An Exploration of Employee Engagement
in Medical Contexts

Amanda Elizabeth Ferguson
BA Hons (USyd), MA (Macq)

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Faculty of Human Sciences
Department of Psychology
Macquarie University

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List of Abbreviations

CFA  confirmatory factor analysis
CFI  comparative fit index
EFA  exploratory factor analysis
JDI  Job Descriptive Index
JDS  Job Diagnostic Survey
MBI  Maslach Burnout Inventory
MBI-GS MBI—General Survey
NSW  New South Wales
RMSEA root mean square error of approximation
SEM  structural equation modelling
TLI  Tucker-Lewis index
VCS  Voice Climate Survey
VPS  Voice Pulse Survey
Abstract

In the mid-2000s, the construct of workplace engagement had been visible in the literature for over a decade, with no consensus on its measurement. The benefits of increasing engagement were consistently reported however measures were developed and used across different contexts, with potential underlying differences due to context remaining unaddressed. The first aim of this thesis was to investigate existing engagement measures and their comparative relevance across two contexts: business and medical. The medical context was chosen for detailed investigation because of the importance of engagement-related factors such as burnout in medical professions, and because of the lack of empirical research on engagement in this context. The second aim of the thesis was to develop an engagement measure specifically for use in medical settings. The third aim of the thesis was to explore the relationships between engagement and related constructs of interest in the literature.

In the first, Pilot Study 1, items said to measure engagement were identified. In Study 2, the measures were tested for their perceived relevance to engagement with 217 business and 192 medical respondents. Results demonstrate engagement may be differentially viewed and defined in these contexts. In Study 3, data were drawn from public hospitals across New South Wales, Australia, from 392 nurses and 154 doctors. The first known measure for engagement in medical contexts was developed, a higher order construct including job satisfaction, dedication and focused time use, consistent with a consensus on engagement occurring later in the literature. A path model was developed assessing related constructs not found in other engagement models, climate, empowerment, intrinsic motivation and emotional exhaustion. The model consolidates findings and provides further evidence of differences in the way engagement operates in business and medical contexts. Engagement in medical contexts is an important aspect of current research due to a global healthcare crisis.
Declaration

I certify that the work in this thesis, entitled *An Exploration of Employee Engagement in Medical Contexts*, has not previously been submitted for a degree nor has it been submitted as part of the requirements for a degree to any other university or institution than Macquarie University.

I also certify that the thesis is an original piece of research and it has been written by me. Any help and assistance that I have received in my research work and the preparation of the thesis itself has been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by Macquarie University Ethics Review Committee, reference numbers: HE01APR2005-D03948, HE29APR2005-D04023 and HE27JUN2088-D05946.

Signature

Full name (student ID)

Date
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Chapter 1: General Introduction

This chapter introduces the thesis by providing the theoretical context of the research and the problems addressed. Justification for conducting the research is presented. The structure of the studies is provided and the methodology is outlined. Finally, a summary of the results and key assumptions is provided.

1.1 Background to the Research

The thesis challenges the belief widely held in the mid-2000s that employee engagement operates similarly in business and medical contexts. There was little research on the engagement of health professionals in medical contexts compared with a large body of research in the business domain. The thesis examines employee engagement in the different contexts and the potential need to measure engagement differently in medical contexts. The investigation of how employees engage with their work was introduced by Kahn (1990, 1992). Other researchers followed, presenting diverse and conflicting theories of engagement. Theoretical frameworks to investigate engagement were still in their infancy when the current research commenced in 2004. Engagement was considered by many researchers to overlap with well-established constructs, particularly job satisfaction (Durán, Extremera, Montalbán & Rey, 2005; Harter, Schmidt & Hayes, 2002; Newberry, 2004). However, some research suggested engagement was a distinct construct (Hallberg & Schaufeli, 2006; Wise, Chang, Duffy & Del Valle, 2004). The conceptualisation of engagement was evolving.

The theoretical framework used in this thesis was formed directly from the literature in 2004 and concurs with the framework later contended by Macey and Schneider (2008). These researchers observed engagement as a higher order measure emanating from traditional job characteristics, represented by the measures of Hackman and Oldham (1980) and Smith, Balzer, Brannick, Chia, Eggleston, Gibson...Whalen
(1987). Macey and Schneider argued engagement includes passion, enthusiasm and energy, as measured by the Utrecht Work Engagement Scale (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002b). Macey and Schneider added that engagement included focused effort, represented in the current research by Goddard’s (1999, 2001) theory.

The work of professionals, or non-business workers, and other workers has been found to be fundamentally different (Collison, 2001; Landry, 2011; Morrow & Goetz, 1988). In addition, in the medical context, health professionals face a conflict with the business imperatives of the hospitals they work in, contributing to clinician turnover (Hegland, 2008; Sorensen & Sorensen, 1974). The healthcare industry and medical profession are undergoing unprecedented change and pressure in a worldwide evolution (Klass, 2007). If it is possible to identify how professional employees engage in the medical context, how to measure this, and how engagement relates to other work constructs, benefits such as increased performance and retention may result. The next section details the research problem and questions.

1.2 Research Problem and Questions

This section outlines the issues found in the engagement and medical literature in 2004 that led to the research, the problems identified and the specific hypotheses investigated. The thesis first addresses the question of how engagement is defined, investigating the theories of engagement that were evident at the time. The thesis then addresses the question of whether engagement operates differently in business and medical contexts. The need for a scale to measure medical engagement is considered. The way other related constructs operate in medical contexts and in relation to engagement is then investigated. An engagement model for these relationships is explored. Each aspect will now be addressed in turn.
The first major area studied in this thesis is the lack of theoretical framework for engagement in 2004. Kahn (1990) contended engagement was grounded in role theory and concerned the processes at work that led to people ‘presenting and absenting themselves’ (p. 694) during tasks. Since Kahn’s (1990, 1992) work, there has been confusion and debate about how to best conceptualise, define and measure engagement. In 2004 there was considerable debate about whether engagement was a valid and discrete construct, separate from traditional constructs such as job satisfaction and organisational commitment. Harter, Schmidt and Hayes referred to engagement as ‘satisfaction-engagement’ (2002, p. 269). Montgomery, Peeters, Schaufeli and Den Ouden referred to ‘feelings of engagement’ (2003, p. 195). Schaufeli et al. observed Maslach and Leiter (1997) had ‘assumed’ engagement was the direct opposite of burnout (2002b, p.73). Engagement was viewed inconsistently from all organisational levels: task, job, individual, team and organisation. Wide-ranging theoretical conceptualisations of engagement dominated the literature, deviating strikingly from Kahn’s (1990) founding theory, as noted by Saks (2008). These conceptualisations included time use, psychological ownership, instrumentality, burnout, job satisfaction and group work. All existing theories for the construct of engagement are assessed in the current studies. Only one theory conceptualised engagement as a group measure, with several studies demonstrating the Group Engagement Measure’s reliability and validity (MacGowan, 1997, 2000, 2003). There were other findings showing people working in groups are more likely to be engaged (Salanova, Agut & Peiró, 2005).

Chapter 2 discusses the literature on engagement and how engagement relates to other constructs. The terms ‘participation’, ‘involvement’, ‘inclusion’ and ‘job-fit’ were used interchangeably in some articles to describe engagement (Hallberg & Schaufeli, 2006). Engagement was viewed from contradictory angles by international consulting
firms and researchers. For example, in research by the Gallup Organization workplace conditions were regarded as measures that produced engaged workers (Buckingham & Coffman, 1999), while other consulting firms, such as Hewitt Associates LLC (2005), measured engagement as something that workers brought to their environment (Macey & Schneider, 2008). Yet each firm claimed to have established a conclusive, compelling relationship between engagement and profitability. By 2008, researchers noted the meaning of engagement was still unclear, largely due to the ‘bottom-up’ manner in which engagement had been embraced by practitioners (Macey & Schneider, 2008). In an effort to find consensus, Macey and Schneider (2008) proposed a global theory entailing different types of engagement (trait, state and behavioural engagement) and subsuming prior constructs, including job satisfaction. However, this consensus was short-lived as several prominent researchers disagreed with the approach, arguing that settling on such an umbrella term only created conceptual confusion (Griffin, Neal & Parker, 2007; Saks, 2008). There remains disagreement on the nature of engagement.

Chapter 3 outlines the literature on the medical context. First, there are fundamental differences between the work of professionals, or non-business workers, and other workers (Collison, 2001; Landry, 2011; Morrow & Goetz, 1988). In the medical context, findings consistently show a conflict between the business ambitions of hospital administrators and the professional values and ethical accountability of medical staff. The conflict is a problem for healthcare professionals not faced by business workers in hospitals or other contexts (Hegland, 2008; Sorensen & Sorensen, 1974). The mismatch is a common contributor to clinician turnover, with professionals preferring environments that support their professional requirements (Burns & Muller, 2008; Misra-Herbert, Kay & Stoller, 2004; Stevens, Philipsen & Diederiks, 1992). The medical profession is undergoing a worldwide evolution, with pressure for increased
accountability and performance management (Klass, 2007). The thesis seeks to provide
direct evidence regarding the operation of engagement measures in the differing
business and medical contexts.

Second, it has long been acknowledged in many medical and other professional
clinical contexts that a different and more detached level of engagement, or
disengagement, from the job is required to ensure best practice (Bandura, 1990; Claire
& Dufresne, 2004; Folger & Skarliciki, 1998). However, performance management has
driven much of the recent research on engagement, aiming to achieve high levels of
engagement, with findings continuing to indicate there is a business value to an engaged
workforce (Gruman & Saks, 2011a, 2011b; Medhurst & Albrecht, 2011; Mone,
Eisinger, Guggenheim, Price & Stine, 2011). Researchers have tended to assert high
engagement is a positive phenomenon and positive experience for those highly engaged
(Bakker et al., 2011a). More recent findings however, show a deeper understanding of
engagement’s complexity revealing a potentially negative, dark side, particularly with
regard to emotionally demanding work contexts, such as healthcare. Doctors may
experience less positive feelings than other workers when they are engaged, and they
may feel and function better when disengaged (George, 2010, 2011). Researchers
highlight the cost of high work engagement, or overengagement, requires further
attention (Bakker, Albrecht & Leiter, 2011a; Schaufeli & Salanova, 2011; Sonnentag,
2011). Therefore, some of the current measures for engagement found to predict
positive work outcomes in business contexts might predict negative outcomes in
medical contexts. That is, it is suspected engagement measures may operate differently
in the medical context due to the risk of overengagement in this context.

