

When conducting a confirmatory factor analysis on all the data, including both resumes together, some of the items had lower factor loadings. In all but one case these lower factor loadings were reverse negatively weighted question responses. As highlighted in the exploratory factor analysis the relationship between these variables caused some difficulty

with modelling as responses to the reverse score questions shared a similarity irrespective of their content. This shared pattern of responses to negatively weighted statements is an important finding for framing how candidate resumes are assessed. In the case of the one remaining low factor loading, the item 'potential to contribute to our department' struggled to fit the 'meets criteria for position: in department questions' factor. This can part be explained by it double loading with the 'potential and consistency: general hire questions' factor. Illustrated into figure 6.2 are the loadings if a separate 'potential to collaborate' factor had been added including the omitted 'will not have the potential to collaborate with me (reversed) item. This shows the arguments against adding this factor as the two items do not co-vary on equal terms, thus this additional factor cannot be described as representing similar items.

Investigation of the modification indices within the confirmatory factor analysis for all the data, with all three factors included, allows for the analysis of covariance across factors as well as within. It was the capacity to be able to analyse covariance between items and across different factors that was the main motivation for conducting the additional confirmatory factor analysis in addition to the exploratory factor analysis. Interestingly there was a high level of covariance between 'potential to contribute to our department' and 'research profile is of a nature expected at our department'. However, re-running the model by removing 'potential to contribute to our department' did not substantially improve model fit. Expectations and potential appear linked. Modification indices also indicated a moderate level of covariance across reversed questions. In addition, there was covariance between 'research profile expected of a career path' and the 'potential and consistency: general hire questions' factor. This again suggests that expectations and potential (and consistency) are linked. The two 'meets criteria' questions in both general and in-department consideration were highly co-varied.

6.6.1 Short Resume

Figure 6.3: Confirmatory Factor Analysis for Short Resume
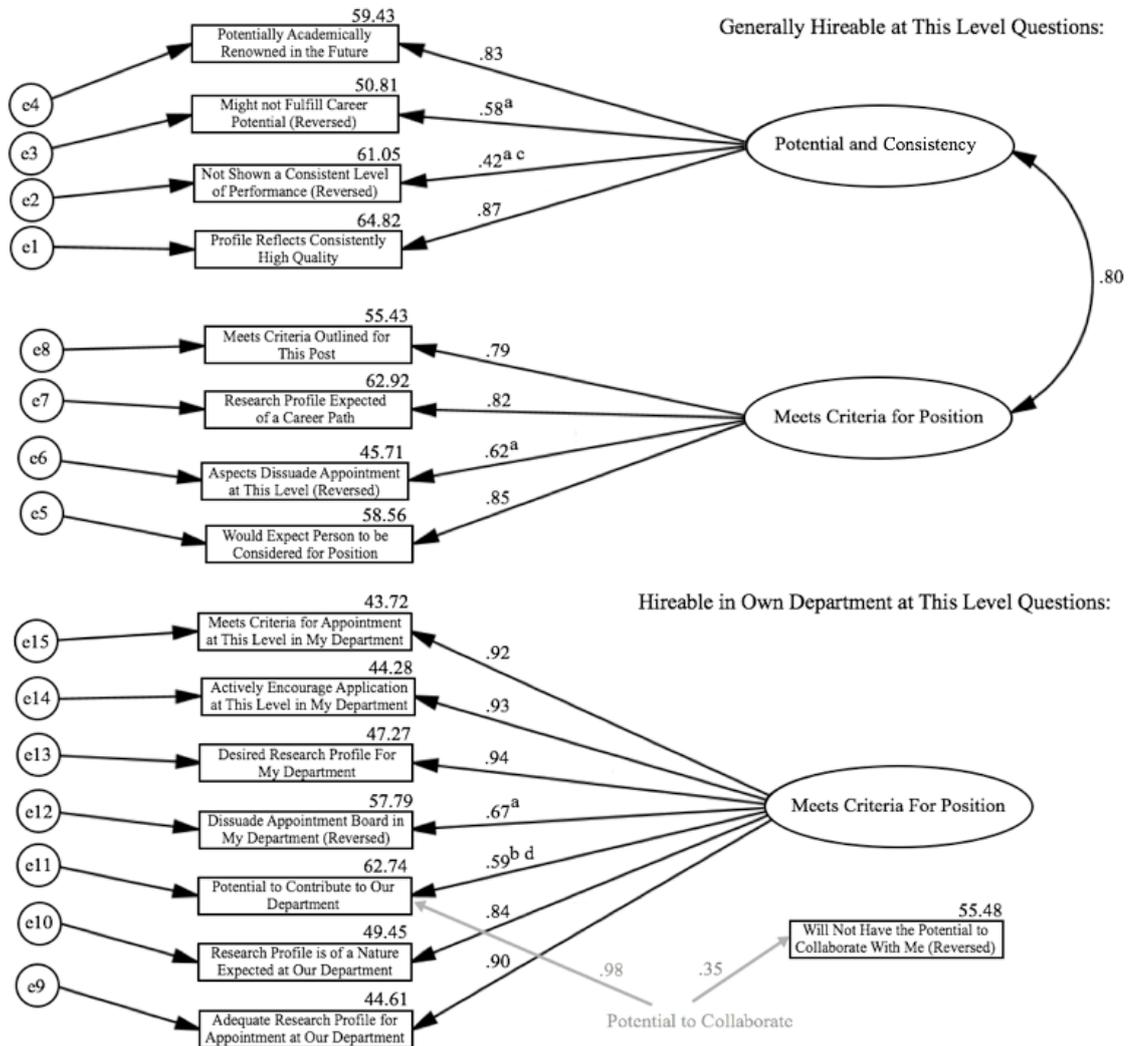
Note: [a] *The reversed score questions were all co-varied and returned lower standardized factor loadings.*

[b] *The lower standardized factor loadings can be explained by the difficult fit of 'Potential to Contribute to Our Department' and its covariance with questions on potential.*

[c] *Reduction in model fit for "Not Shown a Consistent Level of Performance (Reversed)"*

[d] *Reduction in model fit for "Potential to Contribute to Our Department"*

When conducting a confirmatory factor analysis for only the responses from those participants that had received the short resume, again the reverse scored questions had lower loadings. However, in addition to this, the item 'not shown a consistent level of performance (reversed)' item loaded weaker than in analysing all data, but was already weak when analysing all data. The already low item 'potential to contribute to our department' also falls

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further. The worse fit for the item 'not shown a consistent level of performance (reversed)' could have a few influences to explain it. In the first instance, the reduced fit for this item is offset in the 'potential and consistency factor' by an improved fit for the item 'profile reflects consistently high quality'. When viewing the short resume, with only the four high rated journal publications, the statement 'profile reflects consistently high quality' appears to best fit the assessment of consistency and potential of the candidate. The second possible contribution to the change in the item 'not shown a consistent level of performance (reversed)' could be the overall difference in reaction when presented with negatively weighted statements, interacting with the overall perception that the short resume 'profile reflects consistently high quality'.

Analysis of the modification indices for the confirmatory factor analysis on the short resume participants' responses, showed that again the 'meets criteria' item in both the general and in-department context were highly co-varied. The item 'potential to contribute to our department' co-varied with the 'potential and consistency: general hire questions' factor, possibly explaining some of the weakening of the item 'potential to contribute to our department' in the 'meets criteria for positions: in department questions' factor. The reverse scored questions were also co-varied within the modification indices as expected. The covariance of the item 'potential to contribute to our department' with the 'potential and consistency: general hire questions' factor indicates that those who viewed the short resume had more covariance between their responses to statements to questions pertaining to potential. This included between the two hiring contexts of hiring the candidate more generally as well as hiring the candidate specifically at the participant's own department. The potential of the candidate may have been more salient in the participant's assessment when viewing the short resume.

There was moderate covariance between the item 'research profile is of a nature expected at our department' and the 'potential and consistency: general hire questions' factor. There was a high covariance between the item 'research profile is of a nature expected at our department' and 'potential to contribute to our department'. These again suggest that the expectations linked to consistency/potential. The item 'research profile expected of a career path' is co-varied with the 'potential and consistency: general hire questions' factor. This was expected given that 'research profile expected of a career path' was grouped in the exploratory factor analysis pattern matrix for the short resume responses with the 'potential and consistency: general hire questions' factor.

6.6.2 Long Resume

Figure 6.4: Confirmatory Factor Analysis for Long Resume
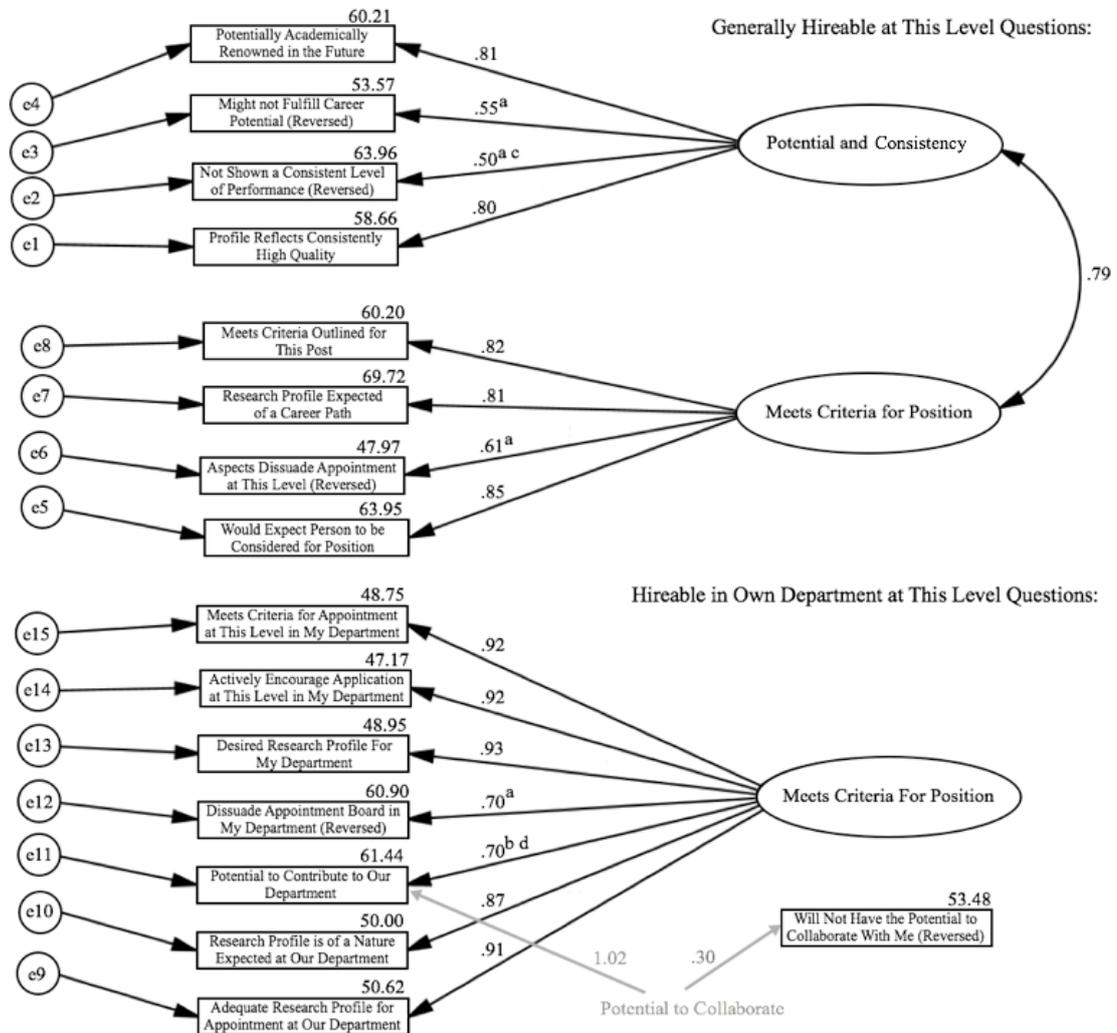
Note: [a] *The reversed score questions were all co-varied and returned lower standardized factor loadings.*

[b] *The lower standardized factor loadings can be explained by the difficult fit of 'Potential to Contribute to Our Department' and its covariance with questions on potential.*

[c] *Reduction in model fit for "Not Shown a Consistent Level of Performance (Reversed)"*

[d] *Reduction in model fit for "Potential to Contribute to Our Department"*

In the case of the long resume data, again the reverse scored questions fit the model less well. However, there was an improved fit for some of the other low loading items. Both the item 'potential to contribute to our department' and the item 'not shown a consistent level of performance (reversed)' improved their fit with the overall model. In the respective EFAs, the tricky item 'potential to contribute to our department' had much less of a double

loading in the long resume data with the 'potential and consistency: general hire questions' factor. It appears that when viewing the long resume, this is a closer match to the other 'meets criteria for positions: in department questions' factor items.

The improvement of the item 'not shown a consistent level of performance (reversed)' in the 'meets criteria for positions: in general questions' factor is a bit harder to explain as in the exploratory factor analysis this item was in the 'potential and consistency: general hire questions' factor. But this item also loaded equally on the other two factors. This item had the highest mean in the long resume responses suggesting that the long resume was seen as more consistent in its performance, given that this score had been reversed. However, there is an important distinction to make between the item 'not shown a consistent level of performance (reversed) and 'profile reflects consistently high quality', which has a reduced fit to the factor. 'Consistency' could refer to different measures of performance, whereas 'consistently high quality' is most likely to reflect on the ratings of the journals in the publication record. 'Consistency' could refer to publishing at a more constant rate or frequency, given that the longer resume contained all twelve publications including the low rated. There is an important reflection on this possible finding, with respect to the design of this survey and in the quantity vs quality debate in assessing publication record. Given that all other information on the candidate resume remained similar, including age and year of PhD, quantity of publications automatically became a proxy for the frequency of publications as well.

Again, analysis of the modification indices shows a covariance between the two meets criteria questions in the in department and general contexts. The reverse scored questions maintained a level of covariance. The item 'research profile is of a nature expected at our department' is moderately co-varied with 'potential and consistency: general hire questions' factor, again suggesting the aforementioned link between expectations and this factor.

6.6.3 Summary of Confirmatory Factor Analysis

The confirmatory factor analysis consistently showed that the responses to negatively weighted statements fitted the model less well across all participants, as well as just those who received the short resume, and those who received the long resume. There was covariance between these items, as the exploratory factor analysis suggested there might be, and that they would struggle to fit the three factor model.

The item 'potential to contribute to our department' struggled to fit the 'meets criteria for position: in department question' factor. This worsened further when looking at just those

who viewed the short resume, with an increased covariance between this item and the 'potential and consistency: general hire questions' factor, indicating greater consistency in the consideration of potential when viewing the short resume. This seems to include considering the candidate across the contexts, either considering the short resume, with only the four high rated journal publications, as hireable at the outlined generally or specifically at the participant's own department.

There was an exchange of factor fit for the items 'not shown a consistent level of performance (reversed) and 'profile reflects consistently high quality', depending on whether the candidate had received the long or short resume, 'Consistency' could refer to different measure of performance, whereas 'consistently high quality' is most likely to reflect on the ratings of the journals in the publication record. 'Consistent level of performance' could refer to publishing at a more constant rate or frequency, In the quantity vs quality debate in assessing publication record, given that all other information on the candidate resume remained similar, including age and year of PhD, quantity of publications automatically became a proxy for the frequency of publications as well as quantity. These findings in the confirmatory factor analysis, indicate that there might be some difference in the way that the resumes were viewed in relation to consistency, depending on which resume was viewed.

The less fitting variables of 'potential to contribute to our department' and the item 'not shown a consistent level of performance (reversed)' questions fitted better in the long resume responses. This can in part be explained by that 'potential to contribute to our department' had less double factor loading in the long resume.

The modification indices consistently showed a link between statement responses pertaining to expectations and items related to consistency and potential. This includes within factors as well as across factors.

6.7 Investigating a Cohort Effect

When investigating the overall hypothesis of the randomized control trial, that there might be a negative reaction to the presentation of low rated journal publications in addition to high rated publications, given a social bias such as 'backfire effect', a negative effect was not found overall. However, those who reported as having been in academia for 10-20 years were indifferent to the extra eight low rated journal publications in addition to the four high rated journal publications. This could be as a result of a greater propensity in this cohort of academics for a 'backfire effect', where there is a tendency to reinforce original beliefs when presented with information that contradicts this belief, with there being a belief that high

rated journal publications should be targeted. It could also be a consequence of a 'confirmation bias' where low rated publications are simply ignored where there is a belief that high rated journal publications should be targeted. This cohort effect therefore required further investigation

6.7.1 The 10-20 Years as an Academic Cohort

If a social bias that created a negative reaction to the presentation of low rated publications was sufficiently strong, you might expect that the longer resume, including low rated journal publications, would be less favourable. This would be despite the longer resume also containing the same high rated publications, with added content of low rated. This would be irrational given that the low rated journal publications in addition, objectively offer a greater contribution. On average, however, participants did not behave irrationally and preferred the longer resume. Despite this those who had been in academia between 10-20 years were indifferent to the two resumes. This is irrational given that the longer resume objectively provided more. There were two contexts in which the participants were asked to judge the suitability of the candidate for the position. The first was whether the candidate was suitable for the outlined position at any university more generally. The second context was asking if the candidate was suitable for appointment at the outlined level specifically in the participant's department. Those who responded as having been in a academia for 10-20 years were indifferent to both resumes, in both contexts.

Figure 6.5: Average Preference for Appointing Candidate
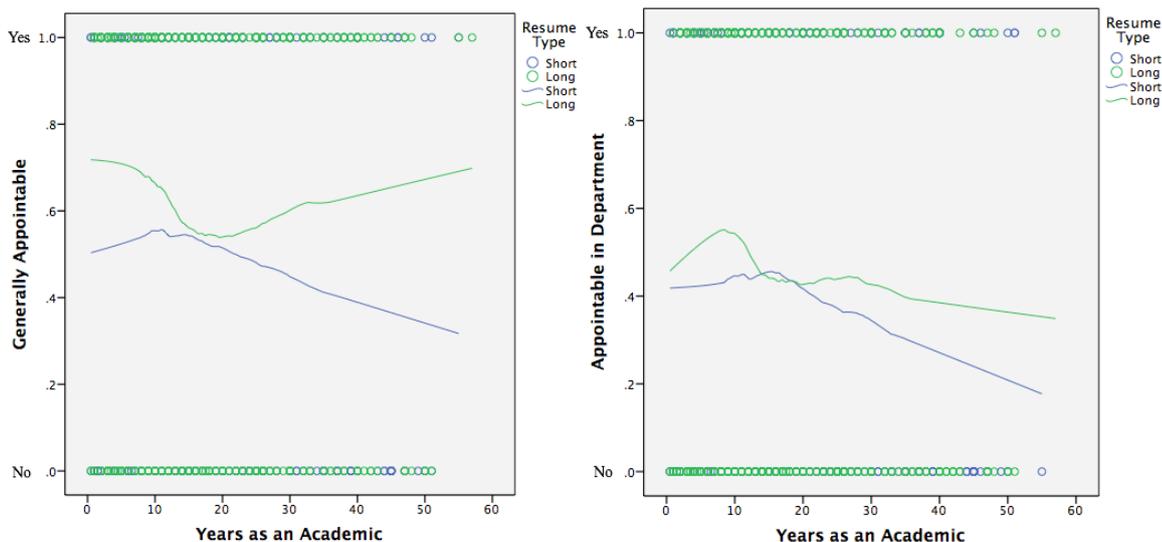
Loess Method, 50% points fit, Epanechikov Kernel.

It is therefore interesting to consider this irrational result in greater detail. It is possible that some of the social biases outlined, that could weight low rated publications negatively, are present in the 10-20 years as an academic cohort. It is of particular interest to consider how a social bias (such as those listed in table 4.1) could result in low rated journal publications being treated negatively through adherence to perceived social norms and expectations, whilst controlling for cognitive heuristics and biases in processing the information on or between resumes.

It is also important to consider a particular aspect of the discourse that it is hypothesized here to have potentially created a preconception or belief about what to expect of a publication record. That discourse changed over time. Prior to the early 1990s, the number of publications was the metric by which publication records were assessed. However, criticism emerged of this by the early 1990s, suggesting that assessing the quantity of publications does not account for the quality of those articles (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989). A shift therefore occurred where quality, particularly via means of journal rating metrics, became the focus for assessing publication records. However, by the late 2000s criticism of this practice emerged as it was arguably constraining research and could be discriminatory to niche areas (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). This data was predominantly collected in late 2015. Pertinently, those within our sample who had been in academia 10-20 years will have been starting out and developing as an academic between the mid-1990s and mid-2000s. It is therefore likely that this group of academics in our sample were most strongly exposed as developing academic to a discourse pertaining to assessing publication records, that stated high journal rating as a priority. This is because they started to develop as academics after quality and journal metrics became the focus for assessing publication records, but before criticism of this process started to emerge and impact the discourse.

There is an important additional observation from figure 6.5 and the average preference for appointing the candidate given the resume type received and the number of years in academia. The responses for the short resume, when considering the participant's own department remain similar whereas the difference between the long and short resume recipients across the number of years in academia is reduced in the in-department context. It seems that considering the candidate specifically at the participant's own department reduces the positivity towards the long resume given both more and less time in academia than 10-20 years. This suggests that when considering the long resume to become part of the participant's own in-group, older and younger participants were less positive, with those in

the 10-20 years in academia bracket remaining comparatively similar. There was not the same magnitude of change given the in-department consideration for the short resume. This could mean one of two things relating to the knowledge of the expectations at the participant's own department, being that the long resume would be less likely to meet the expectations at the participant's department, compared to at a university more generally. These expectations could be either quality or quantity of publications on the resume. Given that it is a reduction in the preference for the long resume, that contained the additional eight low rated journal publications, that is responsible for these findings, it represents that the long resume does not meet the high expectations at the participants' own highly rated university. All universities were in the top in their country 40 in the QS world rankings at the time of data collection. The short and long resume contained the same high quality publications, so it is likely that the in-group is formed around either expectations and beliefs at the participant's own department's in relation to the addition of the low rated journal publications, or the quantity of publications on the resume.

6.7.2 Factor Analysis

The parallel analysis, exploratory factor analysis and confirmatory factor analysis process uncovered three factors within the Likert scaled responses to statements about the job candidate. These were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions' and 'potential and consistency: general hire questions'. Investigating how responses to these factors changed across the number of years as an academic is important in considering why those who have been in academia between 10-20 years might hold different views about the respective candidate resumes. It allows for the analysis of positivity or negativity induced towards the candidate given the resume type, as well as investigating which of the three factors were most contributory to the decision made by those in the 10-20 years as an academic group. Given the overall hypothesis of a negative reaction created by the presentation of low rated journal publications caused by a social bias such as 'backfire effect', it is particularly important to uncover a negative reaction to the long resume that contained the eight low rated publications in addition to the four high rated publications

Figure 6.6: Average Response for 'Potential and Consistency: General Hire' Factor Questions
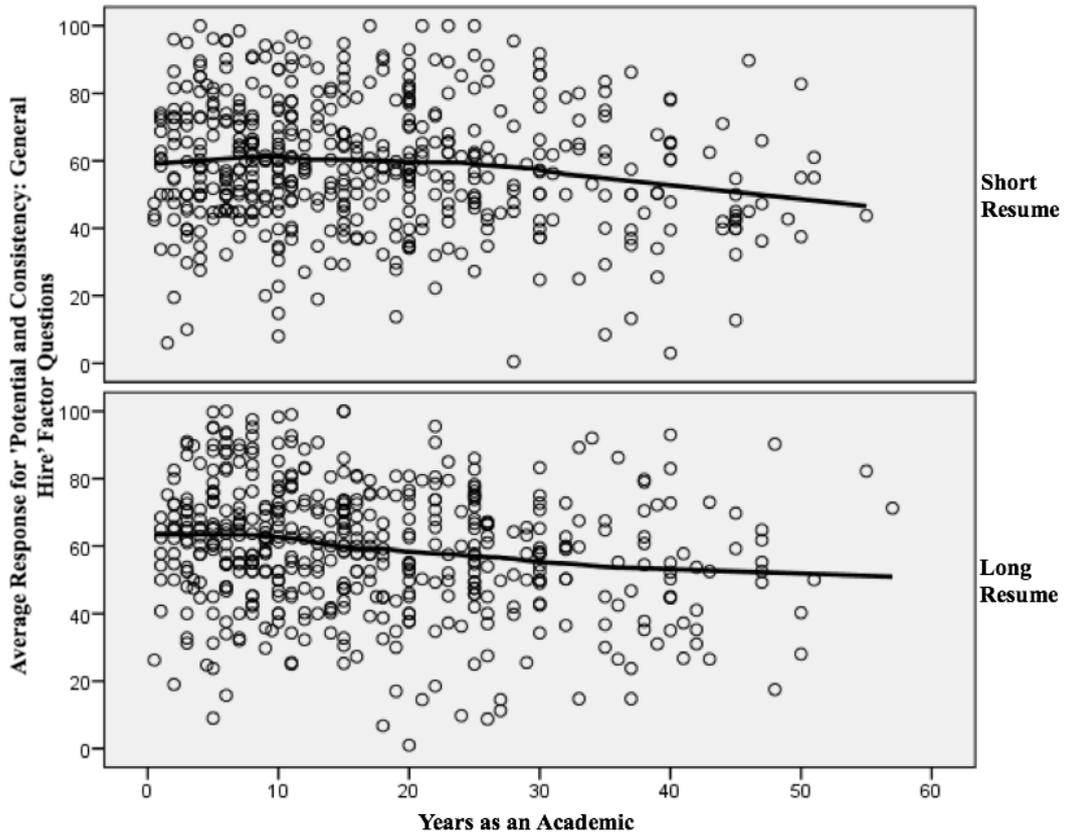
Loess Method, 50% points fit, Epanechikov Kernel.

Figure 6.6 shows the average rate at which the statements about the candidate were positively agreed with by participants in the 'potential and consistency: general hire questions' factor found in the factor analysis of candidate statement responses, given the number of years in academia. The general trend in the short resume responses show that when it comes to the 'potential and consistency: general hire questions' factor, there is plateau of positivity towards the statements regarding consistency and potential between those who had been in academia for 10-30 years. People in this bracket were most positive in their responses to the statements about the short resume candidate, thus where preference for the short resume was highest.

There is a very slight dip in the trend of the line for long resume responses between 10-20 years as an academic. But these individuals are still more positive than the older age group towards the long resume given the downward sloping trend of the line. However, the relative differences between the two resumes is exaggerated for this cohort given that they are part of the 10-30 years in academia cross section, where support for the short resume is at its highest.

Figure 6.7: Average Response for 'Meets Criteria for Position: General Hire' Factor Questions
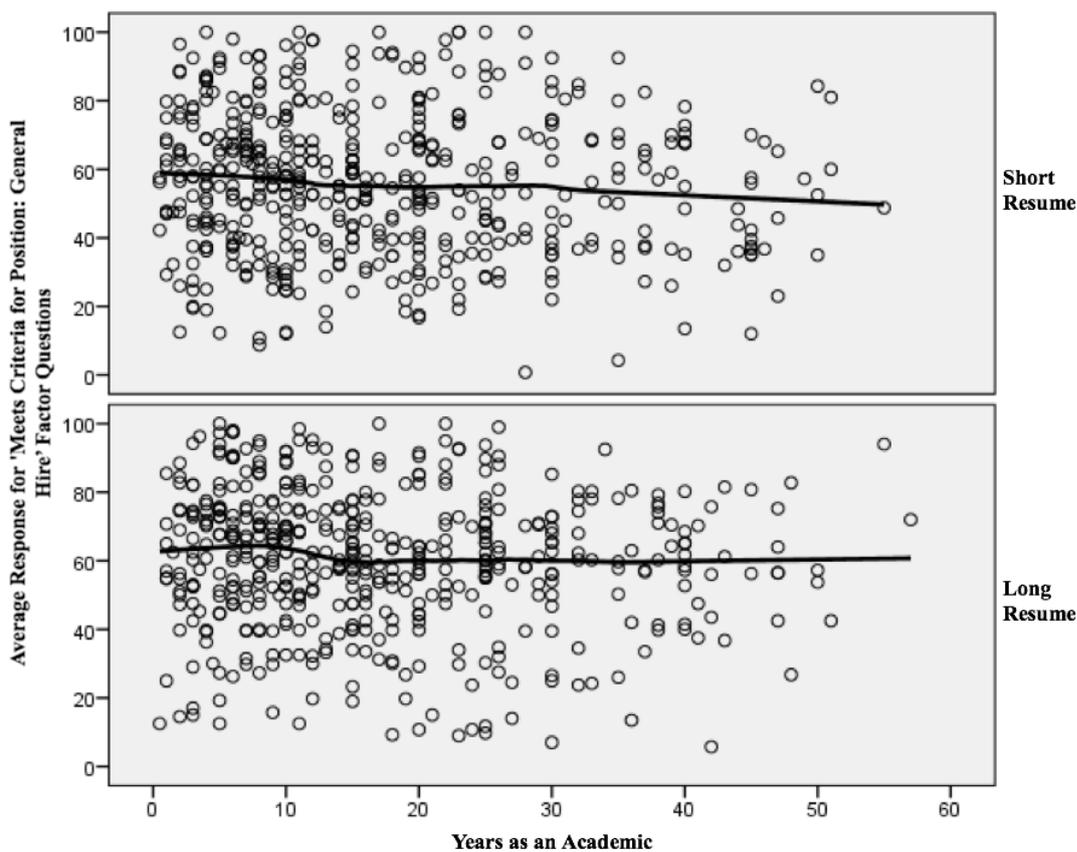
Loess Method, 50% points fit, Epanechikov Kernel.

Figure 6.7 shows the average rate at which statements about the candidate were positively agreed with by participants in the 'meets criteria for position: general hire questions' factor found in the factor analysis of candidate statement responses. There is little effect of the number of years as an academic for the short resume, with only a slight declining trend in positive responses towards the candidate statements with increasing number of years as an academic.

There is, however a clear kink in the trend of positivity toward the long resume, falling below the trend of the line between 10-20 years as an academic. The long resume responses for the 'meets criteria for position: general hire factor' is the only line that does not show a decreasing positivity towards the candidate with age. This negativity towards the long resume in the 10-20 years in academia cohort, which contained both the four high rated publications as well as the eight low rated publications, is important to supporting the hypothesis of a social bias such as' backfire effect' causing a negative reaction. This finding indicates that the addition of the low rated journal publications is having a negative reaction for the 10-20 years in academia cohort.

**Figure 6.8:** Average Response for 'Meets Criteria for Position: In Department' Factor Questions
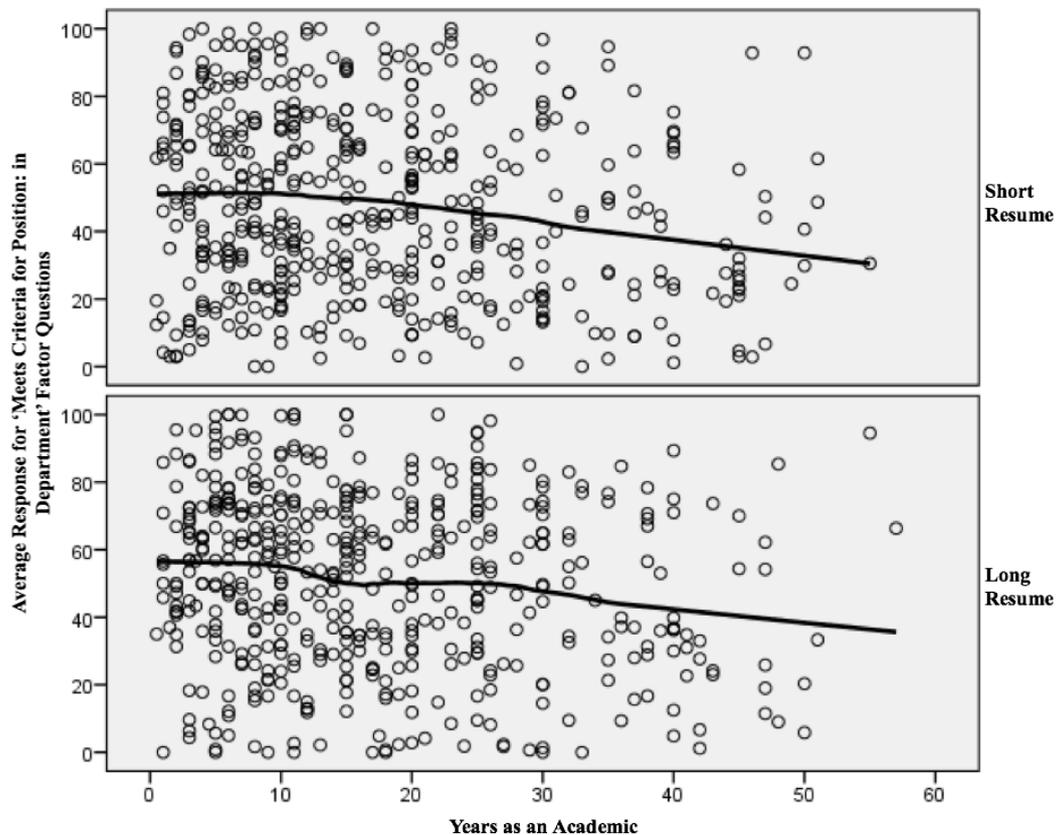

Loess Method, 50% points fit, Epanechikov Kernel.

Figure 6.8 shows the average extent to which statements about the candidate were positively agreed with by participants in the 'meets criteria for position: in department questions' factor found in the factor analysis of candidate statement responses. Again, there is a noticeable dip in positivity for the long resume towards the departmental context statements amongst those who had been in academia between 10-20 years that was not present in the short resume responses. Once more there is a trend of increased negativity towards the statements about the candidate as the number of years as an academic increases across both the long and short resumes. This dip in the trend line again indicates that the long resume caused a negative reaction for the 10-20 years in academia cohort compared to the same overall trend for the short resume. This again indicates the possible presence of the hypothesized negative reaction as a consequence of a 'backfire effect', where participants in the 10-20 years in academia cohort, re enforce their belief in publishing in high rated journal outlets by reacting negatively to the presentation of low rated publications, in addition to the same number high rated publications.

6.7.3 Word Counts

Participants were asked what advice they would give to the job candidate if they were applying to the post again, retrieving 40,646 words of feedback in total from the 1,011 participants. It is from this that analysis of qualitative data would be coded. This research aimed to use some quantitative data to unearth potential unique characteristics of the resume preference in those participants who had been an academic for 10-20 years. Having already utilized an EFA and CFA, preliminary word counts of the candidate feedback given by participants gives some indication of the key issues discussed in the preferred resume for the 10-20 years in academia group, and the other ages group. It is from the EFA and CFA as well as from this preliminary word count, that the coding for the qualitative text would be derived.

Table 6.14: Word Counts in Help to Candidate Advice.

Short Resume Academic 10-20yrs (5,914 Words)		Long Resume Academic 10-20yrs (6,877 Words)		Short Resume Other Ages (15,052 Words)		Long Resume Other Ages (12,803 Words)	
Word	Weighted Percentage (%)	Word	Weighted Percentage (%)	Word	Weighted Percentage (%)	Word	Weighted Percentage (%)
research	2.80	research	2.58	research	2.66	research	2.88
publications	2.61	publications	1.42	publications	2.05	journals	2.08
evidence	1.22	journals	1.32	journals	1.01	publications	1.72
papers	1.09	papers	1.29	information	0.89	evidence	0.92
also	0.84	evidence	0.93	papers	0.87	papers	0.86
level	0.84	grant	0.93	candidate	0.79	teaching	0.86
teaching	0.84	criteria	0.85	teaching	0.79	candidate	0.80
criteria	0.80	funding	0.85	person	0.78	person	0.80
senior	0.80	candidate	0.79	evidence	0.76	information	0.67
journals	0.71	person	0.79	level	0.74	work	0.67
candidate	0.68	teaching	0.77	also	0.69	**quality**	**0.66**
quality	**0.68**	work	0.74	lecturer	0.64	funding	0.64
etc	0.61	author	0.71	publish	0.63	grant	0.63
grant	0.61	information	0.71	senior	0.62	publish	0.63
information	0.61	level	0.68	work	0.60	also	0.61
lecturer	0.61	activities	0.66	criteria	0.59	criteria	0.61
record	0.61	first	0.66	grant	0.59	good	0.60
activities	0.58	students	0.66	funding	0.58	one	0.60
phd	0.58	external	0.63	department	0.57	top	0.60
work	0.58	impact	0.60	one	0.57	external	0.58
		quality	**0.47**	**quality**	**0.54**		

Note: Quality is the outlying item of high concern in the preferred resumes for each age group.

The results of this preliminary word count investigation of the candidate feedback content in table 6.14, suggest that issues of quality were distinct considerations in the feedback for the preferred resume in both the 10-20 years in academia group as well as the others group. The others cohort grouping are those who had been in academia both longer and shorter times than 10-20 years. The 'preferred' resume is taken as the short resume for the 10-20 years in academia cohort and the long resume for those who had been in academia both longer and shorter amounts of time than 10-20 years. While those in the 10-20 years in academia cohort were actually indifferent to the two resumes, for the purposes of comparing distinct contributions to resume preference in each cohort, the short resume is considered 'preferred' for those in the 10-20 years in academia cohort. This preliminary word count, taking these definitions of preferred resume, showed that quality appeared in the top twenty most frequent words for the preferred resume for each cohort. For the less preferred resume in each cohort grouping, quality appears much less frequently in the feedback to the candidate. This suggests that coding in the analysis of the qualitative data for issues of quality is important to see how these issues differed, as they produced different preferred resumes in each of the two groups.

Overall, the quantitative analysis, intended to explore patterns in the data and inform the initial coding for the analysis of the 40,646 words of feedback to the candidate resume, returned three initial items for coding nodes from the EFA and CFA results and one from the preliminary word counts of this data. Making four initial exploratory coding nodes in total. Expectations, Consistency, Potential and Quality. Expectations because issues of expectations were linked to consistency and potential through covariance in the CFA. Consistency and potential are separated as consistency may refer to either consistency of journal rating quality or consistency in the rate of publication. Quality is added as the preliminary word counts suggest it is a prominent consideration in the feedback for the preferred resume for both the 10-20 years in academia cohort and those who had been in academia longer and shorter amounts of time.

6.7.4 Years in Academia and Association with Experience on Appointment Panels

A potential confound in a social bias deriving from an expectation generated from a public discourse, being responsible for the preference towards a particular resume, was identified. It was hypothesized that those who had been in academia between 10-20 years might have had the most recent experience of sitting on appointment panels, and therefore would have a different level of familiarity with the recruitment process and assessing publication records. In this hypothesis, there is a potential confound in the overall trend for

the indifference between the two resumes for the 10-20 years in academia cohort, being caused by an exposure and resultant increased adherence to a discourse. Instead of it being a consequence of exposure and thus adherence to a discourse about publishing in high rated journals, participants in the 10-20 years in academia cohort simply have more up to date or complete knowledge of the publication ratings and are therefore more affected by journal ratings. During the survey, participants were asked how many appointment panels they had sat on in the last three years. They were asked to choose one of four options, none, one to two, three to five, or more than five. Using this data, it is possible to assess the relationship between the number of years in academia and the number of appointment panels sat on in the last three years and thus the amount of recent experience in judging publication records on academic resumes for appointments.

Figure 6.9: Distribution of Appointment Panels Sat on in the Last Three Years Given Number of Years as an Academic
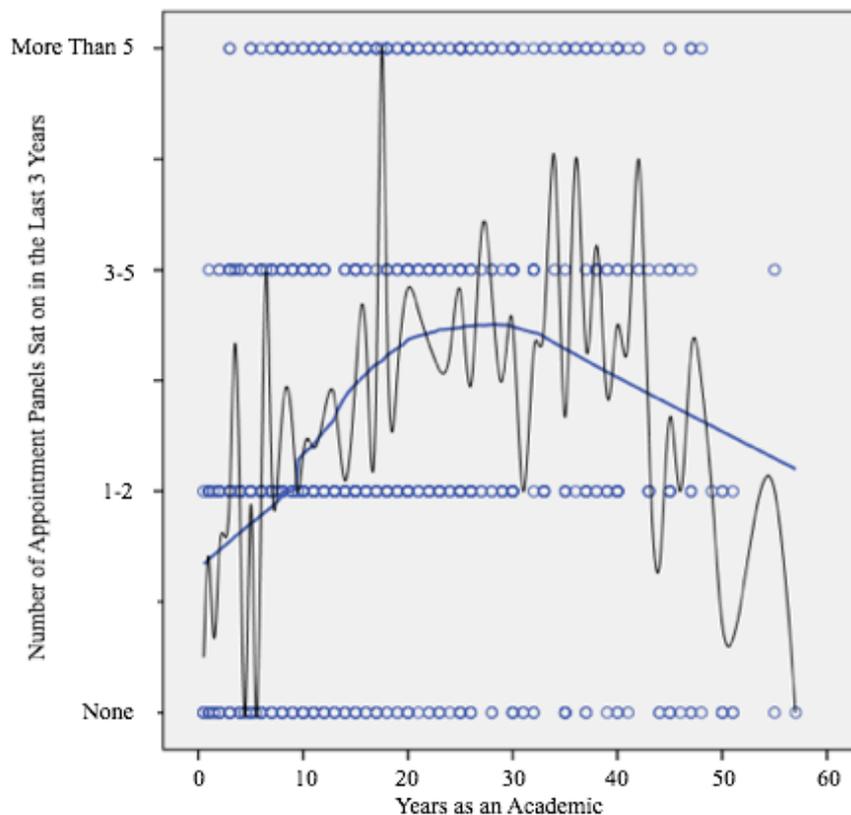
Figure 6.9 shows the distribution of appointment panels sat on in the last three years given the number of years as an academic. The number of appointments sat on in the last three years is at its highest at around 30 years in academia, being high between 20 and 35 years in academia. Therefore, those within the 10-20 years in academia group have not sat on the highest number of appointment panels in the last three years, and have less recent experience and familiarity than those who had been in academia slightly longer.

Table 6.15: Spearman's Rho Correlations Between the Number of Appointments Sat on in the Last Three Years and Finding the Candidate Appointable for the Outlined Position

	Short Resume	Long Resume
Generally Hireable	-.087	-.042
Hireable in Department	-.092*	-.058

* Significant at 0.05

Table 6.15 shows the Spearman's rho correlations between the number of appointments sat on in the last three years and finding each resume appointable in both the generally hireable context and in-department appointment context. Importantly the short resume had the stronger negative association between finding the resume appointable and the number of appointments sat on in the last three years. Those who had sat on the greater number of appointment panels in the last three years were less likely to find the short resume appointable. This was significantly so when participants were asked to consider the resume for their own department, being significant at the 0.05 level. Given that the number of appointment panels sat on in the last three years is negatively associated with a preference for the short resume, it is unlikely that the preferences of those who had the highest opinion of the short resume, those who had been in academia for 10-20 years, was correlated with a greater number of recent appointment panels sat on.

Figure 6.10: Mean Generally Appointable Responses Given Number of Appointment Panels Sat on in the Last Three Years.
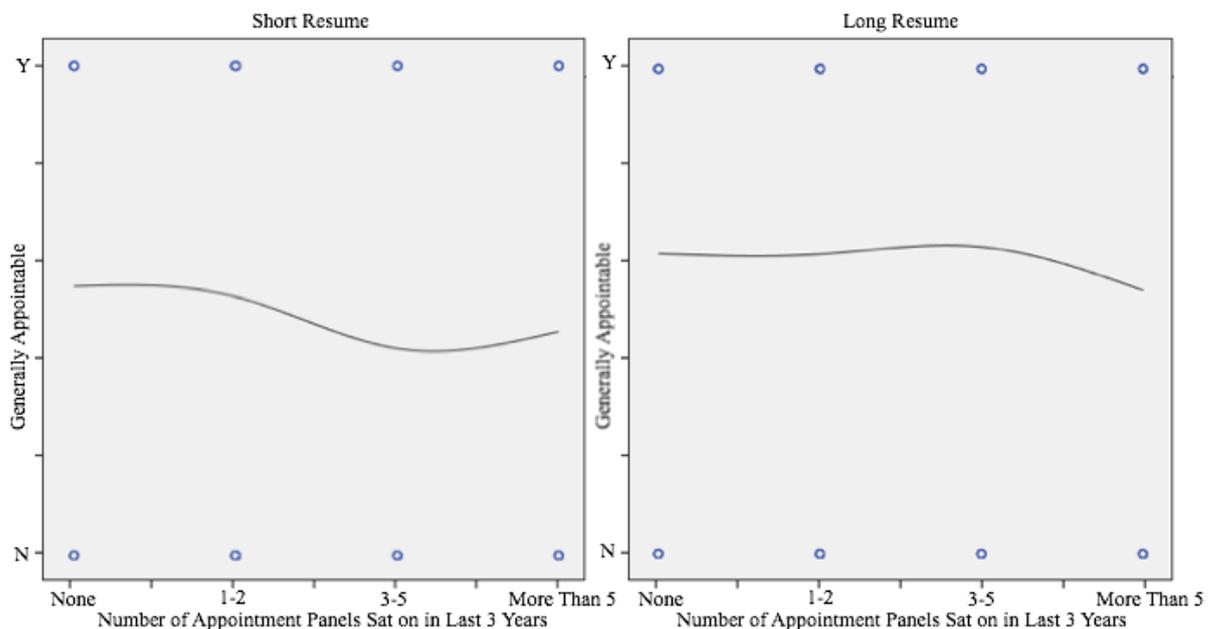
Figure 6.10 shows the distribution of finding each candidate resume generally appointable given the number of appointment panels sat on in the last three years. Preference for the short resume is highest given two or less appointment panels sat on in the last three years, and lowest at three to five appointment panels sat on in the last three years. Those who had been in academia between 10-20 years had, on average sat on around 2.5 appointment panels in the last three years. Conversely the long resume was most preferred amongst those who had sat on three to five appointment panels in the last three years. Therefore, given that preference for the short resume is at its highest amongst those who had sat on fewer appointment panels in in the last three years, as reflected in the Spearman's rho correlations, it is unlikely that the higher preference for the short resume shown by those in the 10-20 years in academia cohort is explained by a higher number of appointment panels sat on in the last three years. Equally the preference for the long resume is not at its lowest around 2.5 appoint panels sat on in the last three years, as per the average of the 10-20 years in academia cohort. So, this cohort's negativity in towards the long resume is unlikely to be correlated with their recent experience on appointment panels. The lower correlation in the Spearman's rho correlations between the number of appointment panels sat in the last three years and finding the long resume appointable can be partly explained by both younger and older academics preferring the long resume whereas for the short resume was most preferred by the 10-20 years in academia cohort.

Figure 6.11: Mean Appointable In-Department Responses Given Number of Appointment Panels Sat on in the Last Three Years.


152
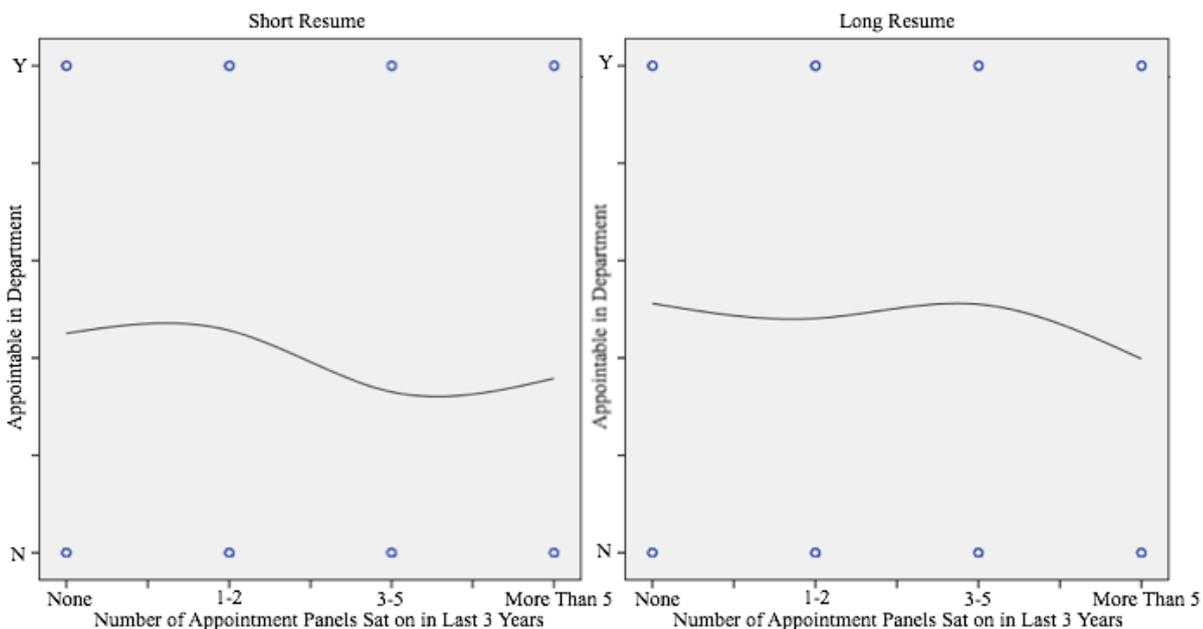
Figure 6.11 shows the distribution of finding each candidate resume appointable at the participant's own department given the number of appointment panels sat on in the last three years. The trends the overall distribution are the same in the in-department context as they were in the generally hireable at the outlined level context. But the differences in preference for each resume are more extreme in the in-department context, pushing the difference in preference for the short resume to significant at the 0.05 level (table 6.15).

Analysis of the of the associations between the number of appointments sat on in the last three years, years as an academic, and preference for long or short resumes, indicates that recent experience and familiarity with assessing publication records is not linked to the preferences shown for the short resume by those who have been in academia for 10-20 years. Equally analysis of the relationship between the number of appointment panels sat on in the last three years and the preference for the long resume appears to rule out that the negativity towards the long resume in the 10-20 years in academia cohort can be explained by their recent experience on appointment panels.

Although experience on appointment panels being solely responsible can be ruled out as responsible for the indifference between the two resumes in the randomized control trial for the 10-20 years in academia cohort, other combinations of influence cannot be ruled out. For example, it might be that academics who have been in academia for less than 10 years might be inexperienced and thus prefer the long resume simply because it has more publications on it, not fully knowing the ratings of the journal outlets published in. Meanwhile those older participants who had been in academia for more than 20 years could have developed a more pragmatic view of journal ratings, seeing these ratings and perceptions of them as being fluid over time. Ultimately trends in the focus on journal rating in candidate feedback would be a good indicator. You would expect if this were the case, and that journal ratings were simply less familiar to the younger academics and less pertinent to the older academics, then there would be less comments within the feedback for the candidate resume on journal quality. There would be either less ability or less desire to make recommendations on the basis of journal ratings. If comments pertaining to quality were frequent in both the 10-20 years in academia cohort as well those who had been in academia more and less time than this, then an assessment of journal quality is likely to have been made by both groups. This will be an important finding in the analysis of the qualitative data. Analysis of initial exploratory coding nodes and subsequent sub-nodes in the qualitative data, for differences between how the 10-20 years in academia cohort and those outside that cohort, will give the best insight into what determined the different preferences for each resume.

6.8 Summary of Chapter

This chapter set out the quantitative findings from the randomized control trial online survey. In the first instance, the data was analysed to test the overall hypothesis, that the addition of low rated journal publications to an academic resume could cause a negative reaction compared to their omission, meeting research objective 2. The hypothesized mechanism for a negative reaction being a social bias of 'backfire effect', as the presentation of lower rated journal publications are at odds with the discourse that high rated journal publications should be targeted. In investigating this overall hypothesis across countries and across disciplines, the long resume that included the eight low rated publications in addition to the four high rated publications was preferred. There was therefore not a negative reaction to the addition of these low rated journal publications, with all other resume content being identical on the short resume. Overall participants were objective and 'rational', considering this additional content, with all other things being equal, as additional contribution to meeting the criteria for the outlined job position of senior lecturer/associate professor.

In breaking down these overall results further by demographics, there were some interesting findings. Males had a particularly strong preference for the long resume whereas females were relatively indifferent between the two resumes. The candidate contained in the hypothetical resume was male and it is argued that there are different expectations for women and men regarding productivity in terms of the number of academic publications produced (Mooney, 1991). It is possible that males considered the long resume to have a high productivity for a male, but females did not perceive this to be a high level of productivity compared with what would be expected of them.

The most notable finding in breaking the overall hypothesis results down by demographics is that those who reported as having been in academia between 10-20 years were indifferent to the two resumes in both the generally hireable appointment context as well as the in-department appointment context. This finding would be 'irrational' given that the additional content of the low rated journal publications was an additional contribution, with all other contributions in the short resume remaining identical. This result may therefore indicate that there could be a higher propensity for the hypothesized 'backfire effect' amongst the 10-20 years in academia cohort. Interestingly it is this cohort of academics that are likely to have been developing as academics when the discourse promoting publications in high rated journal outlets was at its strongest. The data was collected in late 2015. The use of journal metrics and ratings to assess publication records emerged in the early 1990s and remained dominant until criticisms began to emerge in the mid-2000s. This potential cohort effect needed more investigation.

To be able to investigate this cohort effect further it was necessary to utilize the dataset from the randomized control trial online Qualtrics survey further. As part of this new enquiry is was going to be necessary to use the 40,646 words of feedback for the candidate resume retrieved across the 1,011 participants. To be able to better inform the analysis of this large amount of free text candidate feedback and investigate the ways participants thought the candidate resume could be improved, it was necessary to conduct further quantitative data analysis to help inform nodes for coding in the analysis of the qualitative data.

During the online survey, Likert scaled responses to statements about the candidate were collected, both in the context of whether the candidate was hireable at university more generally at the outlined level, as well as whether the candidate was appointable at the participant's own department. With the responses to these statements being on the same scale, it was possible to conduct a factor analysis on these responses and reduce them down to a few latent constructs or underlying factors determining the assessment of the candidate resume. Identifying these latent constructs or underlying factors would be a valuable insight for informing the coding structure for the analysis of the 40,646 words of candidate feedback.

In conducting a parallel analysis and exploratory factor analysis, it appeared that there were three latent constructs in the Likert scaled responses to statements about the candidate. Those three factors were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions' and 'potential and consistency: general hire questions'. The in-department context responses became its own factor, given the usually harsher assessment of the candidate when considering them for the participant's own department. The generally hireable context questions were however split into two underlying factors. Issues of collaboration appeared its own factor so the main item pertaining to this was dropped from the confirmatory factor analysis model.

In running a confirmatory factor analysis on the Likert scaled statement responses, there was covariance between items pertaining to meeting expectations and items pertaining to consistency and potential. From the confirmatory factor analysis, the trends and covariance in the data suggest that coding nodes for the analysis of the 40,646 words of candidate feedback based around expectations, consistency and potential are appropriate. Consistency and potential are separated as consistency may refer to either consistency of journal rating quality or consistency in the rate of publication.

A preliminary word count of the 40,646 words of candidate feedback, split into those in the 10-20 years in academia cohort and those who are not, as well as by resume type,

showed that the word 'quality' appeared to be more prominent in the feedback to the preferred resume in both those inside the 10-20 years in academia cohort and those outside it. Quality was therefore also added as a likely coding node for analysis of the qualitative candidate feedback. There would therefore be four coding nodes, expectations, consistency, potential and quality.

In investigating the overall hypothesis of a 'backfire effect', where the addition of low rated journal publications causes a negative reaction to the long resume because they are at odds with the expectation to publish in high rated journal outlets, it was important to see if there was an indication of a negative reaction within the 10-20 years in academia cohort. When looking at the trends in the underlying latent constructs and factors in the Likert scaled statement responses it appears that an increased negativity towards the long resume is present for the 10-20 years as an academic group accounting for overall trends, opposed to a preference for the short resume. With the long resume including eight low rated journal publications in addition to the same four high rated publications on the short resume. That negativity towards the long resume appears to specific for those within those who report as having been in academia for 10-20 years and effects the statement responses pertaining to whether the candidate generally meets the criteria for the position, both in the generally hireable at this level context as well as the hireable at this level in the participant's department. A negative reaction when presented with the resume containing the low rated journal publications therefore does appear present in 10-20 years in academia cohort. This appears to interact with a trend for positivity towards the short resume regarding consistency and potential aspects of the candidate peaking around the 10-30 years as an academic.