Third, the closely related construct of burnout had been found to operate so
differently in medical and business contexts that separate measures were developed for
these contexts (Leiter & Schaufeli, 1996; Maslach & Jackson, 1981). It was suspected the same would be required for the related construct engagement.

Fourth, the authors of some engagement measures emphasised their items were developed and used with employees in various different contexts, including business and medical, and yet were regarded similarly by employees. The Gallup Organization developed its measure across contexts including business employees and nurses in healthcare (Buckingham & Coffman, 1999). Schaufeli and Bakker (2003) reported conducting psychometric tests for the Utrecht Work Engagement Scale-17 with samples across different sites including farmers, physicians, nurses, blue and white collar workers. Both measures have since been used in studies in medical and business contexts. Thus, by the mid-2000s studies widely used measures of engagement across business and medical contexts that had also been developed across these contexts without regard for potential contextual differences (see Janssen, Jonge & Bakker, 1999; Llorens, Bakker, Schaufeli & Salanova, 2006; McCashland, 2000; Schaufeli & Bakker, 2004; Schaufeli, Bakker & Salanova, 2006).

Soon after this thesis commenced in 2004, findings emerged that engagement, its predictors and the scales to measure it may vary across different work environments, particularly healthcare, and when using the Utrecht Work Engagement Scale-17 (Mauno, Pyykko & Hakanen, 2005; Schaufeli et al., 2002b). Some findings from the use of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) were said to be so diverse across contexts, particularly in medical contexts, they were not interpretable (see Mauno, Kinnunen & Ruokolainen, 2007; Meltzer et al., 2009; Seppala et al., 2009). Findings of problems in the factor structure of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) continue (De Bruin & Henn, 2013).
Researchers have recently asserted the importance of considering the influence of context on engagement, particularly in uncertain contexts, such as medical (Albrecht, 2010; Parker & Griffin, 2011; Sonnentag, 2011). Thus, this thesis builds on prior research, particularly regarding the work of professional employees and investigates whether engagement, like the closely related construct burnout, may be best assessed in the medical context with measures designed specifically for that context.

The final major area of study in this thesis is then discussed, how other constructs relate to engagement in medical contexts. The relationships between psychological climate, psychological empowerment, intrinsic motivation, burnout and the constructs prior to engagement of job satisfaction and commitment have been found to be important in medical contexts. Recent research on these relationships focuses on engagement rather than prior constructs and argues for the need for further such research. In the medical context, psychological climate has been found strongly related to engagement. (Laschinger, Almost & Tuer-Hodes, 2003; Laschinger et al., 2010; Laschinger & Finegan, 2005). Psychological empowerment has been consistently the strongest predictor of commitment and recently engagement (Laschinger et al., 2003; Laschinger et al., 2010; Laschinger & Finegan, 2005). Intrinsic motivation has been found to be strongly related to engagement (Zhang & Bartol, 2010). Burnout has been shown to be moderately negatively related to engagement (Bakker, 2011; Laschinger, Wong & Greco, 2006; Schaufeli & Bakker, 2004).

Some findings indicate these relationships between constructs differ from those in business contexts, yet few of these studies have focused specifically on engagement rather than prior constructs of job satisfaction or commitment (Laschinger, Wilk, Cho & Greco, 2009d; Leiter & Schaufeli, 1996; Maslach & Jackson, 1981). The thesis
investigates whether the relationships between engagement and other relevant constructs differ between business and medical contexts.

Thus, there was much evidence in 2004 showing the need for research to clarify the existing measures and theories of engagement, how they operationalise in medical contexts, their relationships with related constructs and a potential measure and model for engagement in medical contexts. The following model (Figure 1.1) presents an overview of the current studies following the methodology of Hinkin (1998).
The overall research questions query whether engagement should be measured differently in medical contexts, how to measure engagement in medical contexts, and how engagement relates to other constructs in medical contexts. Specific hypotheses are
investigated in Study 3b, Chapter 7. The thesis investigated in this research is: *An Exploration of Employee Engagement in Medical Contexts*. The following specific questions were investigated.

1.2.1 Research Question 1: Engagement constructs and measures.

a. To what extent is engagement an individual or group measure or both?

b. To what extent is job satisfaction subsumed by engagement or is it a separate construct?

c. To what extent is burnout (represented by emotional exhaustion) a different construct to engagement?

1.2.2 Research Question 2: Engagement in business and medical contexts.

a. How is engagement perceived in business and medical contexts?

b. How do differences within the medical context compare with differences between business and medical contexts?

1.2.3 Research Question 3: Job satisfaction and engagement in medical contexts.

a. To what extent are job satisfaction and engagement positively related?

b. What is an appropriate model for engagement in medical contexts?

1.2.4 Research Question 4: Relationships between climate, empowerment and engagement in medical contexts—the engagement model.

a. How are engagement, empowerment and climate related?

b. How similar are models of engagement for nurses and doctors?

c. How are climate, empowerment, engagement, burnout (represented by emotional exhaustion) and intrinsic motivation related? Extending the engagement model.
1.3 Replication of past research and original contributions.

The thesis replicates past research in the following ways. Clarification of the nature of engagement is investigated and whether job satisfaction is part of engagement (Harrison, Newman & Roth, 2006; Newman & Harrison, 2008; Schaufeli et al., 2002b). The strengths of the relationships between engagement, climate and empowerment are investigated and whether they are positive (Laschinger et al., 2003; Laschinger et al., 2010; Laschinger & Finegan, 2005). The research investigates whether burnout (represented by emotional exhaustion), is a different construct yet moderately positively related to engagement (Maslach & Leiter, 1997, Maslach, Schaufeli & Leiter, 2001; Schaufeli et al., 2002b). The relationship between intrinsic motivation and engagement is explored to assess whether it is positive (Zhang & Bartol, 2010). The relationship between intrinsic motivation and burnout is explored to assess whether it is positive or negative (Meyer, Becker & Vandenberghe, 2004). The research explores whether there are different strengths for the predictors of engagement and burnout (Schaufeli & Bakker, 2004).

The research aims make an original contribution in the following ways. The wide-ranging theoretical conceptualisations of engagement that dominated the literature in 2004 are assessed: time use, psychological ownership, instrumentality, burnout, job satisfaction and group work. The research investigates whether engagement is an individual or group measure. Evidence for the most salient measures of engagement in business and medical contexts is obtained and the differences between the contexts are examined. The differences between the business and medical contexts are compared with differences between hospitals and between doctors and nurses. The development of a measure for assessing medical engagement is explored. The first known path model investigating the relationships between climate, empowerment and engagement is
developed. The model is tested for structural equivalence with nurse and doctor data. The model is extended to assess the additional relationships with intrinsic motivation and burnout. The relationships are compared with previous finding in the business literature for possible evidence of difference between business and medical contexts (Carless, 2004). Qualitative evidence of how empowerment operates in medical contexts is obtained.

1.4 Justification for the Research

The thesis seeks to clarify and extend engagement theory. Neuman (1997) outlined the purposes of a theory are to predict and explain behaviour and to provide causal, structural and interpretive explanations to assist understanding. The thesis is based on the evolving theory of employee engagement. The research used the existing theoretical conceptualisations of engagement found in the literature at the beginning of 2004. A measure was developed for medical engagement including items for job satisfaction, dedication and focused time use, consistent with the theoretical framework posed later by Macey and Schneider (2008) based on consensus in the literature. Their framework was dominant in the literature from 2008. However, this was short lived and there remains no consensus (Albrecht, 2010).

The thesis seeks to ascertain whether differences in engagement exist between business and medical contexts since measures had been developed and used across business and medical contexts without consideration for potential contextual differences. Findings since 2008 have shown the factor structure of current engagement measures may vary in non-business contexts—see the longitudinal studies by Sanfilippo, Bendapudi, Rucci and Schlesinger (2008) and Seppala, Mauno, Feldt, Hakanen, Kinnunen, Tolvanen & Schaufeli (2009) and the study by Meltzer, Steinmiller, Simms and Grossman (2009), which are reported in detail in Chapter 3.
However, the current studies present research conducted from 2004 where for the first time engagement theories were explicitly assessed for comparison between business and medical contexts (Study 2). Study 2 makes the substantial contribution of obtaining data from four major public hospitals and approximately 200 diverse business organisations demonstrating contextual differences for engagement.

Theoretically, it was suspected that engagement measures may vary across contexts because the related construct of burnout had been found to vary and because the work of professionals was known to differ from that of business employees (Leiter & Schaufeli, 1996; Maslach & Jackson, 1981; Morrow & Goetz, 1988; Snizek, 1972). Further, a level of disengagement had been found necessary for health professionals to maintain optimum engagement and to avoid burnout (Bandura, 1990; Claire & Dufresne, 2004; Folger & Skarlicki, 1998; George, 2010, 2011). Findings now show engagement may have a negative dark side, particularly with regard to uncertain work contexts, such as medicine, and context should be considered in studies of engagement (Albrecht, 2010; George, 2010, 2011). Research was required to investigate the engagement measures that are most relevant in medical contexts.

For the first time a measure for assessing engagement in medical contexts has been investigated and developed (Study 3a). The relationship between this engagement measure and related constructs has been explored for the first time in medical contexts, in a path model of engagement (Study 3b). That is, the influence of psychological climate, psychological empowerment and negative affectivity on engagement is modelled. The path model developed in a medical context is compared with a previous model developed in a business context and shows further evidence of contextual differences (Carless, 2004). Further relationships between the variables, including burnout (represented by emotional exhaustion) and intrinsic motivation are explored in
further models. The research in Study 3 contributes by having been conducted in most of the 220 public hospitals within NSW. The research design of Study 3 was multi-method, using quantitative and qualitative data.

1.5 Methodology

This section describes how studies of this research were conducted. Detailed descriptions are provided in Chapters 4, 5 and 6. The research was conducted at Macquarie University (Pilot Study 1), four public hospitals in Sydney and approximately 200 Sydney-based businesses (Study 2) and most of the other 220 public hospitals in NSW (Study 3).