Analysis was also conducted to rule out possible confounds pertaining to the cohort effect found in the preferences towards the randomly assigned resumes in the randomized control trail. In particular, whether experience in sitting on appointment panels and thus greater familiarity with assessing publications records and journal ratings, might be responsible for the cohort effect where the 10-20 years in academia group are indifferent between the two resumes. Quantitative analysis suggested that there was a reversed correlation with the number of appointment panels sat on and a preference for the short resume and those who least preferred the long resume sat on fewer appointment panels than the 10-20 years in academia cohort. Therefore, more recent experience and familiarity with journal ratings is unlikely to explain the indifference. Analysis of the qualitative data and the assessment of quality in the 10-20 years in academia cohort and those outside it could help confirm this.

CHAPTER 7: QUALITATIVE DATA FINDINGS

7.1 Introduction to Chapter

The purpose of this chapter is to conduct analysis on the 40,646 words of free text candidate feedback collected as part of the randomized control trial online Qualtrics survey experiment. This analysis of the qualitative data is intended to help explore and investigate further some of the results found in the quantitative data, meeting research objective 3. Although there were indications in the quantitative data for a possible social bias amongst those who had been in academia 10-20 years, the source of any social bias could not be identified through quantitative data alone.

Integration of data in a mixed-method approach such as this can be achieved at the level of the design, data collection and analysis, as well as in interpretation and reporting (Hong et al, 2017). The comparison of results based on different data types, known as data triangulation, is often thought to help in validating and increasing the credibility of the claims (Olsen, 2004). This study used data triangulation, as opposed to investigator triangulation or theory triangulation, or indeed methodological triangulation, which is the use of multiple methods to study a single problem or phenomenon (Niglas, 2000), given the single randomized control trial survey method. The additional qualitative data of the free text candidate quotes needed to be used to investigate questions that could not be analysed using the quantitative data. Approaching qualitative data using a framing of behavioural science is also an important part of exploring and demonstrating how a behavioural science framing for employment can be used across data types and methodologies.

The main quantitative finding that needed investigating was that the 10-20 years in academia cohort were indifferent between the two resumes in the randomized control trial design, compared to a preference for the long resume for those who had been in academia more and less time than this. This indifference was arguably not fully 'rational' given that the treatment of adding low rated journal publications to otherwise exactly the same resume content, objectively provided additional content in meeting the desired criteria for the outlined post. Hence it is important to explore the possible reasons for this indifference between the two resumes for this cohort, as it was not possible to determine the precise mechanisms behind it through the quantitative data alone. Firstly, it was not clear if the result might be caused by a greater propensity in the 10-20 years in academia cohort to display the hypothesized 'backfire effect', where this cohort's likely exposure to a belief that higher rated publications should be targeted, results in the presentation of low rated journal publications having a negative influence. The indifference in the 10-20 years in academia

cohort could also be caused by a 'confirmation bias' where, due to belief in publishing in high rated journals, low rated journal publications were simply ignored. It was also possible that this cohort effect could be caused by other factors interacting with the cohort such as recent experience on appointment panels and thus familiarity with assessing journal publications and their ratings. Determining between these possible sources for the indifference seen in the quantitative data could not be identified from the quantitative data alone, thus qualitative data is used to provide new insights and enrich these findings.

It was necessary to investigate how comments relating to journal quality differed, given the long or short resume, between those in the 10-20 years in academia and those not in this cohort grouping. It was also necessary to confirm if those comments in the 10-20 years in academia cohort reflected that the addition of the low rated journal publications to the resume did indeed have a higher propensity to trigger negative reactions. It appears in analysing the trends in the latent constructs and three underlying factors across the number of years in academia in figures 6.6 to 6.8, that negativity towards the long resume is present for the 10-20 years as an academic group, indicating a possible 'backfire effect' towards the presentation of additional low rated journal publications amongst the 10-20 years in academia cohort. Negativity towards the long resume by those who had been in academia for 10-20 years in each of these aspects would therefore be particularly interesting. Additional common themes behind decision-making that may affect decision-making that could also be unearthed are discussed in the context of resume preference for each cohort grouping.

It was important to explore the sources of decision-making by the participants, looking for indicators that were specific to the preferred resume as with the initial overall word count in chapter 6. Again, the 'preferred' resume is taken as the short resume for the 10-20 years in academia cohort and the long resume for those not in this cohort. It was useful to investigate co-occurring words in the feedback given the resume received. Given that any social bias is subconscious and is thus likely to have very subtle and nuanced indicators in the qualitative data, it was necessary to investigate the data for initial indicators. Initial exploratory cluster analysis of the most frequent words was limited to the top forty words for each of the initial coding nodes identified in the quantitative data; potential, consistency, expectations, and quality.

These cluster analysis word counts were used to reduce the search space in looking for indicators of social bias and could then inform new sub-nodes. Analysis of sub-nodes and the frequency of references made by participants in them was then used to discuss sources of decision-making in relation to possible social biases as well as other themes that

enrich the understanding of how decisions were made. Illustrative quotes were then drawn out to demonstrate the patterns contained in the candidate feedback in relation to the coding of sub-nodes and the preferred resume for that cohort grouping.

7.2 Initial Exploratory Cluster Analysis on the Four Parent Nodes

In coding the qualitative data of candidate feedback, the four nodes identified in the quantitative data analysis were used, these being expectations, consistency, potential and quality. These initial indicators for decision-making facets were used to reduce the search space and code in the initial exploratory cluster analysis of the qualitative data. Naturally there was a high level of overlap between these nodes, with some content overlapping several, or even all, nodes. In particular, the 'expectations' node covered a wider set of content and often there were expectations pertaining to consistency and quality. In addition, there were often comments by respondents that related to quality and consistency, or consistency and potential. For example, wanting consistently highly rated publications or indicating that greater consistency would better reflect the candidate's potential. Overall much of the candidate feedback focussed on commenting on the candidate's resume publication record. There were similar quotes for each node present for both those in academia for 10-20 years and those who had been in academia more and less than this time. However, given the nuanced nature of investigating subconscious bias, it is the frequency of these comments that needs to be unearthed using coding techniques to be able to ascertain the sources of overall preference for each cohort.

The candidate feedback was coded using NVivo. When exploring the initial findings from coding the four nodes into the candidate feedback, the top 40 most frequent words used in each node, for each resume, split by those in the 10-20 years in academia cohort and those outside that group were investigated. The top 40 most frequent words were stemmed, that is to say related words were included, for example 'publish', 'publishing' and 'published'. As part of assessing word frequency 'stop words' were excluded using NVivo, where frequent words that do not pertain to content specifically such as 'and', 'or', 'the', etc. are excluded automatically. Cluster analysis on word frequency analyses co-occurrence of words across nodes and sources (Bazeley & Jackson, 2013). In each case, the top 40 words are limited to the most frequent words for that specific node. The purpose of conducting these exploratory cluster analyses was to visualize patterns in how the most frequently used words in each initial quantitatively derived node were used. The frequently used words as well as patterns of co-occurrence could then be used to inform the creation of possible sub-nodes. It is from references within these sub-nodes that analysis of likely propensities for a possible social

bias can be ascertained. Propensities to advise ways that the candidate can improve their resume is likely to indicate how decisions were made on considering the candidate hireable or not.

When analysing the cluster analysis of each of the node contents split by resume type and cohort, there was one single pattern that stood out. This was the dominant use and location of the word 'focus' within different clusters, with cluster analysis pairing the most frequently co-occurring words across nodes and sources, that is to say they have been used by similar people in the same contexts. The word 'focus' was utilized in three different contexts of interest. Of greatest interest is the use of the word 'focus' by those who had been in academia for 10-20 years when analysing the long resume, this use is labelled type A in the cluster analysis. Type B was considering how the word 'focus' was used by those who were not in the 10-20 years in academia cohort when reviewing the long resume. The use of the word 'focus', labelled as type C, was how the word 'focus' was used by those who had been in academia for 10-20 years when reviewing the short resume.

Initial word counts of the overall dataset indicated the word 'quality' to be distinct in the preferred resume for each cohort grouping. Therefore, in addition to the clustering of the word 'focus' across the different nodes, it was important to note the use of the word 'quality' in the feedback and what types of words this was clustered with. It was important to see how 'quality' was used by both the 10-20 years in academia cohort as well as those outside it to confirm how journal quality was assessed. Journal quality being prominent in the assessment of the candidates could indicate its importance in decision–making and any associated bias.

Figure 7.1: Cluster Analysis for Consistency Node and Short Resume
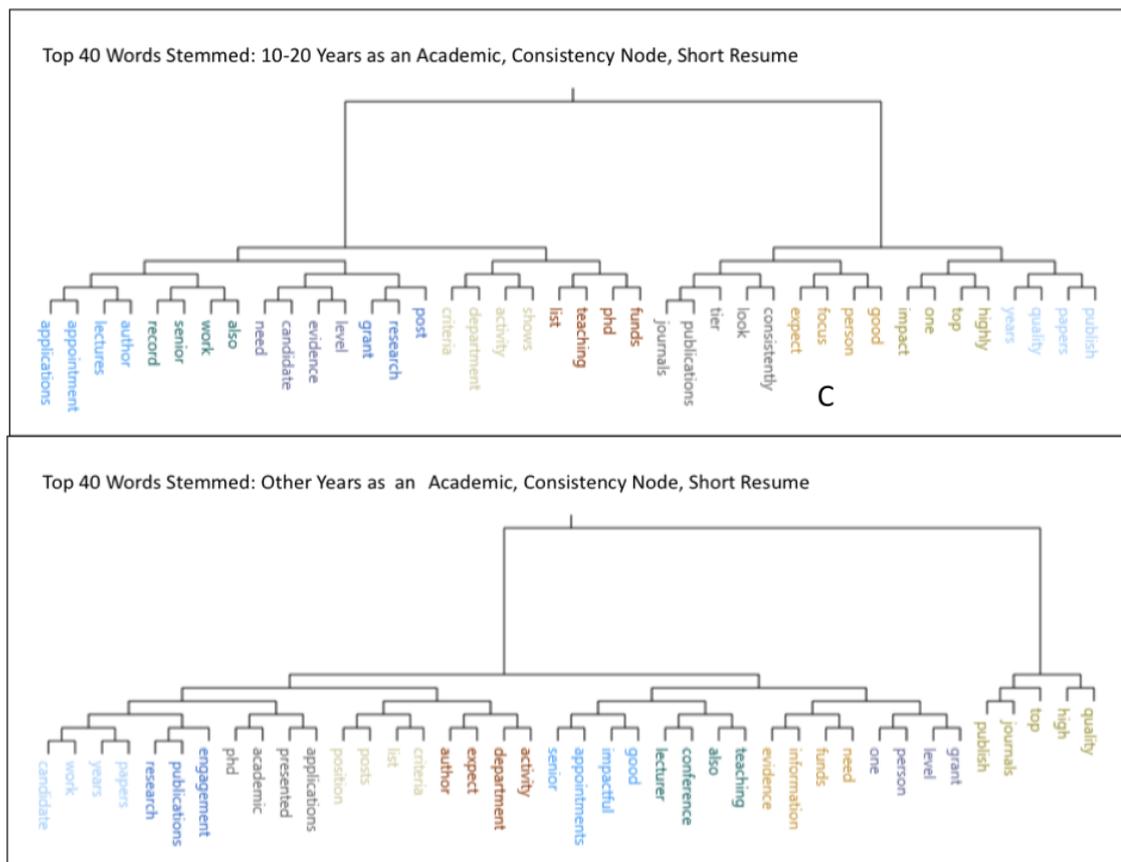
Figure 7.1 shows the cluster analysis for the top 40 most frequent words in consistency node when viewing the short resume, split by those who had been in academia and for 10-20 years and those who are not in that group. In this instance the word 'focus' is only in the top 40 most frequently used words for those who had been in academia for 10-20 years. As per the aforementioned labelling the use of the word 'focus' by those who had been in academia 10-20 years when viewing the short resume is labelled 'C' in the cluster analysis. The word 'focus' is clustered with the words 'good', 'person', and 'expect'. Indicating that the short resume displays a focus that reflects a good candidate that meets expectations for those in the 10-20 years in academia cohort. In this instance the word 'focus' appears to be used not as advice for the candidate to focus more on an activity, but instead is likely to be used to describe the candidate as 'focussed'. There is an important distinction to be noted here as the use of the word 'focus' has several meanings. In these cluster analyses the use of the word 'focus' appears to have been used both to describe the candidate as 'focussed' or having 'focus' as well as to recommend in the feedback for the candidate to 'focus' on a particular aspect to strengthen their resume. Co-occurring words are important to distinguish meaning.

The word 'quality' is present in the top 40 most frequent words in the consistency node for both the 10-20 years in academia cohort as well as those outside it. For the 10-20

years in academia cohort it is clustered with the words 'publish, 'papers' and 'years'. For those outside the 10-20 years in academia cohort, it is clustered with 'high', 'top', 'journals' and 'publish'. This indicates that both cohort groupings did indeed make an assessment of the quality of the ratings of the publications contained in the short resume. Journal quality appears to be a prominent part of the assessment of the consistency of even the short resume candidate. Again, the context of the use of the word 'quality' throughout these exploratory cluster analyses of the initial coding nodes changes. For example, the use of the word 'quality' can be used to praise the existing level of 'quality' or to recommend more of that existing 'quality'. It may also be used to recommend that the candidate improve the 'quality' of their publications. The word 'quality' is routinely used as a proxy for journal rating. The purpose of conducting these initial exploratory cluster analyses is to use co-occurring words to uncover new patterns and contexts to understand better the meanings behind the language used in the candidate feedback to inform the coding of new sub-nodes.

In viewing the short resume, 38/40 words were the same in the top 40 most frequently used words in the consistency node between cohort groups, showing very similar contents. A summary bringing together the findings from across the cluster analyses on the initial exploratory coding nodes in this section is presented later in table 7.1.

*Figure 7.2:* Cluster Analysis for Consistency Node and Long Resume
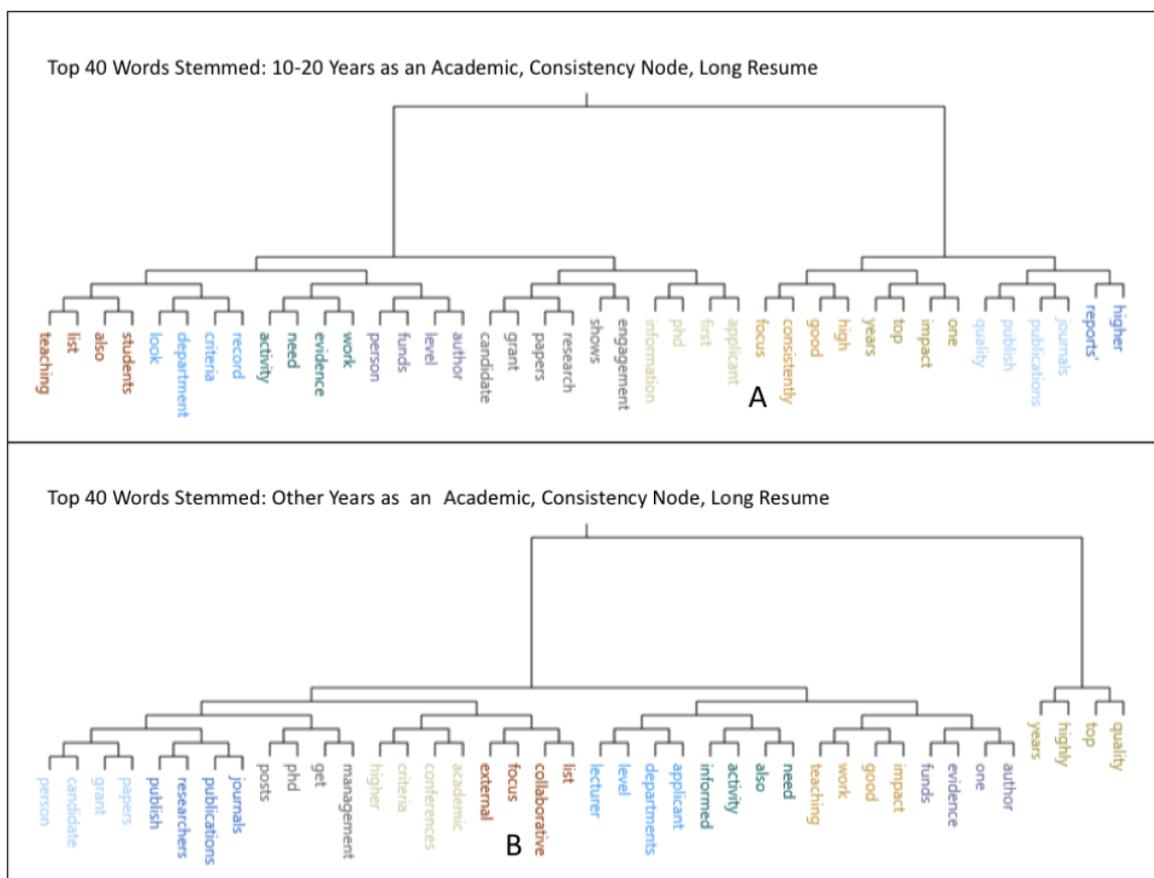
Figure 7.2 shows the cluster analysis for the 40 most frequently used words for the consistency node when viewing the long resume, split by those who had been in academia for 10-20 years and those who are not in that group. In the case of this cluster analysis, the word 'focus' is used prominently twice. Firstly, it is used by those in the 10-20 years in academia group, labelled 'A', and is clustered with the words 'high', 'good' and 'consistently', suggesting there is an expectation amongst these academics to consistently publish in high rated journals and that the long resume candidate should focus on this. Secondly, it is used by those not in the 10-20 years in academia group, labelled 'B', and is clustered with 'list', 'collaborative' and 'external'. This suggests that those in this group are looking for additional factors such as collaborations and external engagement, and suggest that the long resume candidate focus on building these traits. This advice to focus on issues such as collaboration is important in considering that issues of collaboration appeared to be a separate factor during factor analysis of the Likert scaled statement responses in chapter 6.

Again, quality was grouped with the words 'journals', 'publications' and 'publish' for the 10-20 years in academia cohort and 'top' 'highly' and 'years' for those outside this cohort. This word clustering with the word 'quality' indicates that journal ratings were focussed on by both groups as well as the frequency of high rated publications. The presence of comments pertaining to journal quality when viewing the long resume, being combined with words like 'top' and 'highly' indicates that the different quality of the journals in resume was acknowledged. This initial exploratory and investigative cluster analysis for the consistency node suggests that the low rated journal publications were not ignored as would have been the case in a 'confirmation bias'. There are therefore initial indicators for ruling out a 'confirmation bias' as the source of indifference between the two resumes found for those who had been in academia for 10-20 years.

For the long resume and consistency node 31/40 words were repeated between groups. Interestingly 31 of 40 words was the lowest amount of words repeated between cohort groups. This initial exploration through a cluster analysis of the top 40 most frequently used words therefore could indicate that issues of consistency, specifically when viewing the long resume, diversified views between those who had been in academia for 10-20 years and others the most. This could provide some indication for the unique indifference between the two resumes seen in those who had been in academia 10-20 years compared to the preference for the long resume shown by those who had been in academia longer and shorter than this.

Figure 7.3: Cluster Analysis for Potential Node and Short Resume
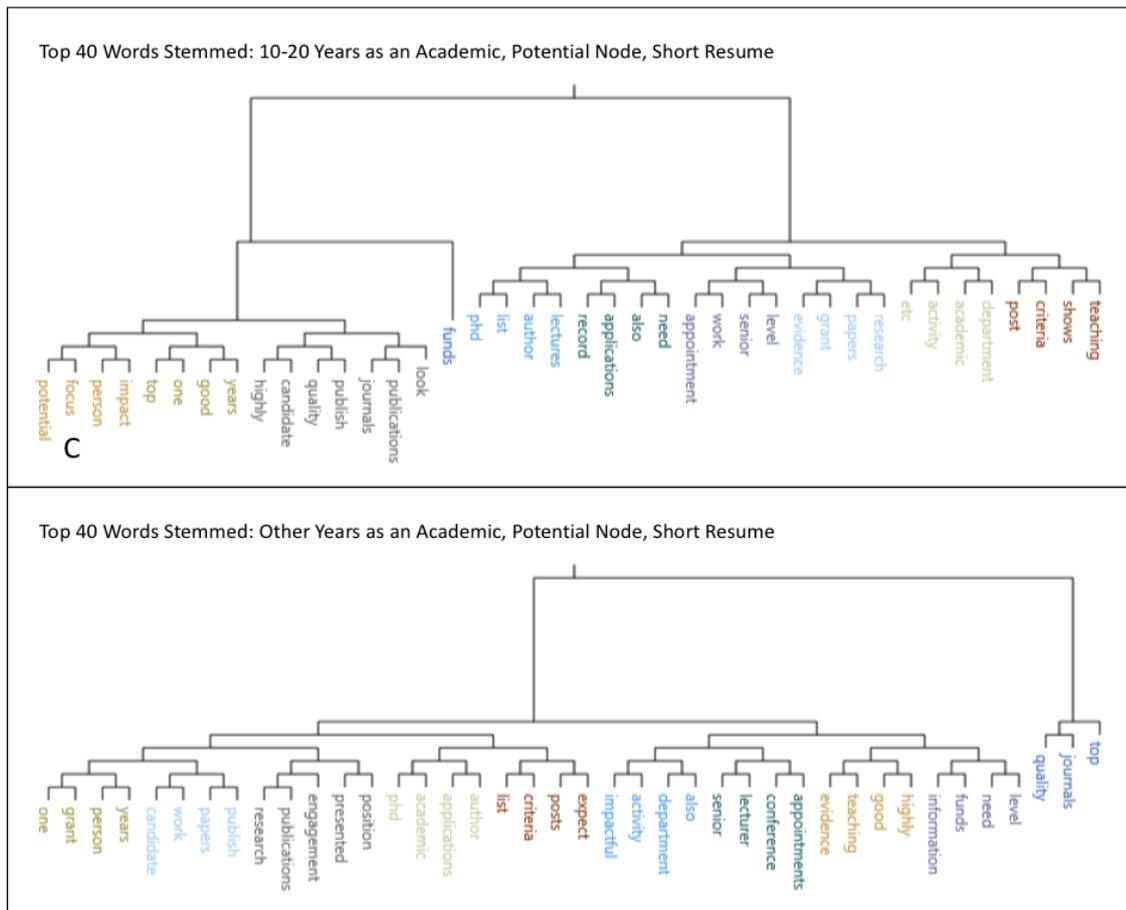
Figure 7.3 shows the cluster analysis for the top 40 most frequently used words in the potential node when viewing the short resume, split by those who had been in academia for 10-20 years and those who are not in that cohort. In this cluster analysis the word focus appears once in the top 40 most frequent stemmed words. This is within the 10-20 years in academia cohort and is labelled 'C'. It is clustered with the words 'impact, 'person' and 'potential'. As with the consistency node, when viewing the short resume, the 10-20 years in academia cohort appear to use the word 'focus' as a descriptor of the candidate showing a focus, positively appraising the potential of the short resume candidate.

The word 'quality' is once more present in the assessment of the resume by both the 10-20 years in academia cohort and those outside it. It is grouped with the words 'look', 'publications', 'journals', 'publish', 'candidate' and 'highly' for those in the 10-20 years in academia cohort; and 'top' and 'journals' for those outside this cohort. When viewing the short resume and the candidates potential journal rating was clearly assessed by both cohort groups.

For the short resume 34 of the top 40 words in the potential node were repeated across cohort groupings, again suggesting that the two groups had a high similarity in their feedback.

**Figure 7.4:** Cluster Analysis for Potential Node and Long Resume
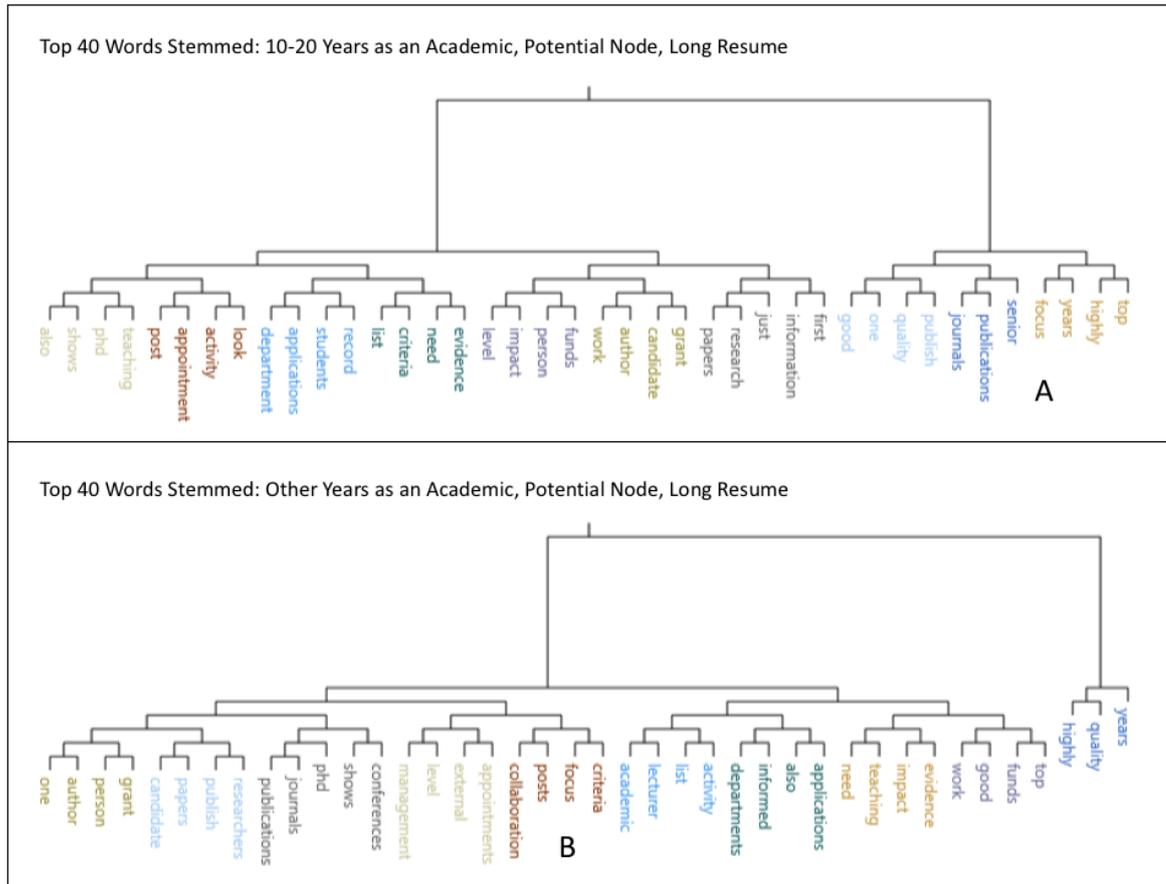
Figure 7.4 shows the cluster analysis of the top 40 most frequently used words for the potential node when viewing the long resume, split by those who had been in academia for 10-20 years and those who are not in that cohort group. The word 'focus' appears twice. It appears in the 10-20 years in academia cohort clustered with words 'top', 'highly', and 'years', labelled 'A'. This indicates that for 10-20 years in academia cohort, potential is achieved through focussing on highly rated journals over time and that the advice is for the long resume, including the low rated publications, to focus on more high rated journals to reach their potential. It is also used by those not in the 10-20 years in academia cohort and is clustered with the words 'criteria', 'posts' and 'collaboration', labelled 'B'. This suggests that for those outside the 10-20 years in academia cohort, the long resume candidate needs to focus on new posts and collaboration to reach their potential. This node again indicates that collaboration is a distinct issue for those not in the 10-20 years in academia cohort.

'Quality' was used in the feedback by both cohort groupings. It is clustered with 'publish', 'one' and 'good' for the 10-20 years in academia cohort and 'years' and 'highly' for those not in that cohort. Journal ratings again appear to have been assessed, not ignored.

In receiving the long resume candidate feedback shared 33/40 of the top 40 words in the potential node between cohort groupings.