The first (Pilot Study 1) survey was conducted in 2005 with students studying the degree of Master of Organisational Psychology at Macquarie University. A survey and focus group discussion was conducted with these students.

The first employee survey (Study 2) was conducted in business organisations in 2005, 2008 and 2009. The same survey was administered in a major public teaching hospital in Sydney in 2006 and 2007. The survey was administered to three further public hospitals in 2008 and 2009. When completing the survey, respondents indicated which items—and hence which theoretical orientations—were most relevant to their view on engagement.

The final full survey (Study 3) was conducted in 2010 and was administered throughout the 220 NSW public hospitals that had not already participated in previous studies.

The studies were conducted using an inductive or nuanced approach. Inductive reasoning aims to supply strong evidence that a conclusion is credible (Vickers, 2006). A content analysis of engagement measures was conducted using doctors and nurses as subject matter experts. The six-step methodology proposed by Hinkin (1998) for scale
development was followed: item generation, content analysis, initial item reduction, confirmatory factor analysis, establish convergent/discriminant validity and test with a new sample. Other researchers have used Hinkin’s (1998) methodology when constructing scales (Armenakis, Bernerth, Pitts & Walker, 2007; Bauer, Truxillo, Sanchez, Craig, Ferrara & Campion, 2001; Bolino & Turnley, 1999; Holt, Armenakis, Feild & Harris, 2007).

In Pilot Study 1, engagement items were assessed and classified into categories by content analysis, following Hinkin’s (1998) Step 1, item generation. Engagement was found to be an individual not a group construct.

In Study 2, t-tests and factor analyses found differences in the structure of items and the way they grouped between the business and medical samples. General linear modelling determined these differences were greater than those between hospitals.

In Study 3, factor analyses determined the structure of the engagement variables. Structural equation modelling (SEM) was used to confirm the factor structures and the relationship between factors first by using theoretically guided analyses. Empirical analyses were then used to develop research models for engagement and the related constructs, following the methodology recommended by Anderson and Gerbing (1988). AMOS (IBM Corporation, 2012) was used to run SEM.

1.6 Outline of the Thesis

There are eight chapters in the thesis. Following the current chapter’s broad overview of the thesis, Chapter 2 reviews the literature on engagement theories and the other related constructs evident in 2004. The theories of engagement are outlined as follows; each theory is defined as it is introduced:

- Section 2.2.3—Kahn’s (1990, 1992) founding theory
• Section 2.3.1—the psychological ownership theory (Gallup Organization, 1998a; McCashland, 2000; Rucci, Kirn & Quinn, 1998)
• Section 2.3.2—the time use/focused effort theory (Goddard, 1999, 2000)
• Section 2.3.3—the theory of instrumentality (Miller & Brickman, 2004)
• Section 2.3.4—the group engagement theory (MacGowan, 1997)
• Section 2.3.5—engagement as the antithesis of burnout (Schaufeli et al., 2002b).
• Section 2.3.6—traditional job constructs (Hackman & Oldham, 1980; Smith et al., 1987) is reviewed in Section 2.3.8.

Section 2.4 outlines a work and job environment view of engagement. A convergence on a theory of engagement is outlined in Section 2.5. A review of the most recent literature on engagement is provided in Section 2.6. Section 2.7 outlines the contextual differences for engagement. Section 2.8 outlines the literature on other work-related constructs and their relationships with engagement—that is, psychological empowerment, psychological climate, intrinsic motivation, burnout and negative affectivity.

In Chapter 3, Sections 3.1 to 3.2 explore the literature on the contemporary healthcare industry and the issues faced by professional employees. The work of professional employees is discussed in Section 3.3. Section 3.4 outlines the relevance of engagement in medical contexts.

Chapters 4 to 7 present the studies, their results, limitations, applications and discussions.

Chapter 4 presents the results of Pilot Study 1—item generation (Step 1 in Hinkin, 1998). Items were drawn from existing scales and theories found in the literature. All but one engagement theory proposed individual, rather than group,
measures; items were reduced to individual measures. Definitions of engagement converged on an employee’s role; hence, role was used in the working definition developed for this study. A measure of job satisfaction was included because findings had shown it was either synonymous or overlapped with engagement (Harrison et al., 2006; Newman & Harrison, 2008; Schaufeli et al., 2002b).

Chapter 5 provides the description and results of Study 2, in which the items were assessed in business and medical contexts (Step 2 in Hinkin, 1998). Significant differences were found between contexts. Differences between the contexts remained greater than differences between hospitals. Few significant differences were found between doctors and nurses, indicating engagement was viewed similarly in these groups. The number of items was reduced to the optimum measures for medical engagement in an initial item reduction (Step 3 in Hinkin, 1998).

Chapter 6 provides the description and results of Study 3a, in which a scale for measuring engagement in medical contexts was developed. First, theoretically guided analyses were used to produce a scale. However, the scale could not be used as the prior psychometric factor analyses conducted in Study 2 had not been used in further analyses (Kline, 2011). Second, empirical analyses formed a measure including job satisfaction, dedication and focused time, similar to the views of Macey and Schneider (2008). Structural equation modelling was used to develop the theoretically and empirically guided scales of engagement. These confirmatory factor analyses satisfied Hinkin’s (1998) Step 4.

Chapter 7 outlines Study 3b how engagement was investigated in relation to the related constructs psychological climate and empowerment in the medical context, in a path engagement model. Discriminant validity was demonstrated for engagement, psychological climate and empowerment in a measurement model (Step 5 in Hinkin,
The structural model showed relationships between engagement and the other constructs differed to those found in business contexts (Carless, 2004). A path model for engagement was developed. The model was extended to include intrinsic motivation and burnout (represented by emotional exhaustion), both important in medical contexts.

Chapter 8 presents a general discussion of the four studies.

1.7 Key Assumptions

Kline’s (2012) assumptions were met in the structural models, data, maximum likelihood and measurement models, and multiple regression analyses presented in this thesis. Tabachnick and Fidell’s (2007) guidelines were also followed.
Chapter 2: Review of the Literature on Employee Engagement and Related Constructs

2.1 Introduction

The concept of employee engagement was introduced by Kahn in 1990 and has been visible in the literature for two decades. The construct was picked up by human resource consultants who marketed it to the commercial world, causing a wave of interest that academic research continues to struggle to catch up with (Macey & Schneider, 2008). For instance, by 2001, the Gallup Organization (2001) had rolled out its engagement survey to over 1.5 million employees, and claimed boosting ‘worker engagement is a logical pathway to higher profits’ (p. 1) and ‘the potential gains are highest in the top [engagement] performing groups’ (p. 3). Similarly, in 2004, Hewitt Associates LLC (2005) asserted they had ‘established a conclusive, compelling relationship between engagement and profitability through higher productivity, sales, customer satisfaction and employee retention’ (p. 1). However these consultant measures were developed in samples drawn across diverse industries, including health, without regard for potential or contextual influences.

Academic research in engagement produced diverse theories in the mid-2000s, and, in 2008, there was a general, yet short-lived, consensus among researchers who conceptualised engagement as an ‘aggregate multidimensional construct’ (Macey & Schneider, 2008, p. 18). However, the possibility that engagement may operate differently in different contexts has been overlooked. None of the researchers who developed theories and measures of constructs for engagement at this time reported such a priori exploration of potential differences. Findings are only now beginning to acknowledge that context should be considered in studies of engagement (Albrecht,
2010). It is the potential contextual differences in employee engagement across business and medical populations that is the subject of this thesis.

2.2 William Kahn: Father of Engagement

The concept of engagement was first proposed by Kahn (1990, 1992), who grounded engagement in role theory, as a construct different from other aspects of employee roles, such as job involvement, commitment and intrinsic motivation. Kahn (1990) asserted that engagement concerned the processes at work that led to people ‘presenting and absenting themselves during task performances’ (p. 694), as a ‘psychological presence … the experiential state that accompanies such personally engaging behaviours … of being fully present … able to place themselves so fully into their task performances’ (Kahn, 1992, p. 322).

These studies stated engagement was a multidimensional construct. Employees could be emotionally, cognitively or physically engaged but the two most important dimensions were emotional and cognitive. Employees could be engaged on one dimension and not on one or two of the others. The more engaged an employee was on each dimension, the higher his/her overall personal engagement. Employees experienced dimensions of personal engagement or disengagement during daily tasks. Engagement occurred when an individual was cognitively vigilant and/or emotionally connected to others. Disengaged employees uncoupled themselves from their roles and withdrew, cognitively and emotionally. They displayed incomplete role performances, were apathetic, automatic or robotic. Kahn (1990, 1992) defined engagement as one’s cognitive and emotional attachment to one’s role.

Kahn’s (1990, 1992) ethnographic work was grounded in the findings of Goffman (1961a), which suggested people’s attachment to and detachment from their roles varied. Drawing on the work of Hackman and Oldham (1975), Maehr and
Braskamp (1986) and Schein (1987), Kahn (1990, 1992) contended Goffman’s (1961a) work focused on fleeting face-to-face encounters of people outside of organisations, and a different concept was needed for organisational life. Life in organisations differed in being ongoing, emotionally charged and psychologically complex, as noted by Diamond and Allcorn (1985).

Kahn (1990, 1992) examined several disciplines and found psychologists (Freud, 1922), sociologists (Goffman, 1961b, 1973; Merton, 1957) and group theorists (Bion, 1961; Slater, 1966; Smith & Berg, 1987) had all observed people were inherently ambivalent about being members of continuous groups and hence sought to protect themselves from exclusion and engulfment by alternately pulling away from and moving towards their memberships. Kahn (1990) asserted ‘these pulls and pushes are people’s calibrations of self-in-role, enabling them to cope with both internal ambivalences and external conditions’ (p. 694). These are calibrations of self-in-role as ‘personal engagement’ and ‘personal disengagement’ whereby people ‘bring in or leave out their personal selves during work role performances’ (Kahn, 1990, p. 694). Kahn (1990, 1992) asserted the term ‘engagement’ integrated previous theories, showing people need self-expression and employment in their work lives as a matter of course (see Alderfer, 1972; Maslow, 1954).

2.2.1 Kahn’s research premise.

Kahn (1990, 1992) drew on previous job design research and investigated several contexts that either enhance or undermine people’s motivation and sense of meaning at work. These were relationships between employees and task characteristics, interpersonal contexts, group and intergroup contexts and organisational contexts (Alderfer, 1985; Bennis, Schein, Berlow & Steele, 1964; Smith & Berg, 1987). Kahn’s research premise was two-fold. First, the psychological experience of work drives
people’s attitudes and behaviours. Second, individual, interpersonal, group, intergroup and organisational factors simultaneously influence these experiences (Alderfer, 1985; Hackman & Oldham, 1975). Following these premises, Kahn focused on delineating the psychological conditions in which people personally engage and disengage at work, and identified these as meaningfulness, safety and availability. Kahn contented these conditions result from rational and unconscious elements of work contexts, mediated by people’s perceptions. That is, both environmental and individual factors drive engagement.

2.2.2 Kahn’s measure, individual and contextual differences.

Kahn (1990, 1992) developed a theory of engagement from qualitative research conducted with architects and counsellors. There were many contextual differences between these populations in the way engagement manifested, but no conclusions were drawn about these contextual variations. The research focused on people’s experiences of themselves, their work and their work contexts. The aim was to investigate the general conditions that influenced the experience and degrees of engagement by individuals working in various contexts. Individual differences, such as the importance of work to one’s self-esteem, identity and life, and the willingness to exert and involve oneself at work and be part of the organisation, were presumed to shape patterns of engagement and disengagement. However, Kahn sought to identify psychological conditions that were powerful and general enough to survive the gamut of individual differences. These were identified as safety, meaningfulness and availability. While Kahn considered the influence of individual differences on engagement in this early empirical research, contextual differences, while evident, were not fully explored.
2.2.3 Kahn’s measures and model.

Following the work of Schein (1970), Kahn (1990, 1992) analysed encounters as if there was a contract between the person and their role. The specific nature of each psychological condition and its individual social and contextual source were examined and are outlined as follows. The first condition, meaningfulness, referred to the sense of return on investments of the self-in-role performances. An ideal situation involved working on a project that was rich and complex, demanding both routine and new skills, allowing an experience of competence and growth. Kahn (1990) provided the following example from a participant scuba diving counsellor:

That class was one of the more difficult and rewarding I’ve taught here. It was a tough dive, because of the weather, and dangerous. I had to be so aware all the time of everything, the kids and their air supplies, the compass work, the swells and currents. It was tough, but it felt great when it was over. (p. 704)

The second condition, safety, referred to the sense of being able to show and employ the self without fear of negative consequences. Individuals were found to feel safer in psychological climates that were open and supportive, and to feel unsafe when they felt disconnected from others. Kahn (1990) provided the following example from a support staff member for a designer at an architecture firm:

When he puts up those walls, I know to stay away from him. But the problem is, I have to deal with him at some of those times. So we interact, but I keep it short, don’t joke or anything. I did once and he went nuts. So I get monotonic, almost moronic, with him. (p. 709)

The third condition, availability, referred to the sense of possessing physical, emotional and psychological resources for investing one’s self-in-role performances
(Kahn, 1990). Kahn (1990) presented the following example from a participant camp counsellor:

The kids just take it out of you after a while and you’ve given everything you have emotionally. Sometimes I just need to get away and have no demands on me to watch, to care, to give. I take walks then, down by the beach, and try to think and feel nothing. (p. 715)

Kahn’s (1990, 1992) construct of engagement has been examined by researchers. Measures empirically testing psychological meaningfulness, safety and availability have found meaningfulness displayed the strongest relationship with Kahn’s construct (May, Gilson & Harter, 2004; Stringer, 2008). Another model developed by Rich, Lepine and Crawford (2010) to test Kahn’s work is outlined later in this chapter. The assessment of context is not evident in these measures. However, other more diverse approaches in conceptualising engagement developed, as outlined in the following section.

2.3 Engagement Theories in 2004, Following Kahn

The following theories of engagement were evident in the literature in February 2004.

2.3.1 Psychological ownership.

Following Kahn (1990, 1992), and drawing on employee–customer service theories and the Gallup Organization’s (1998a) engagement theory and measures, some researchers and business consultants defined engagement as ‘an emotional outcome to critical components of the workplace’ (McCashland, 2000). Specifically, engagement was regarded a response of psychological ownership demonstrating a strong association with the customer–employee interface and the employee’s intentions to serve, which, in turn, predicted organisational profit (McCashland, 2000). These researchers referred to
a large body of literature providing evidence of this association, most of which had been conducted in financial and industrial contexts (Hartline & Ferrell, 1996; Schlesinger & Zornitsky, 1991; Schmidt & Allscheid, 1995).

In longitudinal research in banks and at an insurance company, Schneider, Ashworth, Higgs and Carr (1996) demonstrated the relationship between employee surveys, customer satisfaction and profit, finding improving employee attitudes and satisfaction improved the customer–employee relationship, which in turn predicted organisational results. Rucci et al. (1998) found similar results in a set of major retail chains, as did Bagozzi (1992). Later research on this relationship, then referred to as ‘psychological ownership’, used survey questions that focused on customer perceptions of the employee–customer interface as leading indicators of customer satisfaction (Bagozzi, 1992; Rucci et al., 1998; Schneider et al., 1996).

Measures used by McCashland (2000) in researching psychological ownership were drawn from the Gallup Organization’s (1998a) non-core measures, which the Gallup Organization asserted have been widely validated (Buckingham & Coffman, 1999; Harter et al., 2002). Gallup stood alone in viewing engagement as an aspect of the climate of an organisation that can be modified to become more engaging for employees, while other consultancies aimed to help individuals find their work more engaging (Hewitt Associates LLC, 2005; Macey & Schneider, 2008).

2.3.2 Time use.

Goddard (1999, 2001) postulated a definition of engagement as being directly associated with time use, drawing on findings about employees’ time spent on tasks and with the organisation. Goddard (1999, 2001) differentiated between tasks and organisational engagement. Engagement with the work task was defined as being present and focused on an immediate task, issue or problem relating to the organisation.
Disengagement with the task occurred when the individual was not present or focused on the task, issue or problem. Engagement with the organisation was defined as time spent ‘being physically and/or mentally present, and supporting the goals of the organization’, whereas disengagement was indicated by time spent ‘not being present or not focused on the goals of the organisation’ (Goddard, 1999, p. ii).

Goddard (1999) explored the concept of time use as a measure of engagement through qualitative research with business managers, and assessed the theoretical implications of the observed complex relationships between time and engagement. Goddard (2001) postulated ‘the locus of an individual’s use of time moves along the axis of engagement/disengagement from organization and task’ (p. 19). Goddard (2001) observed participants did not often disengage from the organisation during the workday, but frequently disengaged from their tasks. Goddard (1999, 2001) did not offer an instrument to measure engagement as time use.

Other research in the work–family literature similarly drew on work–family and organisational psychology literature, including that of Kahn (1990, 1992), to define engagement in terms of more time spent on one’s role and in thinking about one’s role (Frone, Russell & Cooper, 1992; Higgins, Duxbury & Irving, 1992; Rothbard, 1999).

Historically, research in organisational psychology into productivity had focused on time use, efficiency studies and scientific management. Time and motion studies were aimed at increasing production, while decreasing time use (Guillen, 1994; Taylor, 1947). Hertzberg (1987) described organisational time use as a hygiene factor and asserted giving control of time to a worker created job enrichment. Time spent on a task has been differentiated from the reflective time spent on the job (Daudelin, 1996; Hammer & Champy, 1993). These traditional notions of time use drawn on by Goddard (1999, 2001) are in contrast to the ‘flow’ notion of time (Csikszentmihalyi, 1990, 1997).
No findings were evident exploring potential differences in time use between medical and business contexts by Goddard or other researchers.

### 2.3.3 Instrumentality

Miller and Brickman (2004) conceived engagement as a form of instrumentality, or as ‘individual perceptions of the instrumentality of presently available tasks for achieving personally valued future goals’ (Miller & Brickman, 2004, p. 17). Following research on future goals (e.g. Nuttin, 1984; Raynor, 1974), Miller and Brickman (2004) claimed work tasks perceived as instrumental to reaching future personal goals had more overall incentive value and meaning than other tasks, and hence produced more engagement. They developed a theoretically grounded model combining two established theories of motivation and self-regulation. Central to their model was the driving force of personally valued future goals. Social-cognitive perspectives on self-regulation (Bandura, 1986) were integrated with theory on more future-oriented self-regulation and motivation (Markus & Nurius, 1986). Several studies have obtained consistent findings of the importance of perceiving current work as being instrumental for future success (Greene, Miller, Crowson, Duke & Akey, 2004; Miller, DeBacker & Greene, 1999; Miller, Greene, Montalvo, Ravindran & Nicholls, 1996).

Miller and Brickman (2004) asserted that, according to intrinsic motivation theory, when student participants attempted tasks that provided optimal challenge, they should experience flow, or an intrinsically satisfying state of involvement or engagement (Csikszentmihalyi & Nakamura, 1989; Deci & Ryan, 1985). However, this has been found to be not the case for adolescent students, which is thought to result from the general de-valuing of school tasks typical of adolescents (Csikszentmihalyi & Larsen, 1984). Miller and Brickman (2004) highlighted theorists of self-determination and self-system (e.g. Cantor & Kihlstrom, 1987; Markus & Nurius, 1986). They found
tasks hold meaning if they relate to personally relevant future goals. Miller and Brickman (2004) did not present any measures for their instrumentality theory of engagement, only conceptualisations.

### 2.3.4 Group engagement.

MacGowan (1997, 2000, 2003) asserted engagement is best defined as a group, rather than an individual construct, and developed a scale based on groups primarily from the social work field. Other findings from the hospitality industry showed people working in groups have more opportunities to interact with each other, and hence are more likely to be engaged (Salanova, Agut & Peiró, 2005). The group engagement measure is a leader’s rating of engagement about each group member. The items relate to seven facets: attendance, contributing, relating to workers, relating with members, contracting, working on one’s own problems and working on others’ problems. Several studies (MacGowan, 1997, 2000, 2003) have demonstrated the measure’s reliability and validity, indicating group engagement is related to group performance outcomes. However, this was the only group measure found in the literature. The group engagement measure was explicitly designed to investigate social work contexts; thus, engagement may be best measured at the work unit level.