Figure 7.5: Cluster Analysis for Quality Node and Short Resume
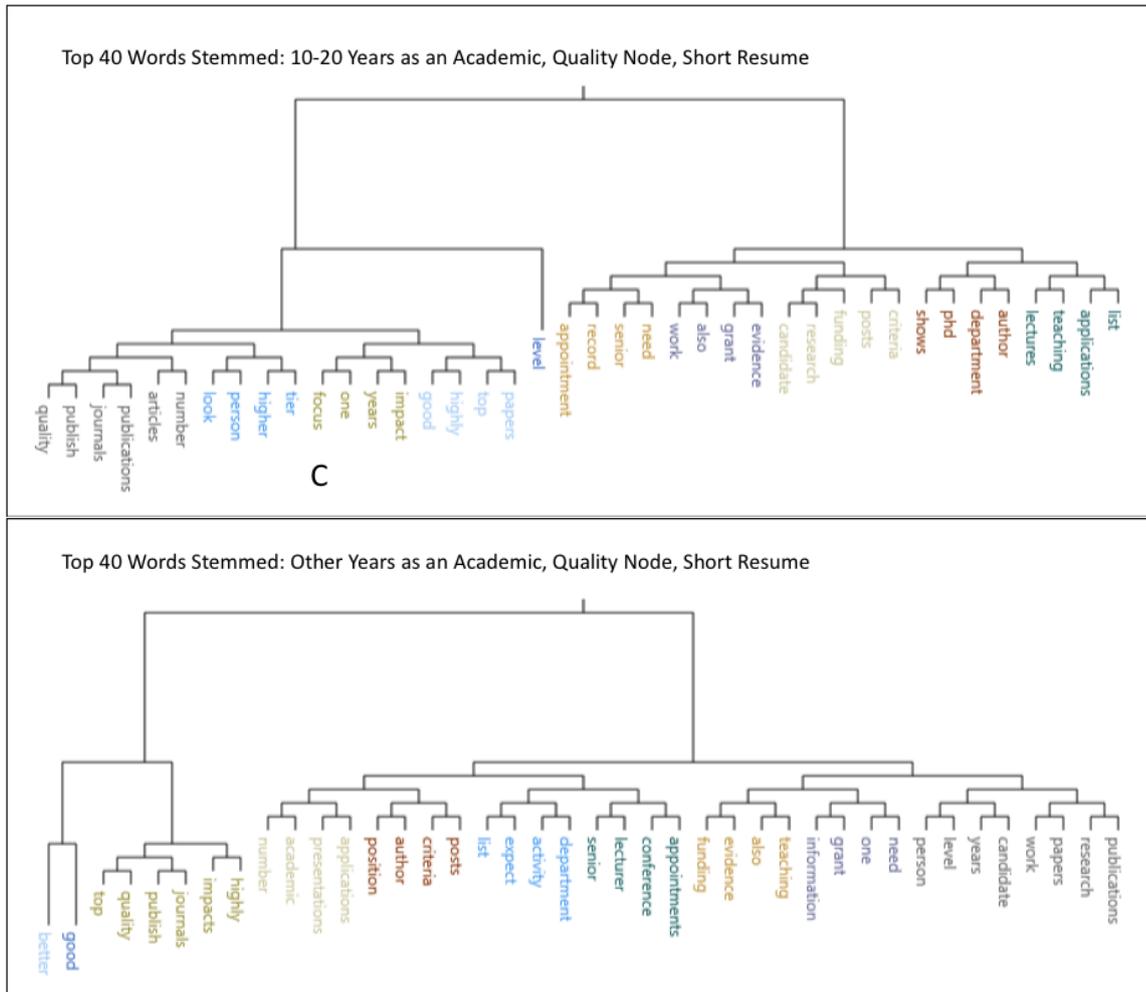
Figure 7.5 shows the cluster analysis for top 40 most frequently used words in the quality node when viewing the short resume, split by those who had been in academia for 10-20 years and those who are not in that group. The word 'focus' appears once in the 40 most frequent stemmed words. It appears in the 10-20 years in academia cohort, clustered with the words 'impact', 'years' and 'one', labelled 'C'. Interpretation tends towards recommendation for the short resume to focus on an increased rate or number of quality papers for the 10-20 years in academia cohort, though could be interpreted as representing praise for existing frequency and quality, seeing the candidate as having 'focus'.

In the quality node, the word 'quality' was grouped with the most clear association in the assessment of journal ratings. The word 'quality' was grouped with 'number', 'articles', 'publications', 'journals' and 'publish' for the 10-20 years in academia cohort, reflecting the recommendation for the short resume to focus on increasing the rate or number of high rated journal publications. For those having been in academia both more and less time than the 10-20 years in academia cohort the word quality is grouped with the words 'highly', 'impacts', 'journals', 'publish' and 'top'. Between cohort groupings 32/40 words were shared.

***Figure 7.6:*** Cluster Analysis for Quality Node and Long Resume
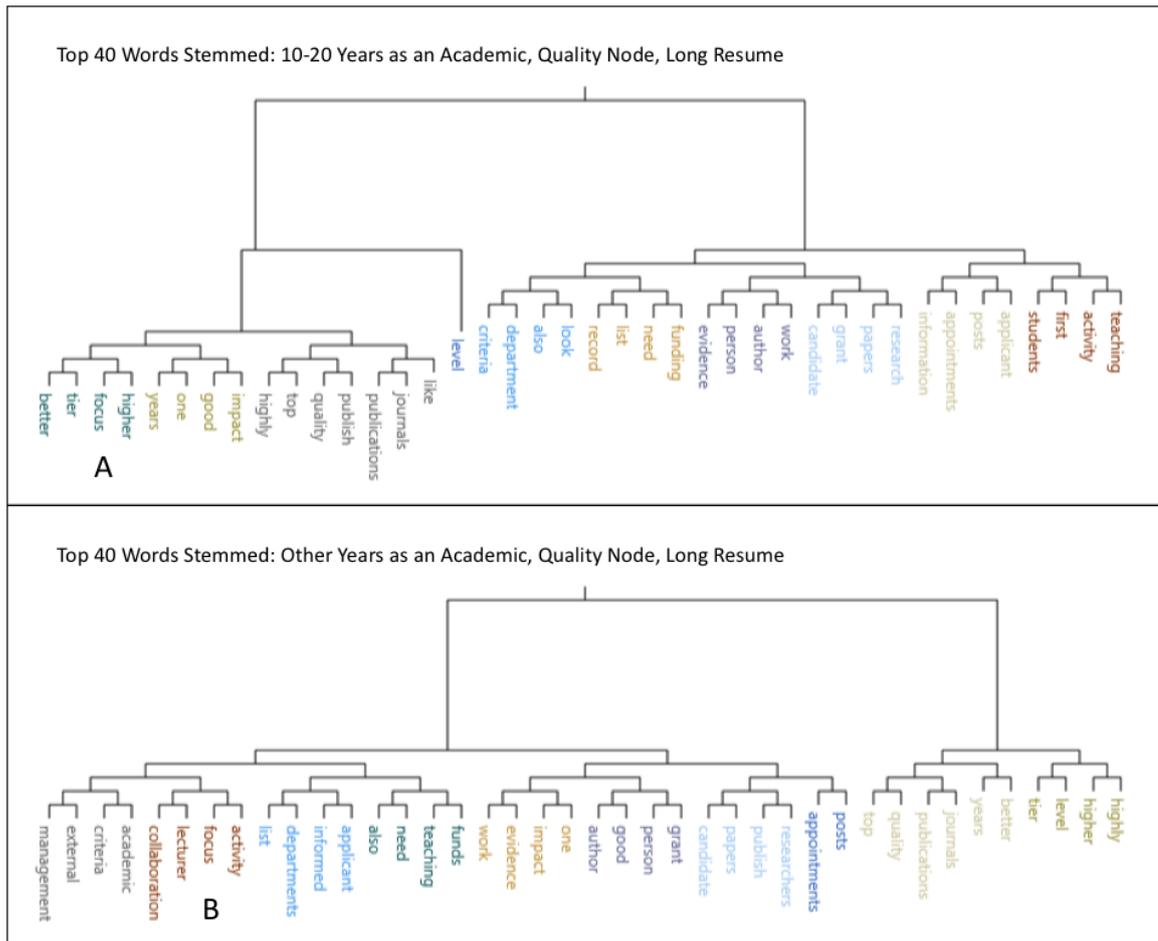
Figure 7.6 shows the cluster analysis for the top 40 most frequently used words in the quality node when viewing the long resume, split by those who had been in academia for 10-20 years and those who are not in that group. The word 'focus' appears twice. It appears in the 10-20 years in academia cohort clustered with 'higher', 'tier' and 'better', labelled 'A'. This suggests that those who had been in academia for 10-20 years had concerns about the quality of the candidate's publications. The word 'focus' also appears in those outside the 10-20 years in academia cohort, clustered with the words 'activity', 'lecturer 'and 'collaboration', labelled 'B'. Again, indicating that attributes beyond a metric of journal publications were desired as well as illustrating issues of collaboration to be a distinct focus for those not in the 10-20 years in academia cohort.

There is an interesting contrast when providing recommendations pertaining to quality for the 10-20 years in academia cohort depending on whether they were viewing the short or long resume. When viewing the short resume, there is the recommendation to focus on a rate or quantity publications, whereas when viewing the long resume the recommendation is to focus on the quality of publications on the record. Clearly when viewing the long resume, that included the eight low rated publications in addition to the

four high rated, for the 10-20 years in academia cohort, increasing journal quality becomes most salient in the assessment of the candidate and thus the advice given. When viewing the short resume, improving the rate or number of high rated publications is recommended by the 10-20 years in academia cohort. This depicts well the challenges facing academics balancing the time required to produce sufficient quality and quantity. For participants who received the long resume, 32 of the top 40 words in the quality node were repeated between cohort groupings.

However, comparing between cohort groups for just those who viewed the long resume, the word 'quality' is grouped with the words 'publish', 'top' and 'highly' for those in the 10-20 years in academia grouping, and 'journals', 'publish' and 'top' for those not in this grouping. Once more there were clear assessments made of the quality or rating of the journals listed on the candidate publication record. Both those in the 10-20 years in academia cohort and those who had been in academia more and less time than this gave clear feedback that the long resume candidate needs to target top or highly rated journals.

Figure 7.7: Cluster Analysis for Expectations Node and Short Resume
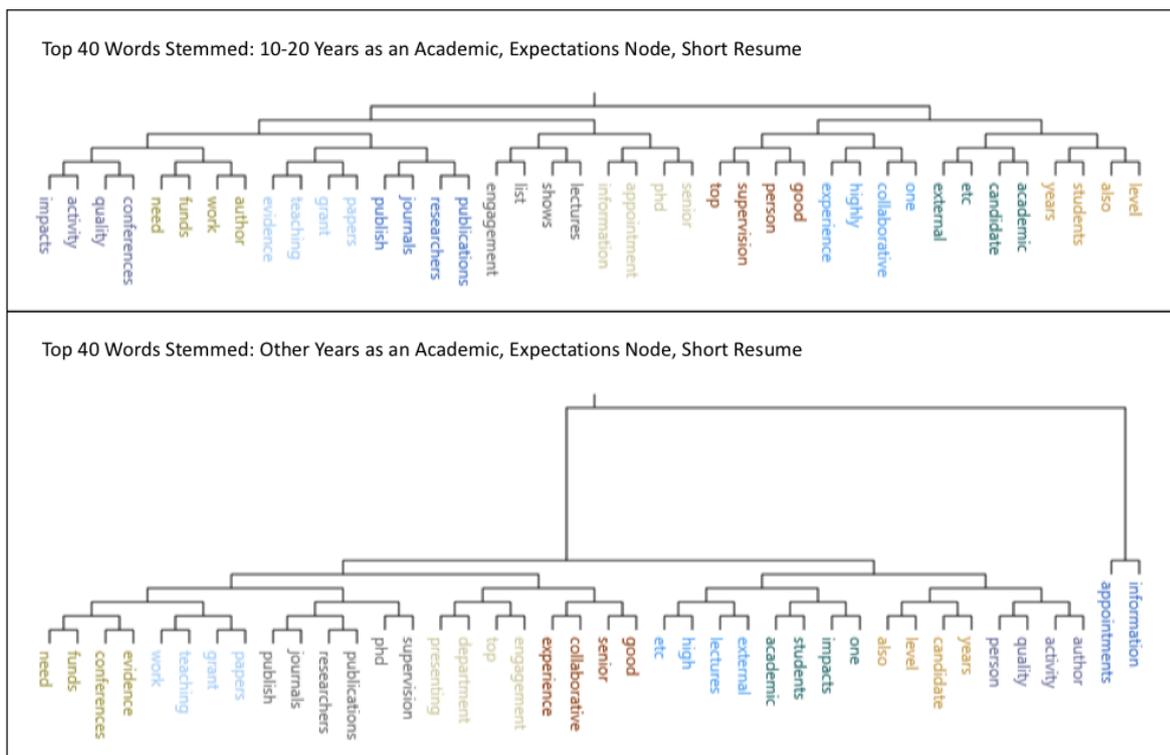

Figure 7.7 shows the cluster analysis for the top 40 most frequently used words in the expectations node when viewing the short resume, split by those who had been in academia for 10-20 years and those who are not in that group. The word 'focus' doesn't appear in the top 40 most frequent stemmed words. This can be partly explained by the fact

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that comments pertaining to expectations, referred to a much broader range of aspects beyond publication record compared to the other nodes.

The word 'quality' also appears alongside less obviously interlinked words to the assessment of publication records for both cohort groupings. Even words like 'high' and 'top' are less obviously associated to the assessment of publication records and the ratings of the publication outlets contained within them. It appears that the expectations node simply covered too broad a set of content to pick up this analysis. There was also a continued similarity in feedback content between cohort groupings, with 37 of the top 40 most frequent words in the expectations node being shared.

Figure 7.8: Cluster Analysis for Expectations Node and Long Resume
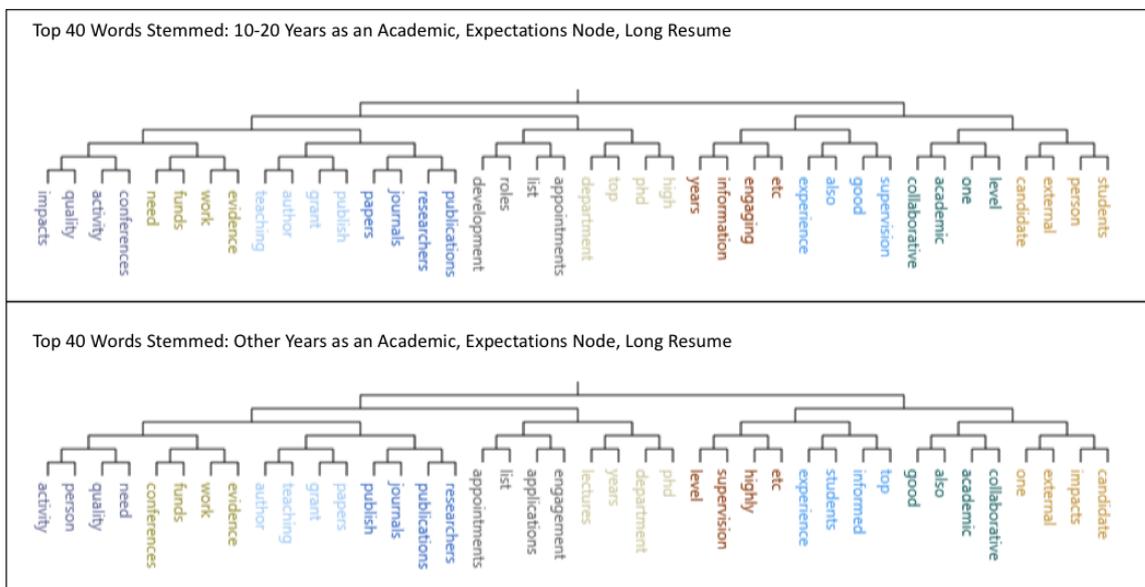
Figure 7.8 shows the cluster analysis for the top 40 most frequently used words in the expectations node when viewing the long resume, split by those who had been in academia for 10-20 years and those who are not in that group. Once again, the word 'focus' is absent. Words like 'quality', 'high' and 'top' are again disparate with the level of analysis of the most frequently words in the expectations node is likely to have been too broad. Shared words between cohort groupings remain at 37/40 for the long resume as well.

7.3 Summary of Exploratory Cluster Analysis Results

This exploratory cluster analysis was intended to help to narrow down the search space in looking for sources of possible decision-making and social bias in assessing the candidate resumes. The trends indicated in the cluster analysis are then used to inform the coding of sub-nodes, from which sources of social bias might be able to be identified. Co-occurrence of the use of the word 'focus' gave distinct results between the preferred resume

for each cohort grouping. The location of the word focus was therefore an indicator for differences in how the candidate resume was judged between cohort groupings.

Table 7.1: Summary of Cluster Analysis Findings

"Focus"		Consistency	Potential	Quality	Expectations
10-20 Years in Academia	Short Resume	good, person, expect	impact, person, potential	impact, years, one	n/a
	Long Resume	high, good, consistently	top, highly, years	higher, tier, better	n/a
Other Years in Academia	Short Resume	n/a	n/a	n/a	n/a
	Long Resume	list, collaborative, external	criteria, posts, collaboration	activity, lecturer, collaboration	n/a

"Quality"		Consistency	Potential	Quality	Expectations
10-20 Years in Academia	Short Resume	publish, papers, years	look, publications, journals, publish, candidate, highly	number, articles, publications, journals, publish	n/a
	Long Resume	journals, publications, publish	publish, one, good	publish, top, highly	n/a
Other Years in Academia	Short Resume	high, top, journals, publish	top, journals	highly, impacts, journals, publish, top	n/a
	Long Resume	top, highly, years	years, highly	journals, publish, top	n/a

The use of the word 'focus', labelled 'A', was where it was prominently used in analysing the long resume for those who had been in academia for 10-20 years. It appears in the consistency, potential and quality coding nodes. It co-occurred with the words 'good', 'high' and 'consistently' for the consistency node, 'top', highly' and 'years' for the potential node, 'higher', 'tier' and 'better' for the quality node. In the case of the co-occurrence of the word 'quality', it appeared that the recommendation was to increase the rate or number of quality publications in the quality node, with it being paired with 'years' and 'consistency'. It is important therefore to code in the sub-nodes to be able to distinguish

between comments pertaining to the improvement of both the frequency, number and quality of the publications on the candidate resume.

The prominence of the word 'focus', labelled 'B', was when it was used by those who had been in academia both longer and shorter than 10-20 years when viewing the long resume. In these instances, the word focus was clustered with 'list', 'collaborative' and 'external' for the consistency node; 'criteria', 'posts' and 'collaboration' for the potential node; 'activity', 'lecturer' and 'collaboration' for the quality node. All of these usages suggest that those who are not in the 10-20 years in academia cohort advise that the candidate contained in the long resume can best improve their application through non journal metric related aspects, especially through showing evidence of collaboration. Collaboration therefore needed to be coded as a sub-node. A possibly associated word of 'author' was used across cohort groupings when viewing the long resume. In the potential node, it was grouped with the words 'grant', 'person', 'one', 'candidate' and 'work'. In the quality node, it co-occurred with the words 'work', 'person', 'evidence', 'grant' and 'good'. This indicates that there were concerns about the number of collaborators as well as the how listed authors on publications demonstrated contributions. There therefore needed to be sub-nodes coded in relation to the number of collaborators and the composition of those authors.

The frequent use of the word 'focus', labelled 'C', was where it was used by those who had been in academia for 10-20 years and viewed the short resume. The word focus was clustered with 'good', 'person' and 'expect' for the consistency node; 'impact', 'person' and 'potential' for the potential node; 'impact', 'years 'and 'one' for the quality node. The word 'focus' appears to have been used to describe the short resume candidate as 'focussed'.

The word 'quality' was widely associated, in the cluster analysis of the top 40 stemmed words for each coding node, with clear evidence of providing feedback on the ratings of journals contained in the publication records. This was the case across both the long and short resume as well as those who had been in academia 10-20 years and those who were not in this cohort. With the assessment of journal ratings in publication records being of a high enough propensity to make it into the cluster analysis of the candidate feedback for both resumes and cohort groups, it is likely that assessment journal rating played a role for most participants. If the mechanism for the indifference between the two resumes in the 10-20 years in academia cohort had been a consequence of a 'confirmation bias', where there is a tendency to only focus on information that confirms one's own beliefs, low rated journal publications would have been ignored rather than being clearly reacted to.

There was a potential confound identified that could explain the cohort effect, where the indifference between the long and short resumes in those who had been in academia for

10-20 years, was caused by recent experience with assessing publication and thus familiarity with journal ratings. The direct link between recent experience and resume preference and its association with the 10-20 years in academia cohort was largely ruled out quantitatively. However, it could be not ruled out from quantitative analysis that those who had been in academia less time lacked experience to judge journal ratings and those who had been in academia more than 20 years were more pragmatic, seeing journal ratings as fluid. However, if this were the case, you would expect the assessment of journal quality in both these groups to be less prominent. There would be an inability to accurately recommend amongst those who had been in academia a short time and less emphasis likely to be placed on journal ratings by those who had been in academia a long time. The results of the cluster analysis on the top 40 stemmed words for each of the nodes indicate too high a propensity to comment on journal quality or rating for those not in the 10-20 years in academia cohort to suggest a combination of inexperience and pragmatism is responsible for the overall cohort finding.

7.4 Sub-Nodes Coding References

The initial exploratory cluster analysis uncovered the word co-occurrence in the top 40 most frequent words across nodes and sources at this level of analysis. The prominence of references gives a better indication of the propensity for those in each cohort grouping to recommend a particular means of improving the candidate resume. Social bias is subconscious so nuanced measurements are required to uncover possible trends. If there was the hypothesized 'backfire effect' it would be expected that there would be recommendations to improve the quality of the journal publications contained in the resume, given a negative reaction to their presence. However, when considering the mechanism behind the social bias of 'backfire effect', there is a tendency to re-enforce a prior belief, which could lead to increased preference or support for high rated journal publications. There is already some supporting evidence of this in the cluster analysis given that, for those in the 10-20 years in academia cohort, the word 'focus' appeared to co-occur with words that described the candidate as 'focussed' for the short resume. Or at least this 'focus' is lost in the long resume.

The cluster analysis, designed to reduce the search space for identifying decision-making trends specific to the preferred resume in each cohort group, indicated that coding sub-nodes for the quantity, frequency and quality of publications would provide useful distinctions behind resume preference. Cluster analysis also highlighted that collaboration was a distinct issue behind resume preference, providing indications to code sub-nodes for the number of collaborators as well as the composition of authors contained in publications.

Table 7.2: Proportion of References for Each Coding Sub-Node

Consistency Node (197 Refererences)

		Publications			Collaboration		
10-20 Years in Academia		59 (93%)			4 (7%)		
Other Years in Academia		132 (99%)			2 (1%)		
		Increase Frequency	Increase Quantity	Increase Quality	Author Composition	Less Collaborators	More Collaborators
10-20 Years in Academia	Short Resume	11 (65%)	6 (35%)	0	1 (100%)	0	0
	Long Resume	3 (10%)	1 (3%)	26 (87%)	1 (33%)	0	2(67%)
Other Years in Academia	Short Resume	35 (52%)	28 (41%)	5 (7%)	0	0	0
	Long Resume	3 (5%)	1 (1%)	61 (94%)	0	1 (50%)	1 (50%)

Potential Node (169 References)

		Publications			Collaboration		
10-20 Years in Academia		40 (91%)			4 (9%)		
Other Years in Academia		102 (94%)			6 (6%)		
		Increase Frequency	Increase Quantity	Increase Quality	Author Composition	Less Collaborators	More Collaborators
10-20 Years in Academia	Short Resume	4 (67%)	2 (33%)	0	1 (100%)	0	0
	Long Resume	2 (9%)	2 (9%)	19 (82%)	1 (100%)	0	0
Other Years in Academia	Short Resume	24 (54%)	15 (33%)	6 (13%)	3 (75%)	1 (25%)	0
	Long Resume	2 (4%)	2 (4%)	51 (92%)	0	1 (50%)	1 (50%)

Quality Node (256 References)

		Publications			Collaboration		
10-20 Years in Academia		79 (97%)			2 (3%)		
Other Years in Academia		168 (95%)			8 (5%)		
		Increase Frequency	Increase Quantity	Increase Quality	Author Composition	Less Collaborators	More Collaborators
10-20 Years in Academia	Short Resume	3 (13%)	18 (75%)[a]	3 (13%)	1 (100%)	0	0
	Long Resume	3 (9%)	5 (15%)	26 (76%)	1 (100%)	0	0
Other Years in Academia	Short Resume	20 (32%)[b]	29 (47%)	13 (21%)[a]	2 (67%)	1 (33%)	0
	Long Resume	0	2 (2%)	96 (96%)	1 (20%)	3 (60%)	1 (20%)

Expectations Node (725 References)

		Publications			Collaboration		
10-20 Years in Academia		118 (70%)			50 (30%)		
Other Years in Academia		271 (71%)			110 (29%)		
		Increase Frequency	Increase Quantity	Increase Quality	Author Composition	Less Collaborators	More Collaborators
10-20 Years in Academia	Short Resume	13 (19%)	53 (79%)	1 (2%)	8 (44%)	8 (44%)[c]	2 (11%)
	Long Resume	4 (10%)	6 (15%)	29 (75%)	20 (69%)	4 (14%)	5 (17%)
Other Years in Academia	Short Resume	48 (33%)[b]	86 (59%)	11 (8%)	15 (30%)	15 (30%)	20 (40%)[c]
	Long Resume	4 (4%)	12 (10%)	99 (86%)	15 (28%)	23 (43%)	16 (30%)[c]

Note: % values refer to proportion of responses for that coding node given years in academia and resume type.

[a] *For the short resume those in the 10-20 years in academia cohort want more of the existing high quality whereas those not in this cohort are less satisfied with existing quality.*

[b] *Those not in the 10-20 years in academia cohort given the short resume had more concerns about the rate of publication.*

[c] *For the short resume, 10-20 years in academia cohort wanted less collaborators while those not in this cohort had a preference for more collaborators across both resumes.*

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When looking at the number of references made for each coding sub-node in table 7.2, there was very little differences between those who were in the 10-20 years in academia cohort and those not in that cohort for the consistency and potential nodes. Conclusions could not be drawn from these nodes. However, there were some differences for the quality and expectations nodes.

The low number of references to collaboration in the consistency, potential and quality nodes, makes comparisons between references to collaboration in these nodes inappropriate. It was therefore necessary to makes such comparisons using the expectations node.

The overall propensities to comment on either publication or collaboration were equal for both cohorts across all nodes, with there being an equally higher amount of feedback pertaining to collaboration in the expectations node. Again, this is because of the wider range of topics covered in the expectations node.

Short Resume

As highlighted in table 7.2 the short resume responses for those in the 10-20 years in academia cohort suggested a more frequent desire to see more of the existing high quality publications. Those not in this cohort were less frequently satisfied with existing quality. Participants may be confirming different prior beliefs. Those in the 10-20 years in academia cohort could see journal metrics as a good measure of quality. Those not in the 10-20 years in academia cohort may be judging the quality of journals by other systems or other metrics. As highlighted throughout this section, there were a number of quotes amongst those not in the 10-20 years in academia cohort indicating that two of the 'high' rated journals included on the resume were not considered top rated.

Those not in the 10-20 years in academia cohort had more concerns about the rate of publication given the short resume. It seems that given the lower number of publications on this resume, there were particular concerns that the candidate was not publishing frequently enough for those not in the 10-20 years in academia cohort. It is interesting to note this discrepancy between having concerns about the rate of publication against the desire to have more publications amongst those in the 10-20 years in academia cohort. This could indicate differing perceptions of how to measure 'productivity' amongst the two different cohort groups. There is desire to have a higher number of high quality publications amongst those in the 10-20 years in academia cohort, hence the bigger difference in the quality node. Whereas those not in the 10-20 years in academia cohort would like to see more publications per year being produced. This could indicate that those in the 10-20 years in academia cohort

are more concerned with counting publications in high impact-factor journals, in line with criticisms of the use of journal metrics (Rynes, 2007). Whereas those not in the 10-20 years in academia cohort are more concerned with the total number or frequency of publications irrespective of their quality or rating.

When viewing the short resume, the 10-20 years in academia cohort made the recommendation more often to have less collaborators while those not in this cohort had a preference for more collaborators across both resumes. This is an interesting finding. Those in the 10-20 years in academia cohort, when presented with the short resume, containing only the high rated publications, felt that the candidate should work on their own more often.

Long Resume

Across all nodes, when presented with the long resume, there was a very high propensity to recommend that the long resume candidate improve the quality of publications amongst both cohort groupings. Both those in the 10-20 years in academia cohort and those not in this cohort displayed negative reactions to the presentation of low rated journals, or at least were not satisfied with the quality of these low rated journals. There is no doubt that the low rated journal publications were not ignored by either cohort, as might be the case given a 'confirmation bias'.