### 2.3.5 Engagement as the antithesis of burnout.

Much research into engagement emanated from the burnout literature and initially asserted engagement was ‘the exact opposite’ of burnout (Maslach & Goldberg, 1998, p. 63) and promised ‘to yield new perspectives on interventions to alleviate burnout’ (Maslach, Schaufeli & Leiter, 2001). Burnout originated in the medical literature to assess specific occupational stress reactions among healthcare and human service workers (Macey & Schneider, 2008; Maslach, 1976, 1982, 1993), as elaborated in Chapter 3. It was proposed engagement was composed of three dimensions an
employee brought to the role: energy, involvement and efficacy. These dimensions were modelled from the three burnout dimensions: exhaustion, cynicism and inefficacy (Maslach & Leiter, 1997). These dimensions were later revised to vigour, dedication and absorption in the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).

Engagement continues to be reported as ‘the positive antithesis of burnout’ (Maslach et al., 2001), with the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986) and the Utrecht Work Engagement Scale consistently demonstrated as negatively correlated (Schaufeli et al., 2002b; Schaufeli, Martinez, Marques-Pinto, Salanova & Bakker, 2002a).

Schaufeli et al. (2002b) reassessed burnout as a different construct to engagement, and contended, in contrast to Maslach and Leiter (1997), that engagement was not adequately measured as the opposite profile of the MBI (Maslach & Jackson, 1986). These researchers concurred that, conceptually, engagement and burnout were opposites but asserted the structure and measurement of each differed. They found the two concepts were only moderately negatively related. Other studies have shown burnout and engagement have different predictors and different possible consequences, and share between 10 to 25 percent of their variance (Schaufeli & Bakker, 2004).

Schaufeli and Bakker (2004) found climate variables of job demands and resources differentially influence each outcome, with burnout mainly resulting from job demands, but also from lack of job resources, whereas engagement only results from available job resources. Further, they found burnout is associated with health problems and turnover, and mediates the relationship between job demands and health, whereas engagement is only associated with turnover, and mediates the relationship between job resources and turnover. These differences in the predictors and outcomes of burnout and
engagement mean different intervention strategies should be used when enhancing engagement or reducing burnout.

The first version of the Utrecht Work Engagement Scale contained 24 items reflecting the three underlying dimensions of vigour, dedication and absorption. Engagement was theorised as a ‘positive, fulfilling, work-related state of mind characterised by vigour, dedication and absorption’ (Schaufeli et al., 2002b, p.74). Vigour was defined as energy, resilience, willingness to invest effort in one’s job, not being easily fatigued, and persistence. Dedication was defined as strong involvement in one’s work, a sense of enthusiasm and significance, pride and inspiration. Absorption was defined as a pleasant state of total immersion in one’s work, characterised by time passing quickly and being unable to detach oneself from the job (Schaufeli et al., 2002b). The scale was developed using two samples from diverse occupations. The first sample comprised students, and the second business employees, 16% of whom were from human services. While Schaufeli et al. (2002b) reported the measure fitted the data well across both samples, they did not report any specific investigations of potential contextual differences between human services and other industries. Further, the 16% of human service participants was a low proportion in one sample. Some of the effects of this small dataset would presumably have been engulfed by the large data from the other context, minimising any indications of potential contextual differences. An implication of these findings is that the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) may not be invariant across different contexts. There continue to be findings of problems in the factor structure of the Utrecht Work Engagement Scale (De Bruin & Henn, 2013).

Bakker et al. (2011a) and Bakker, Albrecht and Leiter (2011b) have continued to assert burnout measures should be drawn on when developing measures of engagement.
Others have criticised this conceptualisation of engagement, asserting it is important to conceptually distinguish between engagement and burnout measures, and to relate the conceptualisation of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) to other concepts of engagement (Sonnentag, 2011). Maslach (2011) added engagement would be better understood by further consideration of the parallels and differences between the Utrecht Work Engagement Scale (Schaufeli et al., 2000b) and burnout. The Utrecht Work Engagement Scale (Schaufeli et al., 2002b) is shown in Figure 2.1.

![Figure 2.1. The Utrecht Work Engagement Scale. Source: Schaufeli et al. (2002b).](image)

### 2.3.6 Traditional job constructs as measures of engagement.

In the mid-2000s, there was debate regarding whether engagement offered anything different from traditional job constructs. For example, the Gallup instrument
treated satisfaction and engagement as synonymous and used the term ‘satisfaction-engagement’ (Harter et al., 2002). Engagement was conceptualised as ‘passion’, which subsumed organisational commitment, job satisfaction and intention to stay (Langford, Parkes & Metcalf, 2006). Satisfaction and engagement were grouped together in another study (Kelloway & Day, 2005). The conceptual overlap between engagement and existing constructs of organisational commitment and job involvement has been noted by Hallberg and Schaufeli (2006). Hence, of all prior constructs, job satisfaction was particularly linked with engagement in the mid-2000s.

More recently, Newman and Harris (2008) and others have argued, when adjusting for methodology (such as item order and differences in rating scales) and measurement error, there is little difference between most ‘job attitude’ measures. They argued engagement is best conceptualised as a higher order construct encapsulating existing constructs such as job satisfaction, organisational commitment and job involvement. These researchers go one step further in suggesting the term engagement is redundant with their term ‘job attitude’, which predated the concept of engagement. Newman and Harrison (2008) provide a comparison of items from the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003) and similar items from several long-established scales for organisational commitment, job satisfaction, job involvement, positive affectivity and job affectivity in arguing the redundancy of engagement items. Langford (2009, 2010) holds a similar view and included job satisfaction as a component of his 2009 measure of engagement. Langford (2010) has empirically shown job satisfaction is theoretically the same as Schaufeli et al.’s (2000b) measures with data was collected from 1,701 employees across 180 teams. Each team was from a different organisation, and a broad range of industries and sectors were represented. Measures of positive affectivity, job satisfaction and Schaufeli, Bakker and Salanova’s (2006)
measures of vigour, dedication and absorption tended to group into a single factor for which Langford used the traditional label of job satisfaction. Langford explains this overarching higher order construct of positive job attitudes could reasonably be labelled ‘employee engagement’.

Others have argued employee engagement is conceptually similar and highly correlated with job satisfaction. Macey and Schneider (2008), in their influential overview of engagement published in the first issue of *Industrial and Organisational Psychology*, included satisfaction in their model of state engagement. They emphasised it is the active/affective components of job satisfaction, rather than the contentment/satiation aspects, that overlap most with engagement. The relationship between job satisfaction and engagement was unclear in the mid-2000s.

Employees’ perceptions and cognitions of their organisation and jobs have been found to influence motivation (Hackman & Oldham, 1975; Kemery, Bedeian & Zacur, 1996). The most widely known traditional measures for job characteristics are the Job Diagnostic Survey (JDS) and Job Descriptive Index (JDI) (Hackman & Oldham, 1975; Smith et al., 1987). These scales measure aspects such as employees’ perceptions of the variety of skills their job requires, task identity, the ability to complete a whole piece of work rather than only a part, task significance, the degree of impact of one’s job on others, autonomy, or freedom and independence of action and feedback, or evaluative responses to work performance. Other extrinsic reward factors, such as pay, promotional opportunities and job security, are measured. More recent findings in motivational and organisational psychology show the continuing influence of these facets (Brewer, 1994; Yoon, Han & Seo, 1996). These environmental or job characteristics have been considered more influential than personality factors in measuring and enhancing intrinsic job satisfaction (Dipboye, Smith & Howell, 1994).
By the mid-2000s, there was a need for further research to investigate the relationship between job satisfaction, as measured by traditional job characteristics, and engagement.

In summary, while the construct of engagement was first posed by Kahn in 1990, over the following two decades, other researchers and consultancies independently proposed diverse engagement theories, leading to confusion in the literature. There were debates regarding whether the construct existed, whether it was simply the opposite of burnout, or whether it was an amalgamation of traditional job characteristics. Thus, in the mid-2000s, there was a need for clarity on engagement.

2.4 Work and Job Environment View of Engagement

Industrial/organisational psychology evolved from a long tradition of research investigating how well the characteristics of individuals align with the environment of their organisation, known as person–environment fit (Caplan, 1987). Much of this early research focused on employee job satisfaction, employee stress and how well the resources provided by a job matched employee needs (Kaplan, 1983; Locke, 1969; Porter, 1961). Other research has since focused on the person–role fit (Kristof, 1996). More recently, May et al. (2004) noted many studies have shown if an individual perceives there to be a fit between their self-concept or identity and their role, they experience a sense of meaning, or engagement, due to being able to express their values and beliefs (see Brief & Nord 1990; Britt, 1999; May, 2003). May et al. (2004) observed individuals are self-expressive and creative, not just goal-oriented, and seek out work roles allowing them to behave in a way that expresses their authentic sense of self. Further, job resources and enrichment can significantly influence work role fit and employee engagement (see Johns, Xie & Fang, 1992; May, 2003; Renn & Vandenberg,
Thus, findings have shown work environment and roles are associated with a sense of job satisfaction, more meaningful work, and hence engagement.

The job demands–resources model of engagement, was originally developed to predict stress/burnout, and was used to improve employee wellbeing and performance (Demerouti, Bakker, Nachreiner & Schaufeli, 2001). The model incorporates the earlier demand–control (Karasek, 1998) and effort–reward imbalance (Siegrist, 1996; Siegrist, Siegrist & Weber, 1986) models of employee wellbeing. Researchers began to incorporate engagement into the model in 2004, as the ‘positive antipode’ (Schaufeli & Bakker, 2004, p. 293) of burnout, with the concept measured by the Utrecht Work Engagement Scale (Schaufeli et al., 2002b). More recently, and since the current research commenced, studies on engagement using the job demands–resources model have gathered momentum (Bakker & Demerouti, 2007, 2008). The model has since been revised and elaborated by these researchers and others.

Bakker and Demerouti (2007) asserted prior effort–reward models have a restricted set of predictor variables that limit them to certain job types, whereas the job demands–resources model encompasses a wide range of working conditions, and thus occupations. In addition, they observed by including engagement, the model now incorporates both negative and positive indicators and outcomes of employee wellbeing. The main assumption of the job demands–resources model is job strain develops, irrespective of the type of job or occupation, when job demands are high and job resources are low. In contrast, work engagement is most likely when job resources are high and job demands are also high (Bakker & Demerouti, 2008). Thus, engagement has been considered from work and job environment perspectives by researchers.
2.5 Convergence on a Theory of Engagement

Macey and Schneider (2008) defined engagement as a higher order construct emanating from prior traditional job constructs and adding interpretive value beyond those constructs. Specifically, these and other researchers asserted engagement is best measured by combinations of one or more of the traditional employee constructs: job satisfaction, organisational commitment, psychological empowerment and job involvement. Engagement consistently displays construct and criterion validity over these job attitudes (Alarcon & Lyons, 2001; Christian, Garza & Slaughter, 2011; Macey & Schneider, 2008). Macey and Schneider (2008) contended engagement includes ‘passion, enthusiasm, focused effort and energy’ (p. 4). They observed much of the reason for the confusion about engagement derived from the way it developed quickly as a ‘bottom-up effect’ (Macey & Schneider, 2008, p.3) driven by heavy marketing in industry, similar to the way burnout developed. They noted distinctions are now made between trait (a disposition or positive views of life and work), state (feelings of energy and absorption or passion) and behavioural (extra-role behaviour) engagement. State engagement is the current dominant measure of engagement, and is the focus of this thesis. Work environments have been found to have direct effects on state engagement (Chughtal & Buckley, 2011; Macey & Schneider, 2008). Further, engagement is generally agreed to indicate high levels of personal investment in job tasks (e.g. Christian et al., 2011; Kahn, 1990, 1992; May et al., 2004; Rich et al., 2010). Thus, some convergence was found for the theory and definition of engagement in 2008.

Macey and Schneider (2008) observed most prior measures of engagement were based on an incorrect conceptualisation of the construct, and hence were inadequate, with some exceptions, such as the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), which continues to be preferred by researchers. Macey and Schneider (2008)
contended many measures that were indicators or antecedents of employees’ opinions had been relabelled as indicants of employee engagement, particularly seen in measures of job satisfaction where affect, energy, passion and so forth were not tapped. They asserted models of engagement should embrace the psychological state and behaviour of engagement for any research hypotheses, surveys and interventions to be meaningful. Albrecht (2010) concurred on the need for further differentiation between engagement and its antecedents, including job characteristics.

The consensus on engagement reported by Macey and Schneider (2008) was short lived, with recent findings showing ‘research on engagement is alive and well’ (Sonntag, 2011, p. 29). There has been a ‘sharp increase’ in the number of scientific studies on engagement during the past decade (Bakker et al., 2011a, p. 5). ‘It has clearly captured the hearts and minds of many researchers and practitioners across the globe’ and continues to grow rapidly, with over 1.5 billion hits recorded on internet searches in 2010 (Albrecht, 2010, p. xiv). In particular, researchers have continuously argued for the need to more accurately conceptualise and define engagement, to find the best way to measure engagement, and to identify strategies to increase engagement. Performance management continues to drive much of the research, producing models for fostering and managing engagement to achieve high levels of job performance (Gruman & Saks, 2011a, 2011b; Medhurst & Albrecht, 2011; Mone et al., 2011). Research in business contexts continues to show there is a ‘business value’ to an engaged workforce (Mone et al., 2011, p. 398).

While more agreement has been reached about the general concept of engagement since the work of Macey and Schneider (2008), researchers are yet to concur on many of its specific aspects (e.g. Christian et al., 2011; Dalal, Brummel, Wee & Thomas, 2008; Newman & Harrison, 2008). Macey and Schneider (2008) observed
‘the relationships among potential antecedents and consequences of engagement have not been rigorously conceptualized, much less studied’ (pp. 3–4). They contended there is a resultant lack of understanding about engagement’s nomological network. Many researchers have acknowledged that, although engagement is regarded a motivational variable that increases performance (e.g. Kahn, 1990; Rich et al., 2010; Schaufeli et al., 2002b), little is known about its uniqueness as a predictor of performance (Christian et al., 2011; Langford, 2010). Further, theorists are now interested in how engagement fluctuates within and across days, in differences between work engagement and task engagement, and in differences between collective and individual engagement (Schaufeli & Salanova, 2011; Sonnentag, 2011).

2.6 Recent Findings on Engagement

In a recent compendium of many of the world’s main theories on engagement, Albrecht (2010) observed there are too many definitions of engagement to encompass, and considerable debate remains over the definition and measure of engagement. Further, Albrecht (2010) contended that it is unlikely there will ever be universal agreement about a single definition of and measure for engagement. However, he observed there might eventually be global agreement about its core conceptualisation, and there is a need for ongoing research into this.

Bakker et al. (2011a) observed engagement continues to be so undefined it may be an enduring state that barely changes over time, or may be one that fluctuates daily. They asserted engagement is a distinct psychological construct. Context has now been found to influence engagement, particularly in uncertain environments, such as the medical context, as discussed in the next chapter (Albrecht, 2010; Parker & Griffin, 2011; Sonnentag, 2011). Thus, conflict about engagement continues in the literature
more than two decades after its inception and further investigation is required in this field, particularly into potential contextual differences, including in medical contexts.

Kahn (2010) contended he has been thinking about, researching and practising in the field of engagement for around 30 years. He said he developed the construct of engagement ‘to explain what traditional studies of motivation had overlooked, namely, that employees offer up differing degrees and dimensions of their selves according to some internal calculus that they consciously and unconsciously make’ (Kahn, 2010, p. 20). Kahn concurred with Schaufeli and Bakker (2004) that employees do invest energy in their work, but he asserted engagement is not a simple matter, it is not simply working hard, with vigour, involvement or effort: ‘it is about putting ourselves, our real selves, into the work’ (Kahn, 2010, p. 21). Kahn (2010) acknowledged the need for employees to disengage at times, yet said in practice, this is more complicated than it may seem. Engagement can be delicate and fragile, while also resilient.

Employees ask themselves three questions regarding whether they should engage: Does it matter? Is it possible? Is it safe (Kahn, 2010)? Employees are constantly surveying their work environment and making decisions about these questions. If the environment seems positive, they will engage, if not, they will disengage. The fragility of engagement can be seen in how employees’ trust and sense of safety can be broken instantly, leading them to withdraw. However, engagement is also resilient because organisations can grow from almost no engagement to the point where employees identify with and care about their organisation. Kahn (2010) highlighted the original conceptualisation of engagement as the harnessing of the self to one’s work. He observed how far other theories of engagement have evolved from this origin, and how complex engagement may really be.
Rich et al. (2010) added support to Kahn’s (1990, 1992) work by proposing a theory of engagement as ‘the investment of an individual’s complete self into a role’ (p. 617). They elaborated on the three antecedents of engagement posed by Kahn (1990, 1992): meaning, safety and availability. Meaningfulness, or ‘value congruence’, reflected the extent to which one’s work is congruent to one’s values and aspirations. Safety, or ‘perceived organisational support’ of the environment, reflected the extent to which the organisation can be trusted for one’s wellbeing. Availability, or core self-evaluation, reflected the extent to which one is willing to invest oneself into a role. Each of these antecedents has been previously linked to job performance (Rich et al., 2010). Thus, Kahn’s (1990, 1992) theory continues to be relevant.

Bakker (2011) provided an evidence-based model for engagement, integrating previous findings regarding its antecedents and consequences, and based on the earlier job demands–resources model (Bakker & Demerouti, 2007) (see Figure 2.2). Consistent with previous findings, Bakker (2011) showed how job demands and personal resources are the main predictors of engagement, operating independently or in combination. Engagement in turn positively affects job performance (Kahn, 1990, 1992; Macey & Schneider, 2008). These predictors become more salient and motivating in contexts of high job demands (such as heavy workload, emotional demands and mental demands). Engaged workers are more productive, more open to new information and more willing to make extra effort and even proactively change their work environment in order to stay engaged (Bakker & Demerouti, 2008). The feedback loop in the model shows how engaged employees create their own resources (job crafting), which fosters further engagement and creates a positive-gain spiral. Others have countered engaged workers could only change their work environment to stay engaged if there were no constraints in the environment to inhibit innovative behaviours (Parker & Griffin, 2011). Albrecht
(2010) urged for more research into the job demands approach and for the model to be expanded to include organisational demands.

Figure 2.2. Model of work engagement. Source: Bakker (2011).

More recent findings show engagement continues to be of interest to the Human Resource Management industry (Boon & Kalshoven, 2014; Mishra, Boynton, & Mishra, 2014; Soane, Trussb, Alfesc, Shantzd, Reese, & Gatenby, 2012; Strom, Sears & Kelly, 2014).

2.6.1 The positive effects of engagement on employees.

From the mid-2000s until recently, engagement was viewed as a positive construct and one fitting within the domain of positive psychology, strengths and optimal functioning (Seligman & Csikszentmihalyi, 2000). While Schaufeli and Bakker (2004) said engagement was a positive, fulfilling, work-related state of mind, May et al.
(2004) said engaged employees were fully involved in and enthusiastic about their work. Engelbrecht (2006) added engaged workers inspire, energise and keep up their team’s spirit. Bakker, Van Emmerik and Euwema (2006) found engagement to be contagious within work teams. Bakker and Xanthopoulou (2009) found positive effects of engagement crossed over from an employee to their colleagues on a daily basis. Engagement has been found to increase efficacy beliefs in secondary school teachers (Salanova, Llorens & Schaufeli, 2011). Engagement has recently been found to help recovery of energy levels in business workers at the end of the work day (Sonnentag, Mojza, Demerouti & Bakker, 2012). Further, hard work has been found to be ‘fun’ for highly engaged workers (Bakker et al., 2011a). However, in contrast, more recent findings point to a dark side of engagement.