Conversely, as highlighted in the short resume results the satisfaction with the quality of the journals contained in 10-20 years in academia the short resume could suggest a confirmation about the use of journal metrics. In a 'backfire effect' there would need to be low rated journal publications to cause a re-enforcement of journal ratings, but in the short resume there are no low rated publications to react to. This could hence be a 'confirmation bias'. Participants may be focussing on information that re-enforces their prior beliefs, that high ratings in journal metrics is a good measure of quality. Those not in the 10-20 years in academia cohort may be judging the quality of journals by other systems or metrics.

However, analysis of the quotes pertaining to quantity and quality of the journal ratings in the quality node suggest otherwise. The difference between the references to increase the quantity of existing high quality publications or increase quality of publications appear to be partly determined by what is considered 'high' quality within metrics. There were a number of quotes amongst those not in the 10-20 years in academia cohort indicating that two of the 'high' rated journals included on the resume were not considered top rated. Although the large number of quotes recommending for the long resume to improve journal quality for both cohort groups obscures a 'backfire effect', this difference in perceiving what is 'high quality' may also account for less of negative reaction to the long resume for those

not in the 10-20 years in academia. If the short resume already contains journals that participants in this cohort do not perceive to be 'high' then the contrast between the 'high and 'low' rated publications would be less stark. Quotes illustrating these differences are contained in section 7.6.

7.5 Summary of Coding References

In the quantitative data there were indications of a 'backfire effect'. However, this did not present itself in the qualitative data with a higher propensity amongst the 10-20 years in academia cohort to recommend that the long resume with additional low rated publications improve the quality of the journal ratings. There was also a high amount of concern about the quality of the journals in the long resume for those not in the 10-20 years in academia cohort grouping. Low journal ratings were no more salient in any one cohort grouping. The high propensity for both cohort groupings to recommend improving the quality of journals may have obscured the source of the 'backfire effect'. It is also possible that this negative reaction is exaggerated for the 10-20 years in academia cohort because all four high rated publications were considered 'high' whereas those not in this cohort considered two of the high rated journal publications to be second tier journals. The low rated publications therefore become in much starker contrast to the 'high' rated journals for those in the 10-20 years in academia cohort and therefore trigger a stronger negative reaction for this cohort.

It also needs to be considered that behavioural science biases more generally, including social biases, are subconsciously triggered. They may therefore not come out in candidate feedback, given the conscious nature of this feedback.

Those in the 10-20 years in academia had a high propensity to want the short resume candidate to increase the number of high quality publications, suggesting the counting of publications in high impact-factor journals, in line with criticisms of the use of journal metrics (Rynes, 2007). Those not in the 10-20 years in academia cohort preferred to see an increased rate of publication than the short resume displayed. The high propensity for those in the 10-20 years in academia cohort to recommend increasing the number of existing quality journals and being satisfied with the existing quality shown could be linked to the description of the short resume candidate as 'focussed' in the cluster analysis.

Participants in the 10-20 years in academia cohort recommended that the short resume candidate, containing only the high rated publications, work on their own or with less collaborators more often. Those not in the 10-20 years in academia cohort recommended both resume candidates to extend their collaboration networks.

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7.6 Illustrative Quotes Supporting Coding Reference Findings

The overall hypothesis was of a 'backfire effect', where the presentation of the low rated journals on the long resume in addition to the high rated publications causes a negative reaction and a stronger re-enforcement of a belief in publishing in high rated journals. In this case a belief is possibly determined by exposure to the prominence of the discourse that high rated journal publications is the best way to measure publication records which changed over time. Negative reactions to the presentation of low rated journals were, however, frequently illustrated across both cohort groupings, recommending an increase in journal quality.

In analysing full text quotes contained within the candidate feedback no specific theme or comment type was entirely unique to either those who had been in academia for 10-20 years or those outside that cohort. Themes and comment types were shared across cohorts. However, there was a greater frequency for different types of references in different cohort groupings depending on the resume received.

By far the largest proportion of candidate feedback pertained to commenting on the publication record contained in the respective resumes. In looking at themes contained within the comments pertaining to publication record, three were identified. Firstly, there was a substantial amount of comments relating to the quality of publications in the resume. Secondly, there was a high volume of comments pertaining to the frequency and quantity of publications contained in the resume. Thirdly, there were comments on the author compositions of the publications in the resume, in particular about sole authorship and collaboration. This is commensurate with the findings in the cluster analysis and coding references suggesting quality, rate of outputs and collaboration were prominent in feedback to the candidate resume. These findings were also indicated in the earlier confirmatory factor analysis of the Likert scaled responses to statements about the candidate resume.

The biggest distinction between the quotes and comment themes contained within the comments pertaining to publication record in the candidate feedback was related to differences depending on whether the long or short resume was received by the participant. There was a noticeable switch in prominence of themes. When viewing the short resume, comments pertaining to frequency and quantity of publications are prominent. But so were comments pertaining to collaboration and sole authored work.

Conversely, when viewing the long resume, comments pertaining to quality were by far the most prominent. When viewing the short resume, concerns were raised about the number and rate of publications, as well as some focus on the author composition contained within the publications. However, when viewing the long resume, concerns about the quality of publications substantially dominated. These trends are consistent across those who have

been in academia for 10-20 years as well as those who have been in academia both shorter and longer.

When looking specifically at concerns of collaboration and author composition within the publication record on the candidate resume there were four types of comment identified. Firstly, there were comments promoting an increase in and greater diversity of collaboration, extending networks. Secondly, there were comments recommending more sole authored work or fewer collaborators. Thirdly there were concerns relating to the order in which the respective authors appear as contributions to the publications. Fourthly, there were suggestions of highlighting or increasing student and postdoc contributions to publication authorship. These last two elements are combined as author composition in table 7.2. The largest amount of candidate feedback pertaining to issues of collaboration and author composition related to the order and respective roles taken in writing the listed publications and the presence or absence of students and postdocs, effectively assessing research leadership and mentorship. The next most common comments were suggesting more sole authored work or the reduction in the number of collaborators. Suggestions to increase or widen collaborative networks were the least common.

7.6.1 10-20 Years in Academia Cohort – Short Resume Quotes

More High Quality Publications

The stand out trend in the number of references to publications for those in the 10-20 years in academia cohort came in the high propensity to recommend that the candidate increases the number of existing high quality publications. This trend was prominent in the quality node and was also indicated in the cluster analysis in quality node. It is important to note here that the word 'quality' was used prominently in the preferred resume in the initial overall word count during the quantitative analysis. The distinction between the different uses of the word 'quality' in the preferred resume for each cohort group could be explained by different emphasis in the way the word 'quality' was used. For the short resume, there was a high propensity to comment on continuing the existing high 'quality'. For example:

"Whilst the quality of the publications is good (all REFable [eligible for the Research Excellence Framework] at my institution I would expect), the total number and frequency of publications is not high. The applicant is publishing one (really good) paper a year and so the body of work is not yet large." (Male, 11 years in academia, UK psychology, not appointable)

"While they have clearly been successful in publishing in 'top' management journals, four papers is insufficient for appointment at SL (senior lecturer) level. Ideally we would be looking for double this number." (Male, 20 years in academia, UK management, appointable)

"Continuity of publications – although the publications are in well-respected journals, missing years always worry people." (Female, 15 years in academia, UK psychology, appointable)

Pertinently, relating to the assessment of quality those in the 10-20 years in academia cohort request:

"Additional publications in 4 journals and even good 3* journals."* (Male, 20 years in academia, UK management, appointable)

Other quotes illustrate specifically this trade-off between quality and quantity of publications, but still comment on the number of high rated journals. For example:

"Some institutions look more for quantity rather than just quality, so they might want to see more publications on the list, but four top-tier publications during the six years since graduating with the PhD seems very reasonable to me." (Female, 12 years in academia, UK management, appointable)

Some quotes went further to emphasise the use of journal metrics to assess quality such as:

"Our university prioritises publications in 4 journals and this person has them."* (Female, 13 years in academia, UK management, appointable)

As well as:

"More 'A' level pubs. That seems to be all we count." (Female, 19 years in academia, USA management, generally appointable but reject at own department)

"The only game in town is 4* publications unfortunately. I'm not sure the research would have any real benefit to the wider society. Suck up any pretence that you want to do meaningful research and concentrate on your R squared." (Male, 20 years in academia, UK management, appointable)

This last quote displays particular grievances with the use of journal metrics to assess publication records. However, the overall trend amongst the 10-20 years in academia cohort is to acknowledge the high quality of the journals on the short resume and recommend to increase the number of publications of that quality. It is also important to note that most of the best illustrative quotes were all from U.K. based academic who thus may be more conscious of ratings and the use of them as a metric to assess publication records.

Fewer Collaborators and Author Composition

By far the most unique feature of the candidate feedback pertaining to collaboration and author composition was by those in the 10-20 years in academia cohort who had received the short resume. For this group of participants there were almost no comments indicating the candidate should increase or diversify their collaboration. Comments of this nature, albeit not dominant in feedback regarding collaboration, were otherwise present in the other cohort and resume participant groupings.

Conversely, within this cohort and resume grouping, there was a relatively high occurrence for the participants to recommend to the candidate that they include sole authored papers. For example:

"The most obvious weakness in their CV (resume) is a lack of single authored work." (Male, 11 years in academia, USA management, generally appointable but reject at own department)

"Aim to have at least one single authored work." (Male, 15 years in academia, UK management, appointable)

"Fewer co-authors." (Male, 11 years in academia, UK management, appointable)

As per the overall trend across all cohort and resume groups, the largest amount of feedback relating to issues of collaboration concerned research leadership and mentorship

roles, and the indications of this from the order in which authors are credited on the publications. For example:

"Needs a clearer record of senior authorship (at least in my area, we expect to see someone going up for tenure to transition from first author papers to last (senior) author positions with students and postdocs as first author. Here I am unclear about the seniority of co-authors). The candidate doesn't seem to have papers with first student first authorships (and postdoc listed on grant not on any pubs) so the ability to mentor and lead is in question." (Female, 20 years in academia, USA psychology, generally appointable but reject at own department)

As well as:

"Would need to know more about the nature of co-authors to completely evaluate. Are they former advisors? That's bad, Are they PhD students? That's good." (Male, 16 years in academia, USA management, generally appointable but reject at own department)

Interestingly when looking at the feedback given to the short resume candidate by those who had been in academia 10-20 years, pertinent quotes from individuals in the U.S.A. tended to consider the candidate generally appointable but reject at own department. This may reflect different expectations in the U.S.A. as well as the higher world ranking of the top 40 universities in the U.S.A. Expectations may therefore be higher at the participant's own institution in the U.S.A.

7.6.2 Others Cohort Grouping – Short Resume Quotes

Publication Frequency

The most notable trend in the number of references to the publications by those not in the 10-20 years in academia cohort were suggestions for the short resume to improve the frequency of publications as well as slightly less satisfaction with the quality shown.

When those who were not a part of the 10-20 years in academia cohort viewed the short resume some trade-offs between quality and frequency were being signalled. For example:

"We would normally expect research oriented academic staff to produce one article in an 'A' rated journal very year. This candidate falls somewhat short of this goal but might nevertheless be considered alongside others. In my view the journals are very good ones, so may excuse the lower volume." (Male, 40 years in academia, UK management, appointable)

Also:

"This is tough. They have amazing publications, but few of them, and mostly in the past (as well as funding). So, I think they'd be criticised for not having enough pubs." (Male, 8 years in academia, USA psychology, generally appointable but reject at own department)

In addition:

"I am worried about their productivity – four papers in six years (nine if you include PhD), and no evidence of a pipeline… Admittedly, they make up for lack of quantity with quality, having two AMJ (Academy of Management Journal) papers, but this left fearing they are a one-hit wonder." (Male, 6 years in academia, UK management, generally appointable but reject at own department)

Conversely in a more critical vein,

"I would strongly advise them to increase their publication rate to at least three papers per year in high impact journals of the sort in which the candidate's meagre output is already published. One such article per year or less will be taken by appointment boards as a signifier of laziness. They need to pull their socks up." (Male, 45 years in academia, UK psychology, not appointable)

There were also a number of quotes amongst those not in the 10-20 years in academia grouping suggesting dissatisfaction with the quality of the journals in the short resume. In particular, that not all the high rated journals were considered 'top'. This is at odds with those in the 10-20 years in academia cohort. For example:

"Better publication record (namely higher quality journals, since only 2 are 'real' A journals)." (Male, 8 years in academia, USA management, generally appointable but reject at own department)

Also:

"This person has only 2 (A-level publications) (AMJ), maybe 3 if one counts JOM (Journal of Management) (which my department considers a B-level, but I know it's considered an A-level at some schools). JOMS is mostly considered a B-level as far as I know." (Male, 9.5 years in academia, USA management, generally appointable but reject at own department)

As well as:

"Publish your limited number of research articles in the top journals rather than in B journals, such as JMS (Journal of Management Studies) and JOM." (Male, 28 years in academia, UK management, generally appointable but reject at own department)

This dissatisfaction with the quality of the high rated publications in the short resume was not shown in the 10-20 years in academia cohort. There was no strict demographic pattern to whether Journal of Management was viewed as A or B level. It might be that Journal of Management is more consistently highly regarded amongst those who had been in academia 10-20 years. This could also be linked to Journal of Management enjoying a strong reputation when this cohort's views of journal rating were formed.

More Collaborators and Author Composition

When looking at recommendations relating to collaboration and authorship on publications, the most noticeable difference for those not in the 10-20 years in academia cohort, is an increase in the number of quotes recommending increasing the number of collaborators. There was a high propensity for this for those not in the 10-20 years in academia cohort for both resumes. Amongst those who received the short resume for example there was encouragement to:

"Show intellectual flexibility and enthusiasm for collaborating with others." (Female, 21 years in academia, UK management, appointable)

There were also recommendations to:

"Look for collaborations with public/private sector organisations with an eye to developing case studies for future research activities." (Male, 47 years in academia, UK management, not appointable)

As well as

"Collaborate on more projects; you don't always have to lead everything. With more collaborations, you can gain a broader research profile and produce more outputs." (Female, 4 years in academia, UK management, appointable)

Again, there were comments from those not in in the 10-20 years in academia group who had received the short resume in the feedback to the candidate combining concerns about the order of authors listed on publications and mentorship. For example:

"If you published a paper with your post-doc (Bishop) it would be good to see that listed as a selected publication (and it would be even better if Bishop was first author) to show evidence of your ability to successfully mentor a post-doc along his/her career path." (Female, 26 years in academia, USA psychology, appointable)

There were also quotes promoting sole authorship such as:

"At least one 'A' journal publication as sole author." (Male, 51 years in academia, USA management, not appointable generally but accept at own department)

"The other two noticeable weaknesses on the vita (resume) are that there is no sole authored paper, and that there is a four authored paper." (Male, 9 years in academia, USA management, generally appointable but reject at own department)

Overall, however, the propensity to recommend sole authorship was lower than the 10-20 years in academia cohort.

7.6.3 10-20 Years in Academia – Long Resume Quotes

Increase Quality of Publication

It is in the assessment of the long resume where there are the most notable comment themes. In presenting the long resume, the resume with both the four high rated journal publications and the eight low rated journal publications, the largest proportion of comments pertaining to the publication record focussed on quality. This was true for both those in the 10-20 years in academia cohort and those outside it. Stand out quotes from the candidate feedback within the 10-20 years in academia cohort were, for example:

"Your weak publications in Psychological Reports and Perceptual and Motor Skills outnumber your good articles in JEP (Journal of Experimental Psychology: Learning, Memory and Cognition) and Cognition. This makes it look like you mostly do weak research. Why are most of your papers being published in very low IF (impact factor) journals? You could delete a few of them from your CV (resume) as they are actually damaging the impression of you." (Female, 19 years in academia, UK psychology, not appointable)

Also:

"Focus on high quality journals, quality is better than quantity." (Male, 18 years in academia, UK management, not appointable)

"Try to emphasise publication in 'better' journals (like their JEP/Psych Science papers) over lesser places (especially Psych Reports)." (Male, 19 years in academia, UK psychology, generally appointable but reject at own department)

"Try to work on fewer projects so that high-impact outlets could be targeted more consistently". (Male, 16 years in academia, UK management, not appointable)

There was clearly a negative assessment of the addition of low rated journal publications, including the recommendation that the resume could be preferable without them as per the hypothesis behind the design of this study.

Number of Collaborators and Author Composition

In the 10-20 years in academia group, there was a high propensity for providing feedback pertaining to all four themes relating to collaboration and candidate feedback. For example, in terms of author composition and mentorship:

"I would also ask questions to enquire about who are the co-authors on the works published in very low impact journals. If these are students and the work is good, but just a single study or simple demonstration that does not meaningfully advance work, I would encourage them to let the student be first. The work would still be published, the students would benefit more, and her/his free time would be freed up to work on other things." (Female, 20 years in academia, USA psychology, not appointable)

There were also comments that combined recommendations about author composition and mentorship with the suggestion to gain more collaborators. For example:

"I would advise them to apply for a £250k+ grant on which they are PI (principal investigator), and to get about 2-5 more publications as first author in high impact journals, and collaborate more to get another 10 (publications) or so where they are not necessarily first author to show collaborative interests." (Male, 18 years in academia, UK psychology, not appointable)

Again, there were quotes such as:

"Do some sole-authored work." (Male, 20 years in academia, UK management, appointable)

"There is no sole authored publications so it is difficult to evaluate his potential to lead an independent research stream." (Female, 11 years in academia, UK management, appointable)

The long resume induced a particularly high propensity to comment on author composition in terms of feedback to the candidate. This is interestingly at odds with the short resume, where there was a tendency to recommend increasing the number of collaborators or sole authorship. Although some recommendations to do sole-authored work remained. As highlighted in the quotes, suggestions to increase collaboration link to the presence of the

low rated journal publications, enquiring if they were student led. It also highlights collaboration as a means to get more publications in high rated journal outlets.

7.6.4 Others Cohort Grouping – Long Resume Quotes

Publication Quality

Equally as much as those inside the 10-20 years in academia cohort, those who were outside of the 10-20 years in academia cohort, when presented with the long resume, focussed much of their candidate feedback on quality in the candidate's publication record. For example:

"Concentrate on publishing in high quality journals and avoid publishing in lower quality journals such as Psychological Reports." (Male, 41 years in academia, UK psychology, generally appointable but reject at own department)

"We would want to see far more A publications and far less B pubs in the future." (Male, 6 years in academia, USA management, generally appointable but reject at own department)

Also in a more critical vein,

"I would tell this candidate to stop publishing in Psychological Reports (low rated) which completely detracts from the quality of the research record." (Female, 33 years in academia, USA psychology, not appointable)

"He has some publications in very good journals. The publications in much weaker journals do nothing to enhance the CV (resume), and may even weaken it." (Male, 25 years in academia, UK management, appointable)

Further confirming the possible negative associations considered by the presentation of low rated journal publications in addition to high rated:

"Obviously try to get the weaker publications somewhere a little better. But the top-end really is fine, and would be good without any other publications at all." (Male, 5 years in academia, UK psychology, appointable)

"Stop publishing in perceptual and motor skills; stop putting those publications on the cv (resume). Stop publishing in Psychological Reports. Any time spent on research that will ultimately appear in these journals is wasted." (Male, 5 years in academia, UK psychology, not appointable)

It would therefore appear to confirm in the quotes, that the negativity toward the long resume does reflect an acknowledgement of and reaction to the presentation of the low rated journal publications being added in addition to the high rated ones. This is however present across both cohort groupings when presented with the long resume. The propensity to comment on the negative impact of low rated journal publications may have therefore not been the best measure for investigating a hypothesized 'backfire effect' causing the indifference in the 10-20 years in academia cohort.

More Collaboration and Author Composition

In viewing the long resume, once more there was feedback from those not in the 10-20 years in academia cohort encouraging the expansive collaborative networks. For example:

"Publications look great and are consistent over the years (with multiple A's) and different co-authors." (Male, 2 years in academia, USA management, not appointable)

"Showing a breadth of publications demonstrates potential impact and collaborative possibilities." (Female, 7 years in academia, UK management, not appointable)

"Include a research statement highlighting some of the best collaborative efforts in career so far." (Male, 7 years in academia, UK management, generally appointable but reject at own department)

There were, as in other resume and cohort groupings, recommendations in the candidate feedback that looked at author composition, as well as order in the publications, assessing mentorship or leadership. Such as:

"Needs to show future research and potential by including papers in the pipeline, especially those linked to the grant (no single paper with postdoc Bishop). Unclear what the

networks are, whether they have got a stable network as co-authors on publications are all different." (Female, 8 years in academia, UK psychology, not appointable)

Interestingly pertinent quotes recommending to increase collaboration were concentrated amongst those who had been in academia less than 10 years.

Particularly the absence of the postdoc 'Bishop' on a publication generated feedback relating to collaboration. The omission of the postdoc 'Bishop' on the existing publications on the resume might have had some impact on the assessment of the resume overall. Although this will not account for the difference found between the treatment and control groups of long and short resumes, as well as the difference between cohorts, given that the omission of 'Bishop' as a co-author was mentioned consistently across all participants.

There was also feedback to the candidate amongst this cohort and resume grouping that combined mentorship, author compositions and having fewer collaborators. For example:

"I would recommend asking them to demonstrate how they have helped to develop/supervise/manage other people who are in their team. For example, their postdoc does not appear to be in any of the publications; there also appears to be a diversity of topics/collaborators, which is less attractive." (Female, 9 years in academia, UK psychology, appointable)

There was also a quote that stated:

"The work is 1st authored, which is great for the candidate showing intellectual leadership, although there are no sole-authored works, but not great evidence of bringing protégés along with her or him. Great scholars provide lead publishing opportunities for their mentees." (Male, 40 years in academia, USA management, generally appointable but reject at own department)

Once more in addition to this recommendation to reduce collaborators on publications included tips such as:

"Show a degree of research leadership through lead author or single author publication." (Male, 38 years in academia, UK management, appointable)

7.7 Summary of Quotations

A negative reaction to the long resume, associated with the presentation of additional low rated journal publications, was picked up in the Likert scaled factor responses by years (figures 6.6 to 6.8). However, there was a high propensity for a negative reaction to the presentation of low rated journals across both cohort groupings. This included in both cohort groupings that the resume would be stronger without low rated journals. The propensity to comment on the negative impact of low rated journal publications may have therefore not been the best measure for investigating a hypothesized 'backfire effect' causing the indifference in the 10-20 years in academia cohort.

The most notable trend in the number of references to the publications by those not in the 10-20 years in academia cohort were suggestions for the short resume to improve the frequency of publications as well as slightly less satisfaction with the quality shown. There were a number of quotes amongst those not in the 10-20 years in academia grouping suggesting dissatisfaction with the quality of the journals in the short resume. In particular that not all the high rated journals were considered 'top'. Meanwhile those within the 10-20 years in academia cohort praised the quality of the high rated journal and were more pragmatic in suggesting "additional publications in 4* journals and even good 3* journals." The overall trend amongst the 10-20 years in academia cohort is to acknowledge the high quality of the journals on the short resume and recommend to increase the number of publications of that quality. Meanwhile both cohort groupings showed a high propensity to be dissatisfied with the quality of the journals in the long resume.

The high frequency seen in the overall word count in the quantitative analysis for the word quality to be used in reference to the preferred resume may have been carried by different uses in different cohort groupings. For the 10-20 years in academia, there is a recommendation for the candidate to keep producing more of the existing high quality, praising the strength of the short resume. While those not in the 10-20 years cohort were more concerned with the lack of frequency in publications. This might explain the preference towards the short resume being highest in the 10-20 years in academia cohort. Focussing on the number of high rated journal publications. Meanwhile for the long resume negative reactions to low rated journal publications are present for both cohorts. However, contrasting these low rated publications is likely to have been more extreme in the context of the satisfaction with the high rated publications in the 10-20 years in academia cohort, exaggerating the negative reaction.

There were also comments pertaining to the author composition of the publications contained in both cohort groups. Concerns within the 10-20 years in academia cohort tended

to focus on the lack of sole authored papers for the short resume. It is interesting that those who were in academia 10-20 years demanded sole authorship more commonly. It is possible that the small number of high rated journals on the short resume promoted the notion that this candidate is capable of working solo. Also in the long resume, it might have been that the candidate's publications in both strong and weak publications suggested that the candidate needs collaborators to perform consistently. In addition, in the short resume there are less publications and resume content to look at so the author compositions may have become more salient for the short resume, or there might have been more detail in assessment of these author compositions for this resume.

There was also evidence in the candidate feedback that author composition and order, including a lack of collaboration being evident with the postdoc 'Bishop' in the resume created for the study, may have had some impact on the overall findings. However, given the author composition and omissions remained consistent, these will not explain the overall differences between treatment and control groups of long and short resume or cohort groups.

7.8 Summary of Chapter

The cluster analysis of the top 40 stemmed words unearthed three important trends. Firstly, and most importantly, the distinct feedback given by those in the 10-20 years in academia indicates a greater focus on desiring more of the existing high rated publications when viewing the short resume. Secondly, that when viewing the short resume, those not in the 10-20 years in academia cohort had concerns about the frequency of publications. Thirdly, that when viewing the long resume, those who were not in the 10-20 years in academia recommended the candidate focus on collaborative aspects of their resume.

In assessing the individual quotes contained in the candidate feedback, many of the trends seen in the cluster analysis endured. Interestingly, concerns about collaboration leaned towards a desire for sole authorship by those in the 10-20 years in academia cohort and collaboration by those outside that cohort.

But most starkly, when viewing the long resume, comments in the candidate feedback pertaining to the publication record were dominated by concerns of quality. These quotes often showed exactly the negative reactions to the presentation of lower rated journal publication we expected to find given a 'backfire effect'. Some of these quotes even went on to indicate that the resume would be stronger without them, confirming the mechanism around which this research was designed. If the mechanism for the indifference between the two resumes in the 10-20 years in academia cohort had been a consequence of a 'confirmation bias', where there is a tendency to only focus on information that confirms

one's own beliefs, low rated journal publications would simply have been ignored rather than being clearly reacted to. The word 'quality' was widely associated, in the cluster analysis of the top 40 stemmed words for each coding node, with clear evidence of providing feedback on the ratings of journals contained in the publication records. This was the case across both the long and short resume as well as those who had been in academia 10-20 years and those who had been in academia more and less time than this. With the assessment of journal ratings in publication records being of a high enough propensity to make it into the cluster analysis of the candidate feedback for both resumes and cohort groups, it is likely that assessment journal rating played a role for most participants. It did not, however, explain the differences between cohort groupings and therefore did not reveal the source of the indifference between the two resumes that was distinct to those who had been in academia 10-20 years.

The addition of low rated journals appeared to detract from the same high rated journals presented. The short resume candidate had a high level of satisfaction with quality and was considered 'focussed' by those in the 10-20 years in academia cohort. But once low rated journals were added this 'focus' got lost. The short resume was seen to be publishing in focussed way around high rated journals, with a continuation of that focus being desired. However, the long resume, despite having the same number of high rated publications was not focussed. It is therefore not a simple dynamic of counting publications in high rated journals as the number remained the same. The counting of high rated journals (Rynes, 2007) would appear to be taken in the context of the expectations for a number of high rated journals at a certain level of appointment as well as the presence of low rated journals.

Amongst those not in the 10-20 years in academia cohort there were some mixed perceptions of how 'high rated' the high rated journals were. This may have detracted to some extent from the opinion of the short resume. But more significantly the concerns about the frequency of publication became much higher once the low publications were removed. By omitting the low publications, the short resume did not appear to publish frequently enough for those not in the 10-20 years in academia cohort.

These differences are interesting findings in the context of the change in the discourse over time. The discourse on how to assess publication records was looking for a high number (or frequency) of publications before the mid 1990s. It then switched to a focus on journal rating between the mid 1990s and mid 2000s. From the mid 2000s, criticisms of focussing on high rated journals emerged. The addition of the low rated publications clearly had a negative reaction in both the 10-20 years in academia cohort as well as those not in this cohort. However, concerns in the short resume indicate different priorities and if

anything, a 'backfire effect' towards the lack of frequency of publications may have occurred by those not in the 10-20 years in academia cohort.

The preference of the long resume amongst those who had been in academia outside the 10-20 years cohort was caused both by a higher preference for the long resume as well as a lower opinion of the short resume. This may have been carried around the frequency of publications. The indifference shown between the two resumes for those in the 10-20 years in academia cohort was caused both by the highest preference for the short resume as well as a low preference for the long resume. The short resume was seen as representing a 'focus' and high quality, creating a preference. However, despite the same number of high rated publications, this 'focus' was lost in the long resume. This, coupled with possibly a starker contrast given all four publications were seen as 'high', meant that the low rated journal publications looked weaker in comparison and that the preference for the long resume was lower.