2.6.2 The dark side of engagement.

Engagement was initially held to focus on ‘flow’ experience, where people ‘lose themselves’ in their work (Csikszentmihalyi, 1997; Kahn, 1992, p. 326). Increasing engagement levels were considered to produce only positive outcomes for both employees and employers. However, it has recently been acknowledged this may not always be the case for employees. There is a limited supply of energy and resources, within employees which make it difficult to sustain high levels of engagement. Personal resources enable employees to be engaged at work; however, when work interferes with family, this demand depletes such resources (Demerouti et al., 2001; Halbesleben, Harvey & Bolino, 2009; Macey & Schneider, 2008). Over time, engagement may erode the very resources it relies upon to develop. Hence, researchers question the ability of engagement to be sustained over long periods of time and when faced with a high demand load (Korner, Reitzle & Silbereisen, 2011; Montgomery et al., 2003).
Negative engagement, overengagement and a dark side to engagement have recently been identified, which may result in worse performance under certain conditions (George, 2011; Schaufeli & Salanova, 2011; Sonnentag, 2011). For example, if those high in engagement are highly stressed, this might detract from cognitive performance (Beal, Weiss, Barros & MacDermid, 2005). High positive affectivity (which is said to be related to engagement) is known to promote heuristic (or experienced-based) processing that might impede performance when detailed controlled information processing is needed (see, e.g. Martin & Clore, 2001).

George (2011) argued in an era of layoffs and high unemployment, those who survive in the workforce are increasingly burdened by work. George (2011) questions whether high engagement is a positive experience or ‘fun’ for those engaged in this manner, as asserted by Bakker et al. (2011a). Other findings also indicate hard work may not seem fun at the time (Staw, 1995). Bakker et al. (2011b) contended input–output ratios and notions of distributive justice are at play. Maslach (2011) recently asserted it is important to assess critical levels of engagement in terms of when employees show too little or too much engagement. Sonnentag (2011) contended employees who perceived their work as a ‘calling’ or as highly meaningful may suffer detrimental effects in the long term from investing increased personal resources into their work, such as pay, personal time and comfort. Thus, recent findings have begun to acknowledge some further complexities associated with engagement, such as contextual differences and a dark side to engagement, particularly in occupations of high emotional demand such as the work of doctors and nurses.

2.7 Contextual Differences for Engagement

Studies in the mid-2000s used measures of engagement, particularly the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), across business and medical contexts
(see Llorens, Bakker, Schaufeli & Salanova, 2006; Schaufeli & Bakker, 2004; Schaufeli et al., 2006). However, in 2005, indications appeared that engagement, its predictors and the scales to measure it may not operate similarly across different contexts (Mauno et al., 2005). Some findings from the use of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) were so diverse across contexts, particularly in medical contexts, they were not interpretable (see Mauno et al., 2007; Meltzer et al., 2009; Seppala et al., 2009) (reported in more detail in the next chapter). Thus, although the popular Utrecht Work Engagement Scale (Schaufeli et al., 2002b) has been translated into many languages and used with a broad range of occupations, researchers have begun to argue its psychometric properties require further investigation (Seppala et al., 2009). Others have noted contexts influence engagement and should be considered when investigating engagement, particularly in uncertain environments, such as medical settings (Albrecht, 2010; Parker & Griffin, 2011; Sonnentag, 2011).

Griffin et al. (2007) proposed context shapes and constrains behaviours valued for effectiveness in organisations, with uncertainty a pervasive feature of context. The higher the uncertainty, the less all contingencies can be anticipated, making it less possible to formalise all role requirements. Roles emerge dynamically in uncertain contexts, requiring employees to be adaptive and proactive (Parker & Griffin, 2011). Johns (2001) said organisational behaviour researchers should incorporate a better appreciation of context into their research. Rousseau and Yitzhak (2001) asserted contextualisation is more important in contemporary organisational behavioural research than in the past. There are two reasons for this. First, research is becoming more international, creating challenges of transporting models across cultures. Second, work and work settings are rapidly diversifying, substantially changing the underlying dynamics of worker–organisational relations. Context was found to influence
engagement and job satisfaction in some recent studies (Diestel, Wegge & Schmidt, 2014; Jenkins & Delbridge 2013; Liu, Mitchell, Lee, Holtom & Hinkin, 2012). Thus, further a priori research is required into how the contextual differences between business and medical workplaces may influence the way engagement operationalises.

2.8 Work-related Constructs that Influence Engagement

Several work-related constructs have been found to be related to engagement: empowerment, climate, intrinsic motivation, burnout and negative affectivity. The following sections outline these constructs, their relationships with engagement and the reasons it is important to consider these relationships when researching engagement.

2.8.1 Psychological empowerment.

Findings show that engagement and psychological empowerment are positively related; however, researchers do not agree entirely on the nature of the relationship. Psychological empowerment has been defined as an experience through which people gain control over their lives (Rappaport, 1981; Spreitzer, 1995b). In the workplace, this usually means giving employees the autonomy to make decisions about how to undertake their daily work tasks (Carless, 2004; Ford & Fottler, 1995). Psychological empowerment differs from structural empowerment, or the social-structural context of an organisation, which includes role ambiguity, access to resources, information and support, and organisational culture (Spreitzer, 1995b). There are two related theoretical approaches to psychological empowerment: relational and motivational (Carless, 2004; Hardy & Leiba-O’Sullivan, 1998; Spreitzer, 1997). The relational theory asserts empowerment accrues from decentralising power and delegating decision making to staff. The motivational theory focuses on staff perceptions of their power to deal with situations, rather than delegating, emphasising open communication, encouragement, goal setting and feedback. The motivational theory is investigated in this review, as
studied by Carless (2004), Conger and Kanungo (1988) and Stewart and Manz (1997). The motivational theory asserts empowerment is a composite of the cognitions, meaning, competence, self-determination and impact, with meaning and competence largely responsible for empowerment (Carless, 2004; Spreitzer, 1995a; Thomas & Velthouse, 1990). Meaning reflects a fit between work requirements and a person’s beliefs, values and behaviours. Competence stems from self-efficacy or belief in one’s own capacity and competency. Self-determination reflects autonomy in decision making for work tasks. Impact is the extent an individual can make a difference at work (Carless, 2004). These four dimensions are found in Spreitzer’s (1995a) measure for empowerment.

Spreitzer (1995a) theorised that employees’ perceptions of their work environment, including structural empowerment, contribute to feelings of psychological empowerment; however, the employee must be psychologically receptive to being empowered for this to occur. Spreitzer (1995a) appears to have developed the first measure of psychological empowerment, used by several researchers with varying reliability (see Calarco, 2011; Chen, Sharma, Edinger, Shapiro & Farh, 2010; Tierney & Farmer, 2011). However, Spreitzer’s (1995b) original findings using the measure for empowerment suggest heterogeneity between the items, as asserted by Vinarski-Peretz and Carmeli (2011) (see Figure 2.3).
There appears to be some overlap between Spreitzer’s (1995a) construct for empowerment and engagement. That is, Spreitzer, Kizilos and Nason (1997) found the empowerment subscale for meaning to be the strongest predictor for job satisfaction. Carless (2004) noted that other studies have shown the ‘meaning’ facet of empowerment is a significant predictor of job satisfaction, while there is inconclusive evidence for the effect of the other three facets of empowerment on general job satisfaction and present job satisfaction (Liden, Wayne & Sparrow, 2000; Thomas & Tymon, 1994). More recently, Vinarski-Peretz and Carmeli (2011) illustrated the heterogeneity of some measures for engagement and empowerment by combining the four items measuring meaning from Spreitzer’s (1995a) scale with the items measuring...
meaning from May et al.’s (2004) engagement scale. Hence, the antecedent ‘meaning’ is common to these measures of engagement and empowerment, yet they remain distinct constructs. Thus, further research is required to investigate the use of Spreitzer’s (1995a) measure for psychological empowerment and its relationship with engagement.

Until recently, there was a gap in the literature on the relationship between empowerment and engagement (Laschinger et al., 2009d). Researchers have shown that empowering leadership leads to engagement, and they have advocated research that specifically explores the association between the two constructs (Bakker et al., 2011a; Parker & Griffin, 2011; Tuckey, Bakker & Dollard, 2012). Empowerment programs have become popular in organisations, and have been found to improve performance, productivity, customer satisfaction and competitive advantage (Hardy & Leiba-O’Sullivan, 1998; Mone et al., 2011). Empowerment has been found to increase engagement and reduce burnout and turnover in the hotel, banking, call centre and airline industries (Erdogan & Bauer, 2009; Harris, Wheeler & Kacmar, 2009; Li, Li, Shi & Chen, 2006). Further, recent findings show these uncertain work environments and are empowering and are linked with more engagement than burnout (Wang, Shi, Ng, Wang & Chan, 2011)

However, other findings cast some confusion over empowerment and its relationship with engagement. Carless (2004) noted three studies that report inconclusive evidence of the influence of Spreitzer’s (1995a) facets on job satisfaction (see Kirkman & Rosen, 1999; Liden et al., 2000; Thomas & Tymon, 1994). Psychological empowerment has been found to act as a mediator, rather than predictor, in the relationship between structural empowerment, psychological climate and outcomes such as performance, satisfaction, engagement and innovation (Carless, 2004; de Villiers & Stander, 2011; Thomas & Velthouse, 1990). Empowerment programs
have been established in organisations to improve productivity, customer satisfaction and competitive advantage (Hardy & Leiba-O’Sullivan, 1998). Carless (2004) asserted most of the research on empowerment has been conducted in the private sector and within a limited range of organisational settings, and she emphasised the need for further research in the public sector and a broader range of industries. Therefore, while psychological climate, engagement and empowerment appear to be positively related, further research is needed to clarify the nature of their relationship, particularly in the public sector.

2.8.2 Psychological climate.

Findings show psychological climate significantly influences engagement; however, researchers do not agree on the nature of this relationship. In an early definition, psychological climate was defined as an employee’s evaluation of their work environment, including structures, processes and events (Schneider & Snyder, 1975). More recently, psychological climate was defined by Carless (2004) as, ‘the degree to which individuals interpret the work environment as personally beneficial versus personally detrimental’ (p. 408). Carless (2004) contended psychological climate is more important than the work environment because it influences employee attitudes and behaviours, rather than the environment itself (James, Hater, Gent & Bruni, 1978; James & Jones, 1974; Johns et al., 1992).