CHAPTER 8: DISCUSSION

8.1 Introduction to Chapter

This thesis was intended to be an exploratory piece setting out a behavioural science framing for research on employment as well as illustrating why and how this might be useful. It uses the assessment of publication records on academic resumes as an empirical example.

Analysis of the study employment showed there are multiple sub-disciplines studying employment using different methods, approaches and at different levels of analysis. The literature is calling for more interdisciplinary employment research (Kaufman 1999a, 1999b, 2000; Kaufman & Miller, 2010), including calls for the integration of psychology and economic perspectives (Chadwick & Dabu, 2009; Kaufman, 1999b). Behavioural science is argued to help stimulate this integration including lessons from behavioural science for personnel economics (Backes–Gellner et al., 2008), behavioural science adoptions into labour economics (Dohmen, 2014), and integration of behavioural science into practice (CIPD, 2014; 2015). Interactions between sub-disciplines can potentially be nurtured through engagement with behavioural science, leading to new research streams. The creation of the structured behavioural science framing for research on employment in chapter 3 establishes a new means for approaching employment problems through a behavioural science lens.

Empirical demonstrations of how insights can be gained in employment research through a framing of behavioural science were needed. The chosen issue to investigate was the prospect of the social bias of 'backfire effect' causing a negative reaction to the presentation of low rated journal publications on academic resumes, given the discourse on using journal ratings to assess publication records. The overall sample did not find a negative reaction to the addition of low rated journal publications onto a resume, indicating a 'rational' response. However, the research identified that those who had been in academia 10-20 years were indifferent to the two resumes, arguably being irrational or biased given that the additional content objectively provided more contribution. This could be a consequence of a greater propensity amongst this group for a 'backfire effect', or 'confirmation bias' where low rated journal publications are ignored, or some other mechanism. To investigate the sources of this indifference between the two resumes for those in the 10-20 years in academia group, further data analysis was needed.

New data analysis and hypotheses were informed by the framing of behavioural science set out in chapter 3. As discussed in section 3.3.1, referring to social biases and social influence, as well as in section 5.7 in the methodology, the effects of unconscious bias on

decision-making were expected to produce very nuanced differences in the dataset. For this reason, a single large sampled dataset was useful, allowing for an innovative and exploratory approach when narrowing down the search space using both the quantitative and qualitative data. First, throughout factor analysis, there appeared to be covariance between issues of potential, consistency and meeting expectations. The issue of collaboration also appeared to be a distinct factor. Second, word counts showed that issues of quality appeared significant for the preferred resume given the number of years in academia. Third, the qualitative data of the candidate feedback was therefore coded around nodes of expectations, consistency, potential and quality. As indicated in the Likert scaled factor responses by years in academia (figures 6.6-6.8), the indifference between the two resumes seen in those who had been in academia 10-20 years indeed appeared to be caused by a negative reaction to the long resume.

Qualitative data was used to investigate and explore the source of any negative reaction as well as any other decision-making elements distinct to the resume preference in each cohort group. Both cohort groups displayed negative reactions to the addition of low rated journal publications showing that low rated journal publications were not ignored as would have been the case in 'confirmation bias'. In addition, the assessment of journal rating rules out relative experience or pragmatism towards journal metrics being likely to explain the cohort effect. The initial exploratory cluster analysis of the four parent nodes suggested that those in the 10-20 years in academia group would like to see an increase in the quality and frequency of publications on the long resume while describing the short resume candidate as 'focussed'. Those not in the 10-20 years in academia cohort suggested that the long resume candidate focus on collaborative efforts, including author composition. Thus, for fine-grained analysis in sub-nodes required coding for satisfaction with both the quality, quantity and frequency of publications as well as the number of collaborators and author composition.

Analysis of these sub-nodes found three key differences between the cohort groups, given resume preference. Firstly, those in the 10-20 years in academia cohort were more satisfied with the existing quality journals in the short resume, enjoying that the resume is focussed around high rated journals, and encouraging more of the existing high rated publications. Meanwhile for those in the 10-20 years in academia cohort, this focus is not evident in the long resume, despite containing the same high rated publications. Conversely some individuals not in the 10-20 years in academia cohort were less satisfied with some of the high rated journals. Secondly, those not in the 10-20 years in academia group had concerns that the short resume was not publishing frequently. Thirdly, those not in the 10-

20 years in academia cohort tended to encourage increased collaboration, meanwhile, those in the 10-20 years in academia cohort encouraged especially the short resume candidate to work on their own more often. In short, those in the 10-20 years in academia cohort potentially had a 'backfire effect' towards the long resume based on less focus on high rated journals and perception of high quality. Those not in the 10-20 years in academia cohort potentially had a 'backfire effect' against the short resume based on the frequency of publications.

8.2 Establishing a Behavioural Science Framing for Research on Employment

While calls exist to integrate behavioural science into employment research and practice (Backes–Gellner et al., 2008; Chadwick & Dabu, 2009; CIPD, 2014; 2015; Dohmen, 2014; Kaufman, 1999b) a structured framing for research on employment systematically organized around the core facets of behavioural science is not yet available. The practitioner report "*A head for hiring: The behavioural science of recruitment and selection*" (CIPD, 2015) does attempt to introduce behavioural science around key behavioural biases, demonstrating potential impacts on human resource management practice. In addition, online tools to mitigate unconscious bias in recruitment are showing a clear engagement with putting behavioural science at the centre of their system.

This may be an instance where practice has been able to respond faster to calls for and the prospect of integrating behavioural science into the consideration of employment problems. The slower response in employment research may perhaps to large extent be due to the divide in perspectives, methodological approaches and levels of analysis between sub-disciplines that study employment. Indeed, attempts to conduct interdisciplinary employment research between levels of analysis, for example through microfoundations, has only managed to treat bounded rationality 'thinly' (Foss, 2003). Furthermore, labour economics' uptake of behavioural science was not always systematic, fast in some areas but lagging behind in others (Dohmen, 2014), and it is argued that personnel economics still has much to learn from behavioural science (Backes-Gellner et al., 2008). So even those sub-disciplines more commensurate with the approaches in behavioural science have been sluggish in integrating behavioural science and new attempts to stimulate interaction are required.

The structured behavioural science framing set out in chapter 3, demonstrating how the types of biases studied in behavioural science may impact on employment decision-making, built on existing applications of behavioural science. The core facets of behavioural science were used as the basis for setting out the framing. This was to be able to introduce

and explain the types of biases studied in behavioural science in turn. These were combined with illustrative examples of how these biases might affect employment decision-making. This was to further support the introduction of new concepts and theories studied in behavioural science, with the intention of stimulating interaction with behavioural science across sub-disciplines that study employment as well as in practice.

In setting out these illustrations, existing examples of behavioural science applications in the study of employment were built upon by the use of entirely new examples. Existing examples demonstrated further why behavioural science might be of interest to employment scholars as well as how behavioural science has already impacted on employment research and practice. New examples used to illustrate the effects of behavioural science biases on employment decision-making laid out embryonic foundations for new research agendas in the study of employment. These were presented in ways to assist in scholars across sub-disciplines that study employment to take them forward as well as to help practitioners incorporate these insights into their practice. Key contributions of behavioural science to labour economics were often driven by the idea of employing the methods and insights from behavioural economics to find new answers to questions on which the field had gotten stuck. In some cases, this led to a new line of research, in which a research program developed (Dohmen, 2014).

The main purpose of the structured framing was to provide a platform for using behavioural science biases to inform and direct research questions and investigations in the study of employment. The structured framing showed that behavioural science biases were likely to affect employment decision-making across the employment cycle. These biases have implications for human resource management theory and practice. There are a wide range of behavioural science biases potentially impacting on employment decision-making that remain understudied and could provide a wealth of new research streams. The structured framing already highlights a number of possible new theoretical and empirical implications that biases studied in behavioural science may have in the study of employment. These could provide new research streams as well as ways to engage with research theories and topics across different sub-disciplines that study employment. The application of behavioural science also lends itself to considering the micro-constituents within their macro structures and consequences, as microfoundations already seeks to do (Barney & Felin, 2013; Greve, 2013; Winter; 2013). Viewing employment problems using a framing of behavioural science could therefore also provide some response to calls to integrate different levels of analysis in employment research (Molloy, Ployhart, & Wright, 2010). Hence, the structured framing presented in this thesis directly responds to calls for more interdisciplinary research using

behavioural science approaches, thus making a contribution as an initial building block to filling this major gap in the literature.

8.3 Overall Hypothesis in Empirical Investigations

The illustration of behavioural science approaches to employment research, broadly utilizing a structured framing of behavioural science, considered the overall investigation of whether the addition of lower rated journal publications on an academic resume would result in a 'backfire effect'; where there would be a negative reaction to the presentation of low rated publications compared to their omission. The addition of low rated journals would therefore be considered a form of over-presentation during the hiring process in academia. Academics can be torn between over-presentation of an academic self and failing to present themselves adequately (Miller & Morgan, 1993).

The results in investigating the overall hypothesis, that a negative reaction could be caused by a social bias such as 'backfire effect' when presented with low rated journal publications on an academic resume, show that across countries and disciplines, additional resume content of publications in lower rated journals is preferred to their omission. Additional lower rated journal publications still add some benefit to an academic resume. In most cases the addition of lower rated journal publications is not considered over-presentation and there is not a negative reaction to their presentation compared to their omission. Nonetheless given the debate about quantity vs. quality, and that the long resume contained twelve publications compared with four on the short resume. It would appear that, as consistent with the debate, the most significant metric for assessing academic resumes is quality of journal publications not quantity (Reidenberg, 1989, Mooney, 1991; Long, Allison & McGinnis, 1993). The long resume was preferred but the difference was not comparable to an assessment of quantity, given the long resume had three times the quantity of publications than the short resume but was not preferred three times as much. It would seem that quality, and indeed journal ratings, play an important role in the hiring of academics today.

The results showed that U.K. based management faculty were very positive towards both resumes and U.S.A. based management faculty were comparatively very positive towards the long resume compared to psychology faculty. This could be illustrative of several things. It could mean that management faculties were more impressed by the research element of the hypothetical resumes created for the survey because these scholars thought that a publication record of this nature was comparatively stronger in relation to their field compared to psychology. It could also have meant that psychology scholars were less

content to make a positive decision based on this research component alone. It may also be that the creation of discipline specific resumes was not entirely comparable, with the management resume's journals being rated higher by participants than those on the psychology resume.

On average across the whole sample, both hypothetical resumes containing either just four high rated publications, or with the addition of low rated publications, were considered fairly hireable at senior lecturer/associate professor level. This was potentially influenced by a large U.K. management based proportion of the sample who were very positive towards both the long and short management resume. This, on average across all countries and disciplines, tended slightly towards rejection for both long and short resumes once participants had to consider the candidate at this level in their own department. This is not an entirely unexpected result as only faculty members at top 40 universities, in their country according to QS world ranking, were contacted. It is normal that expectations would be higher at these institutions compared to whether the candidate was hireable more generally at this level.

The inclusion of two levels of candidate decisions at a generally hireable level and an in-department level was added to observe any possible social effect of perceived university and department rating and potential in-group bias. Cognitive biases potentially associated with the assessment of resumes were also considered in the design of the randomized control trial study. However, there was not preference reversal for either the long or short resume given specific country and discipline comparisons. The long resume remained preferred throughout. There was therefore little indication of biases formed around in-group or system justification. Similarly, comparisons between participants who rated their department or university differently produced little indication of preferences being dictated by these factors. Predictably given the sample selection, most participants rated their departments and university highly, potentially limiting comparison. It could be of interest to expand this research to include a greater variety of university types and QS world ranking. However, controlling for the relative importance of research components of academic resumes at different institutions (Parley & Zanna, 1987) would become difficult.

Possibly in part due to the strong preference for both the resumes specifically amongst U.K. based management, faculty, country and discipline produced significant demographic differences in the positivity towards the resumes. It was also interesting to note that males had a stronger preference for the longer resume. Those who rated their department highly also had a preference for the longer resume. The candidate contained in the hypothetical resume was male. Given that it is argued that there are different expectations

of productivity for males and females in academia (Mooney, 1991), it might be that the long resume represented a high 'productivity' for a male, but not compared to what a female would be expected to have on their resume. Equally, there might be a higher expectation of productivity at higher rated institutions, with participants at these institutions reflecting on these expectations or their own careers.

There was a fairly robust indifference between the resumes amongst those participants who had been in academia between 10-20 years, compared with the longer resume being preferred by those who had been in academia for fewer and greater years than this. It was of particular interest that those who had been in academia between 10-20 years differed from the overall finding of the study. This indifference would be potentially irrational or biased given that the additional publications on the long resume provided additional contribution to meeting the outlined job criteria, with all other contributions being identical on the short resume. Whether this indifference was a consequence of a greater propensity for a 'backfire effect' in response to the addition of low rated journal publications needed further investigation.

The discussion in the literature surrounding the use of journal metrics to assess publication records extends to suggest that assessment has been reduced to a simple counting of the number of publications in high rated outlets (Rynes, 2007). However, the results in this research suggest that low rated journal publications still hold some value. There is also little discussion in the literature on how academics at different levels of experience and time in academia may hold different views of publication records. This is a unique finding of this research.

8.4 Cohort and Qualitative Data Analysis

The 40,646 words of feedback to the candidate resume was used to investigate the possible source of the indifference between the two resumes shown by those who had been in academia 10-20 years. The purpose was to find indicators of a negative reaction to the addition of low rated journal publications that might suggest a 'backfire effect'. This was to be able to separate the source of indifference as being a greater propensity for a 'backfire effect' amongst this group of academics from a possible 'confirmation bias' where low rated journal publications were simply ignored.

8.4.1 Factor Analysis

To be able to narrow down the search space in investigating and coding the qualitative data, prominent covariance in responses to the Likert scaled candidate statement

responses would indicate trends in how candidates were assessed. This would help to unearth indicators in decision-making, giving new insights into how the academic resumes were assessed.

In the exploratory factor analysis (EFA) on the Likert scaled responses to the candidate statements in the dataset, three factors were unearthed. Those three factors were 'meets criteria for position: in department questions', 'meets criteria for position: general hire questions', and 'potential and consistency: general hire questions'. It is not surprising that the second context of within the participant's department specifically formed a single factor given the responses had generally lower means, showing greater negativity towards the candidate in this context. It is anticipated for in-department expectations to be higher given that participants were drawn from the top 40 universities in their respective countries according to the QS world ranking. Collaboration appeared to be a distinct issue in assessing the candidate.

The three overall factors remained when analysing the short and long resume data separately. However, the number of items in each factor changed, with some items becoming associated with the 'potential and consistency: general hire questions' factor. In the case of the short resume data, the item 'research profile expected of a career path' was added, suggesting that career expectations and potential and consistency may have been linked. In the long resume data, the 'aspects dissuade appointment at this level (reversed)' item was added in addition. This indicated that the addition of the low rated publications created a dissuasion towards the long resume in relation to the 'consistency and potential' of the candidate. Thus, issues of potential, consistency, and meeting expectations appeared to be highly co-varied and pertinent in determining the suitability of the candidate resume.

During confirmatory factor analysis (CFA) modification indices consistently showed a link between statement responses pertaining to expectations and items related to consistency and potential. This includes within factors as well as across factors, unearthing linkages between the general and departmental hiring context considerations in addition that were not visible in the EFA. There was covariance present between questions pertaining to expectations within the departmental context and the consistency and potential factor within the generally hireable context. This was a strength of comparing an EFA and CFA, including the addition of all items across the two hiring contexts. The research highlighted the strength of using a parallel analysis to explore the number of factors, without this, the additional factor of 'potential and consistency: general hire questions' would have been missed.

There was also some unexpected covariance between responses to statements that were negatively weighted. That is to say that negatively weighted statements were responded

to similarly and in a different way to statements that were not negatively weighted. This might have been simply a consequence of participant error, with the participants systematically not realising the statements were negatively worded, or even an 'anchoring bias' (Tversky & Kahneman, 1974), where the response to the previous or surrounding Likert scale slide bars are repeated. However, it is possible that this finding represented a response to the negative wording of the statement. If this were to be the case, it could have implications for how job candidates are reviewed depending on whether criteria for assessing the candidate are positively or negatively weighted. After all the research suggested that, when confronted with a pile of job applications, recruiters follow a strategy of picking applicants with positive characteristics ('diamonds') rather than eliminating applicants with negative characteristics ('lemons') in accordance with Eriksson & Rooth (2014). Covariance in the results of this research between how negatively weighted statements were responded to, separating them from how positively worded statements were responded to, indicates that positive and negative characteristics are appraised differently.

Further research would be needed into changes in the assessment of resumes depending on whether they are answering positively or negatively worded statements about the job candidate or criteria for job roles. Asymmetry of information in recruitment (Akerlof, 2002) presents a dilemma for those involved in setting selection criteria. Selection criteria that are too difficult to match, or too easy to match, could result in sub-optimal candidates being hired. For example, in 'zero-risk bias' (Baron, 2003), the preference to reduce the risk of not meeting desired criteria to the extent that it excludes a candidate who is outstanding in all other areas. Negatively worded criteria could conflate further the risk in not meeting criteria through a 'framing effect' (Tversky & Kahneman, 1981). The results in this research might indicate that the way traits of the candidate are framed could trigger different responses by those assessing the traits of the candidate.

In the long resume, including the low rated publications, the potential and consistency of the candidate was associated with items relating to a dissuasion towards the candidate, not present in the short resume. This may link to a suggestion of a 'backfire effect' in response to the presentation of low rated journal publications and a strength in omitting lower rated publications. Omission is common, as we do not generally add our failures to our resumes (Stefan, 2010). Overall, however, the longer resume was preferred, and a low rated publication is not seen as a failure, the equivalent would be adding publication rejections.

8.4.2 Backfire Effect

Word counts showed that issues of quality appeared significant for the preferred resume given the number of years in academia. The qualitative data of the candidate feedback was therefore coded around nodes of expectations, consistency, potential and quality. Indicated in the Likert scaled factor responses by years in academia (figures 6.6 to 6.8), the indifference between the two resumes seen in those who had been in academia 10-20 years could be caused by a negative reaction to the long resume. This possible negative reaction, potentially indicating a 'backfire effect' was investigated further using the qualitative data of the candidate feedback.

When viewing the long resume, comments in the candidate feedback were dominated by concerns of quality. These quotes often showed exactly the negative reactions to the presentation of lower rated journal publication we expected to find given a 'backfire effect'. Some of these quotes even went on to indicate that the long resume would be stronger without them, confirming the mechanism around which this research was designed. Low rated journal publications were clearly reacted to and not ignored, ruling out a 'confirmation bias'. However, there was a large amount of negative reactions towards the additional low rated journal publications amongst both 10-20 years in academia cohort grouping as well as those not in that cohort group. It therefore did not reveal the source of the indifference between the two resumes that was distinct to those who had been in academia 10-20 years. The negative quotes about the quality of the low rated journals were not the best measure of the possible social bias of 'backfire effect' pertaining to journal rating.

8.4.3 Social Biases

The low rated journals did however appear to detract from the same high rated journals presented. Those in the 10-20 years in academia cohort who viewed the short resume candidate had a high level of satisfaction with quality and was considered 'focussed'. But once low rated journals were added, this 'focus' got lost. The long resume, despite having the same number of high rated publications was not focussed. The simple counting of high rated journals (Rynes, 2007) would appear to be taken in the context of the expectations for a number of high rated journals at a certain level of appointment as well as the presence of low rated journals.

Amongst those not in the 10-20 years in academia cohort there were also some mixed perceptions of how 'high' rated the high rated journals were. The viewing of some of the 'high' rated journals as second rate could have reflected that journal ratings can be fluid, with these journals previously holding a lower rating. Conversely these journals may have

had a particularly high rating when those in the 10-20 years in academia cohort formed their opinions of them. It is also possible that the high QS world ranking of the institutions contacted meant that only a very small selection of very top journals are considered 'high rated', possibly reflecting the high aspirations placed on young academics at these institutions or the number of successful publications in the very top journals across a longer career span. The short resume did not appear to publish frequently enough for those not in the 10-20 years in academia cohort. A 'backfire effect' towards the lack of frequency of publications may have occurred by those not in the 10-20 years in academia cohort.

The preference of the long resume amongst those who had been in academia more and less time than 10-20 years was caused both by a higher preference for the long resume as well as a low opinion of the short resume. This may have been carried around the frequency of publications. The indifference shown between the two resumes for those in the 10-20 years in academia cohort was caused both by the highest preference for the short resume as well as a low preference for the long resume. The short resume was seen as representing a 'focus' and high quality, creating a preference. However, despite the same number of high rated publications, this 'focus' was lost in the long resume.

One of the most significant correlations to be observed in the findings of this research, is that these individuals who have been in academia for 10-20 years will have been developing as early career academics when the discourse on using journal ratings as the metric for assessing publication records was at its strongest, and least challenged. Meanwhile those not in the 10-20 years in academia cohort will have been developing as academics either before the use of journal rating to assess publication records or after criticism of the use of journal metrics emerged (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Long, Allison & McGinnis, 1993; Mooney, 1991; Rafols et al., 2012; Reidenberg, 1989; Walsh, 2011). What is interesting is that this finding potentially indicates that different levels of exposure to certain discourses at particular stages of development or perspective formation can have greater effect and stick over time. Whilst the discourse may have moved away from counting the number of publications, then towards the use of journal metrics, and then to criticising the use of journal metrics (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011), perspectives and adherence to previous discourse is retained. The findings in this research give some indication that those who developed as academics 10-20 years ago enjoyed more often the focus on high rated publications in the short resume. Meanwhile those who developed earlier or later than this could still be using other metrics more often, including frequency of publications. The

individual and institutional effects of the emphasis to use journal metrics to assess publication records over time and levels of experience is understudied and would be worthy of further research.

8.4.4 Collaboration

When looking at quotes pertaining to the author composition contained in the candidate resume, greater individualism appears to be promoted amongst 10-20 years in academia cohort, with sole authorship being encouraged. Meanwhile those outside this cohort appeared to favour collaboration. There has been a link made between the use of journal metrics and the desire for measurement in the neoliberal ethos (Cooper & Poletti, 2011; Olssen & Peters, 2005; Shore & Wright, 1999). Interestingly it has also been argued that neoliberalism tends to encourage greater individualism (Davies & Bansel, 2007). The results in this research might indicate that exposure to the emphasis on the use of journal metrics to measure publication records could be linked to the encouragement of greater individualism, in line with the neoliberal sentiments behind the use of journal metrics. It may also be an indication that those who developed as academics between the mid-1990s and mid-2000s were subject to a cohort effect where they encouraged greater individualism in wider contexts, including more generally and outside of academia, through exposure to a predominantly neoliberal society.

When viewing the short resume, displaying a focus on high journal rating, those in the 10-20 years in academia cohort encouraged sole authorship. The high impression of the quality of the journals on the short resume appeared to stimulate this. If the candidate can always achieve high rated journal publications, then collaboration is not seen as necessary to achieve success within a system of metrics based around journal ratings. Conversely when presented with the long resume collaboration was encouraged, as the low rated journal publications were not seen as successful under the metric of journal rating, therefore collaboration was seen as a possible means to improve this.

8.5 Age Period Cohort Analysis

Whilst referred to as a cohort throughout the text, the indifference between the two resumes found amongst those who had been in academia for 10-20 years, needs to be clarified as either an age, period or cohort effect.

8.5.1 Age Effect

An age effect is a variation associated with different age groups. Age effects may be produced by any combination of biological aging, cognitive processes, movement to different age-related roles or age discrimination (Palmore, 1978; Yang 2008). It must be noted that the measure used of the number of years in academia does not measure age directly, although it is strongly correlated with age. The measure of the number of years in academia explained much of the variance in the other age related variables such as age, year of PhD, and years in current department. Years in academia was also the best metric for assessing the participants experience of academia. Years in academia is therefore used here as the measure of age.

The first and most obvious piece of evidence for discussing a likely age effect is that the indifference between the long and short resumes is distinct to the 10-20 years in academia group. Those both older and younger than this preferred the long resume. Any age effect would therefore have to be distinct to the developmental stage of those in the 10-20 years in academia group at the time when the survey was taken. Given this, it appears unlikely that the finding for the 10-20 years in academia cohort was an age effect. It was hypothesised in the quantitative results section in chapter six that there might have been an age effect that could explain the results through amounts of recent experience on appointment panels. Although experience on appointment panels being solely responsible can be ruled out, other combinations of influence cannot be ruled out. For example, academics who have been in academia for less than 10 years might be inexperienced and thus prefer the long resume simply because it has more publications on it, not fully knowing the ratings of the journal outlets published in. Meanwhile older participants who had been in academia for more than 20 years could have developed a more pragmatic view of journal rating seeing these ratings and perceptions of them as being fluid over time. If this were the case, then there would be fewer comments within the feedback for the candidate resume on journal quality, as there would be either less ability or less desire to make recommendations on the basis of journal ratings. However, comments pertaining to quality were frequent in both the 10-20 years in academia cohort as well as those who had been in academia more and less time than this. An age effect on the basis of this is therefore unlikely as recommendations about journal ratings were frequently made across age groups.

It is possible that those who had been in academia for 10-20 years might be at a more competitive stage of their career, vying for more senior positions. While those having been in academia for a shorter amount of time might have a greater amount of job insecurity and uncertainty, those who have been in academia longer than 20 years might have stability in

senior positions most commonly. At the level of senior lecturer/associate professor as outlined in the job description for the randomized control trial online survey experiment, questions of 'exceptionality' are raised (Miller & Morgan, 1993). It might be that those who had been in academia for less than ten years were more keen to value a range of attributes, reflecting on their own uncertainties and possible deficiencies in high rated journal outputs. Meanwhile those who had been in academia longer than 20 years might self-reflect on the opportunities that they have had, being more keen to value other traits than high rated journal publications. Those in the 10-20 years in academia group could be direct competitors with the candidate resume. However, if 'exceptionality' was viewed in terms of journal ratings as the current climate and indeed institutionally embedded (Lawrence, 2002; 2003; 2008; McDonald & Kam, 2007; Nkomo. 2009; Peng & Dess, 2010; Wilhite, & Fong, 2012), you would expect older academics to understand and assess on the value of these metrics, especially given their high level of recent experience on appointment panels.

Figure 8.1: Academic Position Given the Number of Years in Academia
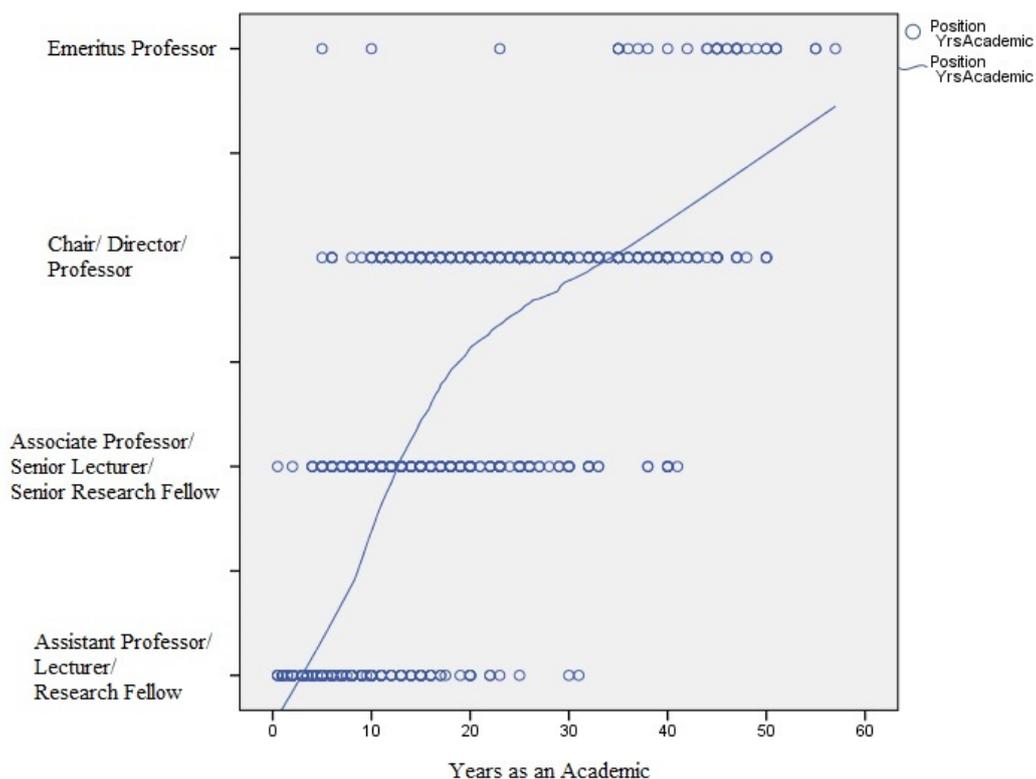
When looking at figure 8.1, those who had been in academia 10-20 years have, on average, already made it to the level of senior lecturer/associate professor. When interpreting these findings, it is important to consider that our sample targeted research staff at a certain level and excluded lower level appointments as well as those who specialize in teaching. This may therefore not reflect career progression in academia as a whole. Nonetheless,

within our sample and those who reviewed our candidate resume in the online survey, those who had been in academia 10-20 years were no longer competing for senior lecturer/associate professor positions. They already have them. These individuals were therefore not competing at the level of the outlined position to consider the candidate for in our survey design.

The evidence presented does not support a hypothesis that the indifference between the two resumes found amongst those in the 10-20 years in academia cohort is a consequence of an age effect.

8.5.2 Period Effect

Period effects are variations over time periods that affect all age groups simultaneously. Period effects may be caused by changing physical or social environments, changes in measurement techniques or group composition (Palmore, 1978; Yang 2008).

Within the literature, especially within criticism of the use of journal metrics to assess publication records, the use of journal metrics are argued to have become institutionally embedded (Lawrence, 2002; 2003; 2008; MacDonald & Kam, 2007; Nkomo, 2009; Peng & Dess, 2010; Wilhite & Fong, 2012 and are exerting pressures on academic career choices (Segalla, 2008) and the measures by which university ranking is obtained (Espeland & Sauder, 2007; Kalaitzidakis, Mamuneas & Stengos, 2003). An institutional embeddedness of the use of journal metrics to assess publication records would suggest that a period effect could have occurred.

However, organizational culture changes over time and the current climate may reflect a different set of values. The discourse, that it is hypothesized here to have possibly created a preconception about what to expect of a publication record, changed over time. Prior to the early 1990s, the number of publications was the metric by which publication records were assessed. However, criticism emerged of this by the early 1990s, suggesting that assessing the quantity of publications does not account for the quality of those articles (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989). A shift therefore occurred where quality, particularly via means of journal rating metrics, became the focus for assessing publication records. However, by the late 2000s criticism of this practice emerged as it was arguably constraining research and could be discriminatory to niche areas (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). The current climate could therefore be more impacted by recent criticisms of journal ratings rather than past focus on utilizing them.

In analysing the results of the survey, the overall finding was that the long resume, containing the eight low rated journal publications in addition to the same four high rated as the short resume, was preferred across countries and disciplines. This is at odds with the suggestion that journal ratings had become the sole metric for assessing publication records and a source of discrimination (Rynes, 2007; Ozgilbin, 2009). Therefore, the current climate does not indicate an ongoing culture of valuing only high rated journal publications.

Equally those who had been in academia less than 10 years agreed with those who had been in academia longer than 20 years in terms of preferring the long resume. Whereas those who had been in academia 10-20 years were indifferent to the two resumes, with additional eight low rated journal publications making no significant addition to the strength of the resume. If there had been a period effect, you would expect all of those who had been in academia since the cultural or measurement shift to espouse the same views. In the case of a period effect, caused by the switch towards the use of journal ratings as the metric to assess publication records in the mid-1990s, you would expect all individuals who had been in academia since then to adhere to that culture. The data was collected in late 2015. But those who were in academia more than 20 years did not. In terms of a more recent period effect caused by criticisms of the use of journal ratings, you might expect those who had been in academia less than 10 years to prefer the long resume as they did, but this does not account for this group sharing their resume preference with those who had been in academia for more than 20 years. The survey results therefore do not suggest the differences in resume preference across years in academia were a product of a period effect.

8.5.3 Cohort Effect

Cohort effects are changes across groups of individuals who experience an event or set of events. Cohort effects may be caused by historical differences in social or physical environments during critical earlier years, or differences in size or structure of cohorts (Palmore, 1978; Yang, 2008).

What is particularly notable about the findings for the resume preference given the number of years in academia is that the indifference between the two resumes is only for those who had been in academia for 10-20 years, with those who had been in academia more or less time than this having a preference for the long resume. What is especially striking about this result, given that data was collected in late 2015, is how that relates to how the discourse on assessing publications over time. Up to the early 1990s the metric for assessing publication records was the number of publications on the resume. However, owing to criticisms that suggested this process did not account for the quality of those publications,

by the mid-1990s journal ratings became the metric for assessing publication record (Long, Allison & McGinnis, 1993; Mooney, 1991; Reidenberg, 1989). Journal metrics became the dominant metric for assessing publication records for the next decade. By the mid-2000s criticisms towards the use of journal ratings in measuring publication records began to emerge (Adler & Harzing, 2009; Alvesson & Gabriel, 2013; Espeland & Sauder, 2007; Gulati, 2007; Rafols et al., 2012; Walsh, 2011). There was therefore a ten-year period where the use of journal ratings to measure publication records was dominant, with those who had been in academia 10-20 years entering academia during this decade, given the data was collected in late 2015.

When the current climate is measured there can be a number of historical cultural influences, with culture referring to the evolution of contexts and situations over time that become embedded in beliefs. Culture is rooted in history, collectively held, and sufficiently complex to resist attempts at direct manipulation (Bock et al., 2005; Dennison, 1996). Indeed, the overall results showed that there were individuals subscribing to different cultural influences contained within the current climate. The current climate tended towards preferring the long resume containing the eight low rated journal publications in addition to the four high rated. In addition to the indifference shown between the two resumes shown in the 10-20 years in academia group, there were mixed preferences across different amounts of time in academia. Those who had been in academia more than 20 years as well as less than 10 years also contained individuals espousing the view that the addition of the low rated journal publications detracted from the resume. This is despite the current climate reflecting a preference for the addition of the low rated journal publications.

In cohort replacement theory, there is an ongoing replacement of older by younger cohorts. Attitudes are assumed to persist over the life course (Brim & Kagan, 1980), shaping the acquisition of subsequent preferences and beliefs. In contrast, social structural theory focusses on processes of attitude changes that occur during adulthood, with major social organizations validating some attitudes while discouraging others (Bobo & Hutchings, 1996). Attitude change among individuals tends to be constrained by pre-existing patterns of attitudes giving salience to specific clusters of attitudes (Sniderman, Brody & Tetlock, 1993). In the organizational context, ideological learning can mediate much of the effect of cohort replacement (Brooks & Bolzendahl, 2004). It is therefore reasonable to expect a diversity of cultural legacies across cohorts as well as within a cohort itself depending on the extent of subsequent social structures and ideological learning. This was reflected in the survey results given the diversity of viewpoints.

A generational cohort is characterised by a homogeneity of attitudes, since predispositions established early in life have a certain degree of durability (Cutler, 1969). Culture and development across the lifespan play crucial roles in shaping the self, especially as they move through adolescence and young adulthood (Foster, Campbell & Twenge, 2003; Ozer & Gjerde, 1989), which can be attributed to the timing of major life events and transitions. (Hooghe & Wilkenfeld, 2008; Vollebergh, Iedema & Raaijmakers, 2001). Cohort variations are conceived as the essence of social change and may reflect the effects of early life exposure to socioeconomic, behavioural, and environmental factors that act persistently over time to produce different outcomes for specific cohorts (Ryder, 1965; Yang et al., 2008). Social influences at crucial times in an individual's development have the possibility to create a cohort. Those who are still formulating their views about academia and what is expected on an academic resume might be more impacted by the prevalent discourse on publication record assessment at that time. The views formed in this development stage may be robust even as new discourses emerge.

When considering the nature and pattern of the results found from the survey, there does not seem to be a case for an age or period effect to explain the indifference between the two resumes found for those who had been in academia 10-20 years. The pattern across the results, given the number of years in academia show a distinct indifference to the two resume for those who had been in academia 10-20 years, while those who had been in academia more and less time prefer the long resume. Contrasting this with the prominence of a discourse to use journal ratings to measure publication records being precisely during the formative years of those who had been in academia for 10-20 years, a cohort effect is even more probable. There was a diversity of opinion across all lengths of time in academia, but this is a natural product of cohort effects interacting social structures and ideological learning as new discourses emerged. The result found for the indifference between the two resumes for those who had been in academia 10-20 years is therefore likely to be a product of a cohort effect. Therefore, the term 'cohort', as referred to throughout the text, is correct and appropriate for describing the indifference between the two resumes found for those who had been in academia 10-20 years.

8.5.4 Social Bias and Changes over Time

Organizational theory as well as age, period and cohort analysis provided a useful framing of the possible social bias present amongst those who had been in academia for 10-20 years. However, within the behavioural science and economic literature there seems to be little engagement with how social biases interact over time with cultural and

organizational influences. Recent unpublished work considers the historical robustness of 'backfire effect' over time with respect to political attitudes (Wood & Porter, 2016), referring to ideological cohorts. Nevertheless, although the literature on cultural and organizational literature engages with age, period and cohort effects (Brooks & Bolzendahl, 2004), and how the organization can shape current attitudes, this is yet to be linked extensively with behavioural science. Again, this having not yet been linked could be due to the methodological analysis differences between sub-disciplines that study employment. Labour economists consider potential cohort and period effects typically through early life influences and later life outcomes, especially through recession and unemployment effects (Daly & Delaney, 2013; Egan, Daly & Delaney, 2015; McQuaid, 2014). However, framing of organizational and cultural influences over time and individual attitudes within the organizational learning context is not typically a focus for the labour and personnel economists, who have thus far been most active in engaging with behavioural science. By using a framing of behavioural science alongside age, period, cohort analysis, and a context of organizational learning, new interactions were fostered.

8.6 Recent Developments

In April 2017, (Powdthavee, Yohanes & Knetsch, 2017a) and a subsequent online piece on 18th of May 2017 (Powdthavee, Yohanes & Knetsch, 2017b), an IZA Institute of Labor Economics discussion paper was published detailing research on the impact of low rated journal publications. The paper acknowledged the lack of research on the impact of low rated journals despite the assessment of publications being determined by both the number of publications and the perceived quality. It is hypothesized that there may be a 'less is better effect' causing the longer resume with low rated journal publications to be viewed negatively. This study contained five resume types. The authors distinguished between 'high rated' journals, 'top five' journals and 'low rated' journals. The five resume types were 'short top five', 'long top five', 'short no top five', 'long no top five', and 'long lower ranked'. The sample was isolated to economists, including 52 PhD students. The target universities were mainly U.K. and U.S.A. and tended to be of a high global standing. 378 responses were recorded at a response rate of 16%. As with our research, participants were not incentivized or reminded to take part. Response rates relied on the individual's desire to complete the survey.

Interestingly in their results, when participants examined a resume in isolation, the long resume with the additional low rated journal publications was not preferred, instead preferring the short resume, at odds with our results. However, during joint evaluation the

short resume was not preferred. A 'less is better effect' in the context of joint evaluation did not occur. It is hypothesized that in direct comparison participants could see that the high rated journals appeared on both resumes, leading to no negative impact. These findings support some of the reasons that cognitive biases were controlled for in the design of our research and only a single resume shown. Conversely, their overall finding in reviewing the resumes in isolation does not match up with those in this research. It might be that the smaller sample of specifically economists, as well as a wider range of academics including PhD students, may contribute to this difference. There may be distinct social and cognitive biases of economists.

However, it is more likely that the result is caused by the specificity of the resume to economics. In the results of this research, when splitting by management sub-division, all sub-divisions prefer the long resume except entrepreneurship and international business. The candidate resume in this research has publications closely related to entrepreneurship and international business. There may be differences when comparing with one's own specific sub-discipline as well as a possible 'social comparison bias' where there is a tendency to not hire someone who competes with similar strengths. While 'less is better effect' informs the overall hypothesis and results, the research in this thesis highlights the complexity in the sources of any such bias, including social bias and cohort effects. It is also indicated in the analysis of the qualitative data in this research that there may be a difference between how different age groups will react to the presentation of 'top five' journals against 'high rated' journals. The higher proportion of PhD students in the sample may have influenced this.

Finally, the Powdthavee, Yohanes & Knetsch (2017a) paper highlights two important conclusions similar to our own research. The first is that participants may be inferring a rate of publications over time, possibly inferring future performance. In both sets of research career stage and length is not investigated. The second is the conclusion that pressure to publish in high rated journals, and the assumption that they should be targeted, could motivate individuals to withhold socially valuable research for fear that it may detract from a resume if not highly rated.

8.7 Summary of Chapter

This thesis aimed to demonstrate why and how using behavioural science as a framing for research on employment can be of importance, this being research objective 1. The literature is calling for more interdisciplinary research between employment sub-disciplines and the structured behavioural science framing set out provides an approachable platform for new interdisciplinary engagement and interactions. Using a framing of

behavioural science to inform empirical investigations helped demonstrate how to use a framing of behavioural science to underpin investigations with new enquiries and novel findings being informed by behavioural science. A framing of behavioural science can be used to investigate and discuss quantitative and qualitative data, framing potential indicators of decision-making in new ways.

The empirical results show how social bias such as 'backfire effect' can have very nuanced impacts on employment decision-making and that social bias can be determined by social influence at important life stages. These social biases, set at key life stages, can remain robust even as new social influences emerge, in this case creating cohort effects in academic resume assessment with implications for academic appointment panels and career choices. The simple counting of high rated journals (Rynes, 2007) would appear to be taken in the context of the expectations for total number and frequency of publication, collaboration, as well as the presence of low rated journals. Low rated journals are still of some value.

As age, period, cohort analysis showed, it is particularly difficult to measure social bias, with the current climate reflecting multiple past social influences. There was a diversity of opinion across all lengths of time in academia, but this is a natural product of cohort effects interacting social structures and ideological learning. In the case of social bias and social influences upon them, measuring a group of people is likely to unearth a range of socially determined views that are a consequence of organizational and ideological learning. Findings can thus be extremely nuanced and difficult to measure. Indeed, as the exploratory investigations into the data show, indicators of social bias can be complex to unearth.

CHAPTER 9: CONCLUSIONS

9.1 Introduction to Chapter

The structured behavioural science framing developed in this thesis showed that behavioural science has the potential to contribute to research on employment throughout the employment cycle. The structured behavioural science framing demonstrated the existing interactions with behavioural science as well as new potential avenues for research. The structured behavioural science framing hoped to help stimulate engagement with behavioural science by employment sub-disciplines, including the study of human resource management, as well as by policy makers and practitioners.

Using an example based on academic resumes, the thesis also demonstrated that using the behavioural science framing to underpin empirical investigations provides fruitful results that contribute to both theoretical and empirical knowledge. At the design stage, insights from cognitive biases were considered to be important in reducing potential confounds in the survey results. The hypothesized social bias of a 'backfire effect', causing a negative reaction when additional low rated publications were presented within an academic hiring scenario, was not found in the overall sample. On average the overall sample of participants were 'rational', i.e. they chose the long resume which indicated greater publication output. However, the results showed that there was an indifference between the long and short resumes for those who had been in academia for 10-20 years, which could be considered 'irrational'. This nuanced finding illustrated the complexities involved in investigating social bias within the context of changing organizational and social influences.

Further investigation of this 'irrational' indifference through factor analysis of Likert scaled responses to candidate statements was useful for informing the coding of the qualitative candidate feedback as well as confirming a negative reaction to the long resume, distinct to those in the 10-20 years in academia cohort. Subsequent analysis of the qualitative data indicated that both those in the 10-20 years in academia cohort and those not in this cohort had negative reactions to the presentation of low rated journals. However, there appeared to be indicators for a possible 'backfire effect' against the short resume and a preference towards the long resume carried on the frequency of publications for those not in the 10-20 years in academia cohort. In addition, there appeared to be indicators for a potential preference for the short resume amongst those within the 10-20 years in academia cohort praising the focus on high quality or high rated journals. This praise for focussing on high quality was lost in the long resume, creating a 'backfire effect' towards the long resume.

The simple counting of high rated journals as proposed as a possible mechanism in the assessment of academic resume (Rynes, 2007) would appear to be taken in the context of the expectations for total number and frequency of publication, as well as the presence of low rated journals. Low rated journals are still of some value. Low rated publications were therefore not ignored, as would be the case in 'confirmation bias'. The analysis of the qualitative data also confirmed some of the findings in the factor analysis, such as collaboration being a distinct factor in the assessment of candidates for academic tenure, including that those in the 10-20 years in academia cohort encouraged the short resume to work on their own more often.

Using behavioural science as a framing for underpinning investigations both allowed for a mixed-methods approach and informed new lines of enquiry within the data set. This resulted in different data types being utilized in explorative ways to be able to pursue the new enquiries drawn from behavioural insights. This was also useful for representing and stimulating interactions with behavioural science from a range of sub-disciplines that study employment, by demonstrating how to approach different research questions and data types using a framing of behavioural science.

Two findings were uncovered in investigating the assessment of academic resumes and job applications that would need further investigation in future research beyond this thesis. The first being the finding during the factor analysis that the negatively worded statements about the candidate struggled to fit the factor model. The difference in the way negative statements about a candidate resume are responded to compared to positive statements has implications for the way that criteria for assessing candidates are framed. The second issue was how behavioural science biases interact with social discourse as well as organizational structures and learning over time. Particularly in relation to age, period, and cohort effects, social biases can be determined by how and when exposure to social influences occured in an individual's life. These can be robust over time or malleable by new cultural and social influences as well as ideological learning in an organizational context. This nature of social biases in behavioural science is very understudied at present.

The rest of this chapter reflects on the research process throughout this thesis. Firstly, the research outputs are compared to the research objectives set out in chapter 1. The research objectives focussed on the key contributions to knowledge given the direction of the research. As outlined in chapter 1, as well as in the reflection in section 9.3, the main contribution to knowledge of this thesis lies in providing a structured behavioural science framing to help stimulate new interdisciplinary interaction between sub-disciplines that study employment. A further contribution is in demonstrating the use of this structured

behavioural science framing sufficiently in the chosen issue of the effect of the addition or omission of low rated journal publications on an academic resume. The issue was chosen to investigate a possible identified 'irrationality' that additional content of low rated publications could detract, even given the same high rated publications. The investigation of this empirical question provided additional contribution to knowledge on the discourse surrounding the use of journal metrics to assess publication records on academic resumes, forming a substantial part of this research.

In section 9.3 the chapter then goes on to reflect on the challenges and weaknesses in conducting this type of research and of the thesis itself, before highlighting some potential research and policy implications of the research findings and contribution to knowledge.

9.2 Research Objectives

1. To develop and demonstrate the potential use of a behavioural science framing for research on employment.

The first chapter of this thesis set out the interactions between different sub-disciplines studying employment (Gerhart, 2005; Kaufman, 1999a; Kaufman & Miller, 2010; Mitchell, 2002, Weber & Kabst, 2004), highlighting existing calls for and potential to stimulate more interdisciplinary research between these disciplines (Kaufman, 1999b) and across multiple levels of analysis (Aguinis, 2014; Aguinis et al., 2011; Foss, 2010; Foss, 2011; George, 2014; Hitt et al., 2007; Van de Ven & Lifschitz, 2013; Wright & Boswell, 2002). There are also calls for further calls for behavioural integration in employment research (Ployhart, 2014 (Gavetti et al., 2012; Greve, 2013), (Levinthal, 2011; Powell, Lovallo, & Fox, 2011 (Barney & Felin, 2013; Coff & Kryscynski, 2011; Molloy, Ployhart, & Wright, 2010; Ployhart & Moliterno, 2011).

Engaging with behavioural science has the potential to stimulate interaction between sub-disciplines and different levels of analysis (Backes-Gellner, et al., 2008; Dohmen, 2014), creating new research agendas and perspectives of employment issues across different levels of analysis. Equally, the rationale set out for why a behavioural science framing for research on employment is of interest, stresses the policy reports on behavioural science conducted by practitioner institutions (CIPD, 2014; 2015). In addition, this is linked to the expanding acknowledgment of the importance of unconscious bias as well as professional and practitioner tools to try to mitigate these.

The existing success of applying behavioural science biases to employment problems, scenarios and decision-making (Bidwell, Griffin & Hesketh, 2006; Hesketh, 2000; Paserman, 2008; Schoenfelder & Hantula, 2003; Shelley & Omer, 1996; Thaler & Bernartzi, 2004), demonstrates the potential for innovative outputs through these interactions. In creating and demonstrating a behavioural science framing for research on employment, existing applications of behavioural science were built upon, illustrating entirely new applications as a genuine contribution to knowledge. These new applications, illustrated both in laying out the core facets of behavioural science as well as across the employment cycle, provide potential new research streams for research on employment. These new applications of behavioural science provide examples of both new empirical enquiries as well as theoretical implications and investigations. It is important that early success is expanded upon and that the implications of behavioural science for employment are thoroughly investigated.

The structured behavioural science framing aimed to provide as wide a range of applications of the core facets of behavioural science to employment scenarios and theories as was feasible. Each of the main categories of behavioural science biases were covered, these being cognitive and social biases, time preferences and biases, risk preference and biases. Applications of these behavioural science biases were then represented across the employment cycle, including drawing on existing behavioural science applications and potential theoretical implications. This set of applications was intended to be representative not exhaustive. It was intended to demonstrate how behavioural science biases could be applied in investigating employment. In providing clear and simple explanations of each behavioural science bias in turn, including clear examples, it was intended to introduce behavioural science in a way suitable for individuals with no academic or theoretical background in behavioural science specifically. The biases are then demonstrated across the employment cycle and a range of scenarios to try to provide further support in understanding how these biases may impact employment decision-making. The use of the structured behavioural science framing is then subsequently demonstrated throughout empirical investigations, intending to provide in-depth illustration of how the framing of behavioural science can be used to inform employment research. All of these demonstrations were conducted to provide new platforms for stimulating interdisciplinary interaction and engagement with behavioural science in sub-disciplines that study employment.

2. To identify factors associated with the addition or omission of low rated journal publications in the assessment of academic resumes.

The chosen empirical investigation into the effect of journal metrics, and especially the impact of the addition or omission of low rated journal publications on an academic resume was drawn from the literature. There was much debate about a preference for high rated journal publications (Hitt & Greer, 2011; Hussain, 2011; Vale, 2012) arguing that it was constraining research behaviour at an individual and institutional level (Adler & Harzing, 2009; MacDonald & Kam, 2007; Ozbilgin, 2009; Wilhite, & Fong, 2012). However, while it is eluded to that research more suited to journals that are lower rated may be discriminated against, there is a lack of research on the impact of low rated journals, despite the assessment being determined by both the number of publications and the perceived quality. Furthermore, these institutional and organizational influences on decision-making changed over time, potentially causing additional nuanced effects in the way that additional low rated journal publications are reacted to given a balance between quantity and quality of publications.

The empirical research carried out was constructed to isolate the effects of the addition or omission of low rated journal publications, given exactly the same additional content including high rated journals. This was tested across countries and commensurate disciplines while also controlling for types of institution. The sample was drawn from existing university faculty at a level deemed likely to be involved in academic appointment panels. This was to ensure that the results reflected the opinions of individuals who are likely to assess and make real hiring decisions on academic resumes. The intention was to see if the addition or omission of low rated journal publications would be preferable.

The findings showed that overall the addition of low rated journal publications are preferred compared to their omission across countries and disciplines. However, there were distinct nuances within these findings. Firstly, the marginal benefit of the addition of low rated journals was not relative to three times as many publications on the long resume and the assessment of quantity of publications. Quality of publications appeared to be the most important metric across the sample as a whole. Secondly, the marginal benefit of additional low rated journals was reduced when females viewed the resume, perhaps reflecting on possible higher expectations of productivity for females. Thirdly, the number of years in academia was strongly correlated with the preference for the addition or omission of low rated journal publications. In particular, there was no additional benefit of adding low rated journal publications for those who had been in academia for 10-20 years, although there was

not a negative reaction to their addition overall. Meanwhile those who had been in academia both more and less time than this preferred the addition of the low rated journal publications on the long resume.

3. To explore behavioural explanations for the valuation of the addition or omission of low rated journal publications in the assessment of academic resumes.

The empirical research in this thesis was intended to explore the use of some aspects of a structured behavioural science framing to investigate employment decision-making. The framing of behavioural science was used to underpin investigations and inform new exportations in the data. The exploratory nature of the empirical investigations was intended to demonstrate and examine how using a framing of behavioural science could inform new investigations in the data. In using a behavioural science framing for investigation, novel findings were met with new research questions informed by behavioural science.

In investigating the empirical data collected using a framing of behavioural science, new research questions emerged. These new research questions, particularly the source of a social bias potentially being part of a cohort effect, required new explorations into the data. These new explorations into the data required using the full dataset including quantitative and qualitative data. New investigations required an exploratory approach in trying to narrow down the search space and find potential indicators for decision-making. This required a wide range of data analysis techniques to be demonstrated. Examples of how the extremely nuanced effects of unconscious bias may be investigated in qualitative and quantitative data were an important contribution of the empirical investigations carried out.

To explore the nuanced indicators for a possible behavioural science social bias explanation for the cohort effect, factor analysis indicated that in assessing the candidate issues of potential, consistency, and meeting expectations were linked. For the hypothesized 'backfire effect' to occur, there would have to be a prior expectation to be reacted to, in this case formed by the discourse on how to assess publication records. Expectations appeared to be linked to an assessment of potential and consistency. In addition, there were indications that more general criteria were negatively reacted to by those who had been in academia 10-20 years, possibly suggesting a negative reaction, as expected in 'backfire effect'. Furthermore, the assessment of quality appeared distinct from resume preference given the number of years in academia.

These initial indicators were used to inform coding of the initial coding of nodes and further sub-nodes, to explore indicators for the source of a social bias in the qualitative data

of feedback to the candidate resume. The coding of this qualitative data indicated that those in the 10-20 years in academia cohort potentially had a 'backfire effect' towards the long resume based on less focus on high rated journals and perception of high quality. Those not in the 10-20 years in academia cohort potentially had a 'backfire effect' against the short resume based on the frequency of publications.

9.3 Reflection

The aim of this exploratory research project was to establish, and partially test, a structured behavioural science framing for research on employment. The aim was to demonstrate why and how behavioural science could be of interest to scholars studying employment, responding to significant, recent calls for the integration of sub-disciplines, including interaction with behavioural science in both research and practitioner guidance.

Initial efforts into establishing behavioural science contributions to human resource management quickly altered the direction of the research project. In the first instance, given the broad nature of investigating the contribution of a whole discipline to another discipline, it was impossible to do a standard systematic literature review. It would have been impossible to put all of the terms of behavioural science onto one side of the search terms and all the terms of human resource management on the other side. In addition to this, the literature indicated that behavioural science could best contribute in stimulating interactions between the sub-disciplines that study employment. Furthermore, it was not simple to suggest whether behavioural science had or had not been applied to a particular employment issue, without recognising that various different sub-disciplines may have used behavioural science to understand that problem. As a result, behavioural science's potential contribution to stimulating and encouraging interaction between the sub-disciplines that study employment became the focus in constructing the structured behavioural science framing.

The structured behavioural science framing focussed on covering the core facets of behavioural science to illustrate as fully as possible the range of potential applications of behavioural science to employment research. While the main facets of social biases, cognitive biases, time preferences and biases, risk preferences and biases, were all discussed it was not possible to be completely comprehensive in this. The biases that were added were chosen for their likely pertinence to employment decision-making to be able to provide clear examples. There could be additional biases that are applicable that have not been covered. The structured behavioural science framing was intended to demonstrate interaction with behavioural science, not a comprehensive review of its potential contribution. An entirely comprehensive review of existing and potential contributions to the study of employment

would have been impossible in any event. However, the structured behavioural science framing illustrated in this thesis provides a platform to stimulate new research introducing the academic discipline of behavioural science in a unique and approachable way to employment researchers and practitioners. Whilst underpinned by the academically-based core facets of behavioural science, these are unpacked to try to generate entirely new research streams.

The structured behavioural science framing added both new practical and theoretical implications for behavioural science applications to research on employment. This was the consequence of both the intention to provide a structured behavioural science framing that stimulated interaction with behavioural science by employment researchers and practitioners, as well as feedback from peer review in the publication process.

In designing the survey experiment and setting out the desired pool of participants, a large number of academics that met the desired criteria needed to be contacted. The high number of participant responses needed, as well as debiasing selection by approaching all academics that met the desired criteria, resulted in 11,324 university faculty being contacted. The procedure established for contacting this number of academics was to create a database using profiles and email addresses publicly available on university school web pages. The information to be collected was title, full name, email, university and discipline. Individual profile pages on university websites had to be gone through in turn. It was possible to collect between 150 and 200 profiles per day on average, given search time in navigating webpages and entering details into the database. This meant that the creation of the database took a little over three months. Once the database was completed, it would take too much time to individually email all 11,324 participants so a mail merge was required. Separate template approach emails were created given the participant's discipline and the country in which they work. Each target participant from the database was then merged with the correct template, ensuring they were addressed by their correct title and full name. Personalization was hoped to stimulate a higher response rate. In all instances, personal and contact information was collected from publicly available university profile pages, never from another source. The eventual response rate was 9% (1,011).

Upon presenting the empirical research findings at conferences, there was, in hindsight, an aspect of the two resumes that could not be separated using only the two resumes. There was a lot of feedback in presenting the research about the separation of the number of publications and the rate of publications. Indeed, frequency of publications also came out prominently in the participants' feedback to the candidate during the survey. Given that the dates of the candidate's degrees and employment history remained identical across

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the long and short resumes, the short resume published with a low frequency. The number of publications is usually a proxy for the rate of publications, as a higher number of publications is likely to mean a higher rate of outputs. However, this does not account for the length of a person's career to date. Substantial variations in career length, given the same output would reflect differently on the candidate. Conversely, varying the age of the candidate was not the main exploration of the research, with the research aiming to investigate whether there was a 'backfire effect' relating to the addition of low rated journal publications compared to their omission. In simple terms, would the same candidate applying be better or worse off omitting low rated journal publications. The candidate details therefore needed to remain identical. To investigate rate of publications, four resumes would be required as minimum. Varying age and career length might have added additional evidence in discussing whether the indifference between the two resumes found amongst those who had been in academia 10-20 years was a product of an age, period or cohort effect.

The data, particularly amongst the factor analysis of the Likert scaled statement responses and the analysis of the qualitative candidate feedback, appeared to provide some degree of triangulation in terms of supporting findings across different data types collected in the same survey. In addition to supporting trends for the overall hypothesis, issues pertaining to collaboration were a distinct factor. The parallel analysis showed there could be up to five factors amongst the Likert scaled responses to the candidate statements. The exploratory factor analysis showed that one of these was caused by the common pattern of responses to negatively weighted statements. Another was explained by collaboration being a distinct factor. The main collaboration item was subsequently dropped and a three factor solution was run. Had collaboration been expected as such a distinct source of feedback, more than one item pertaining to collaboration in the statements about the candidate may have been added.

It is possible that the difference between those in the 10-20 years in academia cohort and those not in this cohort may be explained by two 'backfire effects'. There could be a 'backfire effect' based around a focus on high rated journals for those in the 10-20 years in academia cohort, and one based around frequency of publication for those outside this cohort. They could be reacting to different expectations and prior beliefs. However, the focus of this research was to investigate the presence of a 'backfire effect' pertaining to journal metrics, not frequency or collaboration.

Overall, this research highlighted the complexities in investigating behavioural science social biases as part of organizational and ideological learning. Social biases are a product of social influences and are malleable. In investigating the data, unexpected and

highly nuanced results occurred. Indeed, the overall hypothesis that a 'backfire effect' of a negative reaction to low rated publications was not found, with the long resume being preferred. Furthermore, the general and in-department hiring contexts in which the candidate was considered produced very little findings. This was added to investigate 'in-group' biases. There may have been better measures of potential 'in-group' biases that may have found more evidence. In addition, when analysing the qualitative data, negative reactions to the low rated journal publications were present to an extremely high extent in both cohort groupings. It was expected that there may be a higher amount of negative reaction to low rated journal publications amongst those who had been in academia 10-20 years, if a 'backfire effect' towards the long resume explained the indifference between the two resumes in this group. This, however, appeared to be a poor indicator of how a 'backfire effect' may be identified through the qualitative data.

Ultimately there were many more subtle differences in the indicators for why a resume was preferred, around which new hypotheses emerged. A potential difficulty in measuring unconscious behavioural science bias through qualitative data is that it is, by definition, not something that the participant is overtly aware of. Indications of unconscious bias are likely to be extremely subtle within participant comments. The analysis of the results of the recent work on the addition of low rated journal publications (Powdthavee, Yohanes & Knetsch, 2017a) contained in the discussion section of this thesis also highlighted the complexity of investigating unconscious bias in complex organizational ideological learning settings. There could be a multitude of influences on participants' decisions, with potentially one bias cancelling out another. This is the reason for controlling for cognitive bias in the design of the study as well as collecting an in-depth, large sampled dataset with many different analysis variables. A wide-ranging dataset and exploratory forms of analysis are required to investigate new hypotheses and counter hypotheses. Studying a data sample within a real empirical context adds greater complexity than the usual experimental research conducted in behavioural science, where universal traits can be explored assuming that a randomized sample has no prior or external influence.

9.4 Implications for Research

Researchers interested in studying employment can gain both theoretical and empirical insights by using a framing of behavioural science. The structured behavioural science framing set out in chapter 3 identifies a number of existing and potential new research avenues for research on employment. Theoretical frameworks can benefit from understanding how sub-optimal decision-making through behavioural science biases could

affect them. Equally, employment decision-making, as well as investigations into it, is likely to be affected by the results of unconscious bias mechanisms studied in behavioural science. These mechanisms specifically studied in behavioural science have had limited uptake in human resource management and organizational behaviour, and could provide new insights and research agendas.

Meanwhile there has been limited research into how behavioural science social biases may be influenced over time by organizational and ideological learning. The empirical investigation of a social bias in academic recruitment illustrated a possible cohort effect where exposure to a changing discourse over time, at an early development stage, can perhaps result in adherence to that discourse enduring over time, even as new discourses emerge. Despite this, within the behavioural science and economic literature, there seems to be little engagement with how social biases interact over time with cultural and organizational influences.

Behavioural science has, however, already had meaningful interactions with employment decision-making with one of the most prominent behavioural science applications, "Save More Tomorrow" (Thaler & Bernartzi, 2004), being in employment decision-making. The challenge lies in encouraging behavioural science scholars to engage with a greater range of employment theories and decision-making contexts, for example in performance monitoring and incentives, as well as job satisfaction and group dynamics.

An additionally important challenge, and indeed a fundamental part of illustrating a structured behavioural science framing for employment around the core facets of behavioural science, is to assist employment scholars in incorporating behavioural science into their investigations. This has the potential to open new research agendas as well as stimulate interaction between sub-disciplines that study employment, including the incorporation of different levels of analysis. The structured behavioural science framing set out in this thesis highlights entirely new applications of behavioural science to employment decision-making, with the potential to stimulate new research streams.

In investigating the addition or omission of low rated journal publications on an academic resume, there are important implications for the discourse on the use of journal metrics to assess publication records. The addition of low rated journal publications was preferred, suggesting more than a simple counting of high rated journals. However, given the relative number of publications, journal rating appears more influential on the assessment of publication records than the quantity of publications. A distinction also needs to be made between quantity and frequency of publications as a measure of productivity. The relative emphasis placed on quantity or rating of publications can depend on prior influences such

as the number of years in academia as well as gender. These could be influenced by mechanisms though behavioural science unconscious bias.

Further experimental and empirical research into how publication records are assessed could be useful. None of the journals on the resumes in the research were predatory, and the relative impact of low rated journals against predatory journals would be of interest. There are also indications that future research controlling for different quantities and frequencies of publication could help to get a more accurate measure of different valuations in the assessment of publication records

9.5 Implications for Policy and Practice

The Chartered Institute for Personnel and Development have already been promoting that human resource management practice engages with behavioural science (CIPD, 2014; 2015; 2017). There are also numerous online and digital platforms emerging to try to mitigate unconscious bias. Unconscious bias is highlighted through the development of online tools as especially significant in achieving diversity in issues such as ethnicity and gender through recruitment.

However, the use of a behavioural science framing for investigating employment decision-making illustrated in this thesis, has highlighted that unconscious bias has further reaching consequences than policies of equality and diversity in ethnicity and gender. Sub-optimal decision-making from job search efforts, to recruitment, to performance and incentives, all the way through to leaving work through retirement, career development and redundancy can be influenced by a range of unconscious biases studied in behavioural science. Understanding and using a simple framing of the core facets of behavioural science could have significant contributions to improving decision-making and creating more optimal outcomes given an organization's or an individual's aims.

The thesis' empirical findings of a possible cohort effect suggest that when setting up academic appointment panels, a range of experience would be optimal to mitigate against an unconscious social bias caused by perceptions of journal ratings and what is expected on a publication record. The extent to which different aspects of a publication record are valued may depend on the number of years in academia, such as journal rating, number of publications, co-authorship and the frequency of outputs. Ideally there would be a spread, on the appointment panel, of individuals who have been in academia less than 10 years, individuals who have been in academia 10-20 years, as well as individuals who have been in academia more than 20 years. This is because of the possibility that different views of

what is expected of an academic resume may have formed during formative years as an academic.

It is debated that publications, in journals that rate highly in systems of journal metrics, are favoured and candidates can be hired, or not, on the basis of these 'golden eggs' in resumes (Hitt & Greer, 2011; Hussain, 2011; Vale, 2012). Academics can be torn between over-presentation of an academic self and failing to present themselves adequately (Miller & Morgan, 1993). With this being the case, promotion and hiring may now be based on the candidates best at marketing their research (Brembs, Button & Munafò, 2013). It is possible, as with the issues associated to publication, that research that is of value to both knowledge and the academic themselves is discarded (Driessen et al., 2015; Ioannidis, Stanley & Doucouliagos, 2016). Pressure to publish in high rated journals, and the assumption that they should be targeted, could motivate individuals to withhold socially valuable research for fear that it may detract from a resume if not highly rated (Powdthavee, Yohanes & Knetsch, 2017a). However, the results contained in this thesis suggest that low rated journal publications are still of some value overall, thus withholding this research would be sub-optimal. Nonetheless, a greater weighting is placed on high rated journals so a trade-off has to be made in allocating time to research targeted at high or low rated journals.

9.6 Summary of Chapter

This thesis provided a structured behavioural science framing intended to help stimulate more interdisciplinary interaction between sub-disciplines that study employment and behavioural science. It set out new empirical and theoretical applications to the study of employment decision-making as a contribution to knowledge.

The behavioural science framing was then used to support the investigation of the factors in addition or omission of low rated journal publications in the assessment of academic resumes. The results of these investigations showed that low rated journal publications are still of some value, albeit journal ratings play a crucial role. Importantly, the extent to which additional low rated journal publications are valued can depend on unconscious social biases that are based on prior expectations, potentially dictated by organizational and ideological learning over time.

Behavioural science has been shown to have an important contribution to employment research and practice and vice versa. This thesis has attempted to help stimulate further interaction between behavioural science and employment research by setting out a structured behavioural science framing for research on employment and demonstrating the use of this framing to inform empirical investigations.

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APPENDIX A: ONLINE SURVEY

Note: The U.K. based management school version of the survey is shown in this appendix. As stated in chapter 5, methodology, discipline and country specific versions of the survey were sent out.

Introduction

You are about to take part in a study that looks into the way that we evaluate CV's. You will be asked a number of questions regarding your opinion of a CV in relation to certain job criteria. Thank you for choosing to participate in our study. If upon completion you have any further enquiries please e-mail cga1@stir.ac.uk and I will be happy to answer any questions.

Below is the official participant information sheet provided by the University of Stirling Management School.
Please could you read this document and if you are happy to continue, select yes in the consent section below.

STIRLING UNIVERSITY MANAGEMENT SCHOOL

Participant information sheet

Title of project:
 Interpretation of Academic CVs

Introduction
This project examines how university professors evaluate the curriculum vitae of potential applicants. We are interested in your views on the applicant that you will be presented with and whether you believe they would be suitable for a post at your institution. This project is designed to lead to published work and contributing new ideas to the field whilst also being part of an PhD thesis.

What will I be asked to do if I take part?
If you choose to take part in the study, after reading the participant information sheet and signing the Consent Form, you will be supplied with the CV of an academic and asked to fill out an online questionnaire. The survey consists of questions that aim to provide us with answers that accurately represent your view of the person and their CV.
Example questions include:
"If there was a job opening at your institution, would you consider offering it to this candidate?"

Will my data be anonymous?
Your data will remain anonymous at all times. You will be asked for your age, gender and time at the institution but no personal information will be able to identify you to your responses. This information will not be passed on to third parties. It will only be kept for 5 years after publication in a secure locked cabinet under the supervision of the Project Supervisor Professor Alex Wood.

Do I have to take part? You do not have to take part in this study. At any point during the study, before or after, you have the right to withdraw without giving reasons, and if you wish, your data will be destroyed.

After completion of the study, data will be stored in an anonymous format preventing identification of your responses.

Where can I obtain further information if I need it? For further information, you can contact either:
Project Coordinator: Craig Anderson: cga1@stir.ac.uk.
Project Supervisor: Professor Alex Wood: alex.wood@stir.ac.uk.
If you are upset or concerned with any of the issues raised in this questionnaire, please contact the project supervisor. Additionally, the Samaritans provide confidential, non-judgmental emotional support. 24 hours a day and can be contacted on 08457 90 90 90 or via www.samaritans.org.

This project has been approved by the Stirling University Management School Ethics Committee.

✱

Q1 I've read and understood the information and consent to take part in the study.

○ Yes

○ No

End of Block

Instructions: Thank you for agreeing to participate in this survey. This page contains the CV document and the large majority of the questions. After this page there are only 5 short demographic questions which will take no more than a minute and is the conclusion of the survey.

Please read the following document and have it open whilst answering the questions.
<u>Curriculum vitae</u>

Imagine that you are hiring for a new position at Senior Lecturer Level in an institution (not your own). As part of the short listing process, you have been asked to judge the extent to which the research element of the candidate's CV meets this aspect of the essential appointment criteria/ role description. The criteria are below. Please read the role description criteria carefully, alongside the CV, and rate your agreement with the statements that follow. Your help is greatly appreciated.

Essential Criteria (Research)
- Publish research outcomes in appropriate refereed journals of international standing, and publish and disseminate the results of research and scholarship in other outlets.
- Carry out independent research and act as principal investigator and project leader.
- Contribute to the research activities of the department by developing own research program, planning and coordinating a broad research activity or program, sustaining an extensive track record of published research findings, maintaining an expert reputation in own subject area at least at national, and usually international level, and providing guidance to staff and students on own specialist area.
- Contribute to the development of research strategies.
- Apply for, negotiate and manage research funds to the benefit of the individual's or others' research activity and the research standing of the university.
- In managing research projects, manage and develop research staff and students, technical and other support staff engaged in research.
- Engage in external academic activities in accordance with the department's research strategy and which enhance the school's national/international research profile. Such activities may include, for example, delivery of research papers at conferences, membership of committees of academic bodies, external examining, participation in knowledge transfer, development of industrial links and other related activities, and journal editorships.

Please confirm that you have viewed the Curriculum Vitae document and are considering it in relation to the role outlined above.

○ Yes

○ No

The following statements relate to how much you believe the candidate is applicable for the role. Please use the sliders below to show how much you agree with each statement.

I believe this person meets the criteria outlined for this academic post	
I believe this person has a research profile that is expected of a career path	
There are aspects within this research profile that would dissuade me from supporting an appointment	
I think there is a chance this person would not fulfill their career potential	
I believe this person has not shown a consistent level of performance in their career	
I would expect this person to be considered for the outlined position	
I believe this person has a research profile that reflects consistently high quality	
I believe this person has the potential to be academically renowned in the field	

Do you believe this person is appointable based on the criteria?

◯ Yes

◯ No

The next few statements relate to how you would evaluate the candidate were they applying for a senior lecturer post in your department, based on your knowledge of your own appointment criteria.

Statement	
I believe this person meets the criteria for appointment at this level in my department	
I would actively encourage this person to apply for such a position in my department	
I believe this person has the desired research profile for appointment in my department	
I would actively dissuade an appointment board in my department from appointing this person at this level	
I believe this person will not have the potential to collaborate with me	
I believe this person has the potential to contribute to our department	
The research profile of this person is of nature that is expected at our department	
I think this person has an adequate research profile for this appointment	

I consider this person to be appointable at my department based on our expectations for research profile

○ Yes

○ No

If this person was unsuccessful in an application to this post, what advice would you give to help them strengthen their CV for future applications?

Please answer the following demographic questions, designed so that we can describe our sample accurately.

Are you:

○ Male

○ Female

How old are you?

In what year did you get your PhD (If applicable)

What is your position within your department?

○ Lecturer / Research Fellow

○ Senior Lecturer / Senior Research Fellow

○ Professor/ Chair / Director

○ Emeritus Professor

For how many years have you been an academic?

For how many years have you been at your current department?

How many appointments have you sat on in the last three years?

○ None

○ 1-2

○ 3-5

○ 5 or more

How would you rate your department?

○ Within the top 20 in the U.K

○ Between 20th and 50th in the U.K

○ Between 50th and 100th in the U.K

○ Lower than 100th place in the U.K

How would you rate your university?

○ Within the top 20 in the U.K

○ Between 20th and 50th in the U.K

○ Between 50th and 100th in the U.K

○ Lower than 100th place in the U.K

Of which Management School sub-division do you belong?

○ Economics

○ Finance

○ Accounting

○ Human Resource Management

○ Strategy

○ Operations

○ Entrepreneurship

○ International Business

○ Organisational Behaviour

○ Other Management _____

Do you have any further comments regarding this survey?

_____

_____

_____

_____

Thank you very much for your participation in this study. If you have any further questions please feel free to e-mail me at cga1@stir.ac.uk

End of Block

APPENDIX B: U.K. PSYCHOLOGY SHORT RESUME

DR M. C. WILLIAMS

Qualifications

Ph.D. Psychology (Individual Differences in Emotional Recognition), Russell Group University, 2009.
B.Sc. Psychology Hons. (1st Class), Russell Group University, 2006.

Current and Previous Posts
Lecturer in Psychology, Russell Group University, 2009+.

Funded Research (>£90k)
2012-2013: £90,215. PI: Williams; Bishop (post-doctoral fellow). *Emotional Display and Recognition Comparisons*. ESRC.

Publications

Williams, M. C., White, R. S., Becker, S., & Yanov, B. (in press). A neural network model of memory for face recognition. *Journal of Experimental Psychology: Learning, Memory and Cognition.*

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Williams, **M. C.,** & Hamilton, G. (2011). Age differences in the recognition of emotion. *Psychological Science, 21, 58-66.*

Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). The acquisition of facial recognition: when do we learn to perceive emotions? *Cognition, 113, 26-36.*

DR M. C. WILLIAMS

Qualifications
Ph.D. Psychology (Individual Differences in Emotional Recognition), Russell Group University, 2009.
B.Sc. Psychology Hons. (1st Class) , Russell Group University, 2006.

Current and Previous Posts
Lecturer in Psychology, Russell Group University, 2009+.

Funded Research (>£90k)
2012-2013: £90,215. PI: Williams; Bishop (post-doctoral fellow). *Emotional Display and Recognition Comparisons*. ESRC.

Publications

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Williams, M. C., & Peters, D. S. (in press). Gender differences in face and emotion recognition. *Psychological Reports.*

Williams, M. C., Hamilton, G., Rodrìguez, J., Brown, N., & Evans, C. A. D. (2014). Cross-cultural differences in emotional display and recognition. *Perceptual and Motor Skills, 115, 729-742.*

Williams, M. C., & Smith, C. (2013). Unconscious facial reaction to altered emotional expression. *Psychological Science, 22, 1025-1032.*

Williams, M. C., Harris, C. J., Gomes, N., & Walker, T. D. (2013). Emotional recognition traits in schizophrenia. *Psychological Reports, 109, 686-700.*

Williams, M. C., & Hamilton, G. (2011). Age differences in the recognition of emotion. *Psychological Science, 21, 58-66.*

Williams, M. C., Peters, D. S., Davies, F., Wright, C. L., & Clarke, C. (2011). Emotion reaction: the effect of a parent's emotions on childhood well-being. *Perceptual and Motor Skills, 112, 703-710.*

Williams, M. C., & Riley, C. (2011). Measuring the difference in emotional perception between visual and audio prompts. *Perceptual and Motor Skills, 10, 488-492.*

Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). The acquisition of facial recognition: when do we learn to perceive emotions? *Cognition, 113, 26-36.*

Williams, M. C., Campbell, T. S., Young, C. A., & Phillips, W. E. (2010). Gender bias in face recognition. *Perceptual and Motor Skills, 110, 1048-1052.*

Williams, M. C., Reed, O., Watson, E. J., Bryant, K., & Murray, J. A. (2010). Human neural systems for emotional recognition. *Psychological Reports, 107, 727-732.*

Williams, M. C., Thompson, F. G. (2009). Childhood emotional empathy as a predictor of social behaviour and academic competence. *Psychological Reports, 104, 425-438.*

APPENDIX D: U.S.A PSYCHOLOGY SHORT RESUME

DR M. C. WILLIAMS

Qualifications

Ph.D. Psychology (Individual Differences in Emotional Recognition), Russell Group University (Top 24 UK Research Universities), 2009.

B.Sc. Psychology Hons. (1st Class (GPA over 3.67 equivalent)), Russell Group University, 2006.

Current and Previous Posts

Lecturer (Assistant Professor) in Psychology, Russell Group University, 2009+.

Funded Research (>130k)

2011-2012: £90,215. ($138,392) PI: Williams; Bishop (post-doctoral fellow). *Emotional Display and Recognition Comparisons.* ESRC. (Equivalent to NSF)

Publications

Williams, M. C., White, R. S., Becker, S., & Yanov, B. (in press). A neural network model of memory for face recognition. *Journal of Experimental Psychology: Learning, Memory and Cognition.*

Williams, M. C., & Smith, C. (2013). Unconscious facial reaction to altered emotional expression. *Psychological Science, 22, 1025-1032.*

Williams, M. C., & Hamilton, G. (2011). Age differences in the recognition of emotion. *Psychological Science, 21, 58-66.*

Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). The acquisition of facial recognition: when do we learn to perceive emotions? *Cognition, 113, 26-36.*

DR M. C. WILLIAMS

Qualifications

Ph.D. Psychology (Individual Differences in Emotional Recognition), Russell Group University (Top 24 UK Research Universities), 2009.
B.Sc. Psychology Hons. (1st Class (GPA over 3.67 equivalent)), Russell Group University, 2006.

Current and Previous Posts

Lecturer (Assistant Professor) in Psychology, Russell Group University, 2009+.

Funded Research (>130k)

2011-2012: £90,215. ($138,392) PI: Williams; Bishop (post-doctoral fellow). *Emotional Display and Recognition Comparisons.* ESRC. (Equivalent to NSF)

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Williams, M. C., & Peters, D. S. (in press). Gender differences in face and emotion recognition. *Psychological Reports.*

Williams, M. C., Hamilton, G., Rodrìguez, J., Brown, N., & Evans, C. A. D. (2014). Cross-cultural differences in emotional display and recognition. *Perceptual and Motor Skills, 115, 729-742.*

Williams, M. C., Harris, C. J., Gomes, N., & Walker, T. D. (2013). Emotional recognition traits in schizophrenia. *Psychological Reports, 109, 686-700.*

Williams, M. C., & Smith, C. (2013). Unconscious facial reaction to altered emotional expression. *Psychological Science, 22, 1025-1032.*

Williams, M. C., & Hamilton, G. (2011). Age differences in the recognition of emotion. *Psychological Science, 21, 58-66.*

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Williams, M. C., & Riley, C. (2011). Measuring the difference in emotional perception between visual and audio prompts. *Perceptual and Motor Skills, 10, 488-492.*

Williams, M. C., Campbell, T. S., Young, C. A., & Phillips, W. E. (2010). Gender bias in face recognition. *Perceptual and Motor Skills, 110, 1048-1052.*

Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). The acquisition of facial recognition: when do we learn to perceive emotions? *Cognition, 113, 26-36.*

Williams, M. C., Reed, O., Watson, E. J., Bryant, K., & Murray, J. A. (2010). Human neural systems for emotional recognition. *Psychological Reports, 107, 727-732.*

Williams, M. C., Thompson, F. G. (2009). Childhood emotional empathy as a predictor of social behaviour and academic competence. *Psychological Reports, 104, 425-438.*

APPENDIX F: U.K. MANAGEMENT SHORT RESUME

DR M. C. WILLIAMS

Qualifications
Ph.D. Management (Motivation and Self-Efficacy Under Uncertainty), Russell Group University, 2009.
B.Sc. Management Hons. (1st Class), Russell Group University, 2006.

Current and Previous Posts
Lecturer in Management, Russell Group University, 2009+.

Funded Research (>£90k)
2012-2013: £90,215. PI: Williams; Bishop (post-doctoral fellow). *Managing for Migration and Cultural Empowerment.* ESRC.

Publications

Williams, M. C., White, R. S., Becker, S., & Yanov, B. (in press). Cultural convergence in the management world. *Journal of Management Studies.*

Williams, M. C., & Smith, C. (2013). The role of identity in goal setting responses. *Academy of Management Journal, 22, 1025-1032.*

Williams, **M. C.,** & Hamilton, G. (2011). Self-efficacy and migration. *Academy of Management Journal, 21, 58-66.*

Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). Self-reported motivation and organisational opportunity. *Journal of Management, 113, 26-36.*

APPENDIX G: U.K. MANAGEMENT LONG RESUME

DR M. C. WILLIAMS

Qualifications
Ph.D. Management (Motivation and Self-Efficacy Under Uncertainty), Russell Group University, 2009.
B.Sc. Management Hons. (1st Class), Russell Group University, 2006.

Current and Previous Posts
Lecturer in Management, Russell Group University, 2009+.

Funded Research (>£90k)
2012-2013: £90,215. PI: Williams; Bishop (post-doctoral fellow). *Managing for Migration and Cultural Empowerment.* ESRC.

Publications

Williams, M. C., White, R. S., Becker, S., & Yanov, B. (in press). Cultural convergence in the management world. *Journal of Management Studies.*

Williams, M. C., & Peters, D. S. (in press). Teamwork and rank position: A cultural impact. *European Journal of International Management.*

Williams, M. C., Hamilton, G., Rodrìguez, J., Brown, N., & Evans, C. A. D. (2014). A place in society, a place in a team? *Cross Cultural Management: An International Journal, 115, 729-742.*

Williams, M. C., Harris, C. J., Gomes, N., & Walker, T. D. (2013). Trading your place: Playing for promotion. *European Journal of International Management, 109, 686-700.*

Williams, M. C., & Smith, C. (2013). The role of identity in goal setting responses. *Academy of Management Journal, 22, 1025-1032.*

Williams, M. C., Peters, D. S., Davies, F., Wright, C. L., & Clarke, C. (2011). Motivating a diverse team: How opportunity and agency can be perceived. *Cross Cultural Management: An International Journal, 112, 703-710.*

Williams, **M. C.,** & Hamilton, G. (2011). Self-efficacy and migration. *Academy of Management Journal, 21, 58-66.*

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Williams, M. C., Campbell, T. S., Young, C. A., & Phillips, W. E. (2010). Gender and culture in the workplace. *Cross Cultural Management: An International Journal, 110, 1048-1052.*

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Williams, M. C., Thompson, F. G. (2009). Motivation: A three case study investigation. *European Journal of International Management, 104, 425-438.*

APPENDIX H: U.S.A. MANAGEMENT SHORT RESUME

DR M. C. WILLIAMS

Qualifications
Ph.D. Management (Motivation and Self-Efficacy Under Uncertainty), Russell Group University (Top 24 UK Research Universities), 2009.
B.Sc. Management Hons. (1st Class (GPA over 3.67 equivalent)), Russell Group University, 2006.

Current and Previous Posts
Lecturer (Assistant Professor) in Management, Russell Group University, 2009+.

Funded Research (>£130k)
2012-2013: £90,215. ($138,392) PI: Williams; Bishop (post-doctoral fellow). *Managing for Migration and Cultural Empowerment.* ESRC. (Equivalent to NSF)

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Williams, M. C., Green, C. S., Evans, D., & Taylor, K. (2010). Self-reported motivation and organisational opportunity. *Journal of Management, 113, 26-36.*

APPENDIX I: U.S.A. MANAGEMENT LONG RESUME

DR M. C. WILLIAMS

Qualifications

Ph.D. Management (Motivation and Self-Efficacy Under Uncertainty), Russell Group University (Top 24 UK Research Universities), 2009.
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