Psychological climate has been found to influence feelings of empowerment (Carless, 2004; Corsun & Enz, 1999; Johns et al., 1992). Further, Carless (2004) found evidence with business samples that psychological climate directly influences employee perceptions of their empowerment, which subsequently influences employees’ sense of job satisfaction. That is, the relationship between psychological climate and engagement is mediated by the effects of empowerment. Carless (2004) asserted further research is
needed to investigate these relationships between variables in the public sector. Thus, further research is required into the effects of specific aspects of psychological climate on empowerment and engagement, including in the public sector.

2.8.3 Intrinsic motivation.

Intrinsic motivation has been found to be positively related to engagement; however, findings on this relationship are sparse (Meyer et al., 2004). Early findings on intrinsic motivation described it as ‘the labor of love aspect’ or the motivation to engage in work primarily for its own sake because the work itself is engaging or satisfying (Amabile, 1989, p. 56), note the use of the term ‘engaging’. In contrast, extrinsic motivation concerns something apart from the work itself (Amabile, Hill, Hennessey & Tighe, 1994). Originally, intrinsic motivation sought to explain exploration and challenge-seeking behaviours (e.g. Berlyne, 1971; Harlow, Harlow & Meyer, 1950; Hunt, 1965). Cognitive and affective components have been identified in intrinsic motivation, termed ‘self-determination’ and ‘competence’ (Amabile et al., 1994; Deci & Ryan, 1985). Amabile et al. (1994) noted the affective components have been identified variously as interest and excitement (Izard, 1977); elation and the ‘flow’ of deep task involvement (Csikszentmihalyi, 1975, 1978); and happiness, surprise and fun (Pretty & Seligman, 1983; Reeve, Cole & Olsen, 1986). This affective ‘flow’ experience has been termed ‘engagement’ (Csikszentmihalyi, 1975, 1978).

Intrinsic motivation has been found to be highly related to engagement, with an overlap for the affective components, yet remaining a distinct construct (Zhang & Bartol, 2010). Intrinsic motivation is related to empowerment (Carless, 2004; Zhang & Bartol, 2010). The relationship between these three constructs is of current interest in the literature and requires more research. The intrinsic motivation model by Tremblay, Blanchard, Taylor, Pelletier and Villeneuve (2009) is presented in Figure 2.4.
2.8.4 Burnout.

As mentioned previously, much of the early research on engagement was derived from the burnout literature, and these constructs are now known to be moderately inversely related (Maslach & Goldberg, 1998; Schaufeli et al., 2002a). Burnout is caused by the emotional and demanding nature of work in human services, and particularly in the relationships between doctors, nurses and their patients (Van Dierendonck, Schaufeli & Sixma, 1994). Defined by Freudenberger (1974), the construct was developed to describe these specific occupational stress reactions that are likely to become chronic (Maslach, 1976, 1982, 1993; Maslach & Goldberg, 1998). Specifically, these occupations require workers to deal with people about issues that either are or could be problematic. Initially, the theoretical conception focused on the characteristics of what Maslach (1993) referred to as ‘people work’ (p. 23). However, it was later expanded to combine stress over loss of meaning in work, and thus, loss of engagement, because meaning is an aspect of Kahn’s (1990, 1992) definition. Workers who felt their jobs had a substantial impact on other people’s lives, and thus were more likely to be engaged, were found to be more prone to burnout than those who thought their work was meaningless (Maslach & Jackson, 1981).

The original MBI defined burnout as the experience of overwhelming feelings measured across three dimensions: exhaustion, depersonalisation and lack of
accomplishment (Maslach & Jackson, 1981). These were later modified to exhaustion, cynicism, and a sense of being ineffective and failing (Maslach & Goldberg, 1998). Maslach and Jackson (1984) said the conditions for increased burnout were the absence of positive feedback, lack of control, lack of role clarity, lack of social support, and unrealistic personal expectations about the job. Particular work and social environments were found to be associated with burnout. Professional employees in human service organisations, such as doctors and nurses in public hospitals, are most at risk of burnout.

Three decades after its inception, theorists redefined burnout as ‘people’s psychological relationship with their job as a continuum between the negative experience of burnout (exhaustion, cynicism and inefficiency) and the positive experience of engagement (energy, involvement and efficacy)’ (Maslach, Leiter & Jackson, 2012, p. 296). The Maslach Emotional Exhaustion nine-item subscale is generally considered the core dimension of the burnout index (Cox, Kuk & Leiter, 1993; Janssen, de Jonge & Bakker, 1999; Maslach, 1993). The scale is often used as a single burnout measure in research (e.g. Janssen et al., 1999) (see Figure 2.5).

Engagement is now the goal of burnout interventions, and the current focus of burnout research is on collaborations between researchers and practitioners to improve interventions (Leiter & Maslach, 2009). Thus, burnout and engagement have been found to be distinctly different, negatively related constructs, and this relationship should be recognised in future research.
2.8.5 Negative affectivity.

Negative affectivity has been found to impact organisational performance and it is suggested should be controlled in research on performance (McCrae & Costa, 1986; Spector & Brannick, 2011; Terry, Callan & Sartori, 1996). Negative affectivity is a general dimension of subjective distress that subsumes a number of aversive mood states, such as anger, guilt and fear (Watson, Clark & Tellengen, 1988). Positive affectivity is a dimension of enthusiasm activity alertness (Watson et al., 1988). Negative affectivity, but not positive affectivity, is related to self-reported stress (Watson et al, 1988). Negative affectivity is generally included as a covariate in self-report studies, to control for the effects of negative dispositions that might bias the perception of work characteristics and behaviour (Carless, 2004; Griffin et al., 2007). Participants who have high scores for negative affectivity are generally regarded as rating other aspects of work in a negative or inaccurate manner. Hence the associated variance of negative affectivity is often controlled in such studies, rather than being included as information. Braithwaite (1987) contended her measure is not dominated by
negatively valued characteristics, as are some other scales, and is a reliable and valid research tool (see Figure 2.6).

![Figure 2.6. Negative affectivity model. Source: Braithwaite, (1987). Eight of the 15 items. R indicates reverse coding is required.]

2.9 Conclusions

The concept of engagement has been highly visible in the literature since the mid-2000s, yet with little consensus regarding its definition and measurement. There had been some convergence, as reported by Macey and Schneider (2008), which focused on traditional measures as well as elements found in the Utrecht Work Engagement Scale (Schaufeli et al., 2002b). However, researchers continued to debate the theory, and Kahn (2010) recently argued the Utrecht Work Engagement Scale does not capture the essence of engagement, which is the sense of self in one’s work. Albrecht (2010) asserted there will probably never be universal agreement on a theory of engagement. Measures of engagement continued to be developed and used without consideration of potential contextual differences, even though different measures are used in business and medical contexts for the related construct of burnout (Schaufeli &
Enzmann, 1998). However, research specifically investigating how engagement operates in these contexts was not evident. There was a growing recognition that engagement may not operate similarly across these contexts (see Meltzer et al., 2009; Sanfilippo et al., 2008; Seppala et al., 2009). An implication of this is measures may operate differently in medical and business work. The way engagement and other related work constructs operate in medical settings is explored in the next chapter.
Chapter 3: The Contemporary Medical Context

The following examples of engagement issues in medical contexts were provided by executive staff at major public teaching hospitals in the Sydney metropolitan area at the commencement of these studies.

An executive described a complaint that had been reported to and investigated by him. A senior surgeon had displayed total disengagement and dehumanised disregard for her patient. In administering an injection, the surgeon had instructed her upright patient to turn around and face a wall. From some distance, the surgeon then hurled the needle into the back of the patient. Upon being reported, the surgeon was offended and bewildered as to why her actions were deemed reportable.

In contrast, an oncologist described how he would often become very closely engaged with his patients and involved in their lives because he cared so much about them. He described his work as being like that of a yacht’s skipper. With a grave sense of responsibility, he would accept a patient with potentially terminal cancer and board their boat as the skipper, thus commencing a journey with this person out into the sea of treatment processes, in the hope of sailing the patient safely back to the shore—to health. Sometimes this occurred and the journey was a success for both skipper and patient. However, when this did not occur, he described feeling defeated by the process, lost and far from the shore, on an incomplete journey. Tears filled his eyes as he said he was sometimes at a loss
as to how to get back to shore without the patient for whom he had been responsible.

3.1 Introduction

The contemporary healthcare industry is undergoing major unprecedented challenges and crises. The literature increasingly highlights clinician engagement as an important measure in dealing with these issues, and the need for more research on engagement in healthcare (Bargagliotti, 2012; Cohen, 2007; McCrae, 2014). The work of professionals has been found to be fundamentally different from that of other employees; thus, the way professionals engage in work may also differ (Morrow & Goetz, 1988; Snizek, 1972). In medical and other professional clinical contexts, a certain level of detachment or disengagement from the job is required of practitioners to ensure best practice (Bandura, 1990; Claire & Dufresne, 2004; Folger & Skarliciki, 1998). Professional work has been found to differ from business work, being more emotionally draining with a higher risk of detrimental overengagement (Maslach, 1982; Sonnentag, 2011). This is in contrast with business contexts, where the aim is to achieve high levels of engagement, with findings indicating this improves performance and other business outcomes (Gruman & Saks, 2011a, 2011b; Medhurst & Albrecht, 2011; Mone et al., 2011). The related construct of burnout requires different measures for business and medical contexts, and so might engagement (Leiter & Schaufeli, 1996; Maslach & Jackson, 1981). Existing measures for engagement were developed without regard for context, and have now been found to vary across different work environments (Mauno et al., 2007). Context is now considered an important influence on engagement, particularly in uncertain contexts, such as medicine (Parker & Griffin, 2011).

Relationships between engagement and other related work constructs, namely, psychological climate, empowerment and intrinsic motivation, have been found to be
important in business and medical contexts. Findings show these relationships may differ between these contexts. There is a lack of research on engagement in medical contexts and its relationship with other constructs, the subject of this thesis.

The following literature review first provides an overview of the contemporary healthcare industry and the nature of work of professional healthcare employees. The findings on engagement in medical work contexts are then provided with a discussion about why engagement may not operate in the same way in these contexts as in business contexts. The review then explores findings showing a deeper understanding of engagement’s complexity and dark side with regard to medical contexts. A brief overview is provided of the literature on the related work constructs of empowerment, psychological climate, burnout and intrinsic motivation with respect to medical engagement.

3.2 The Healthcare Industry for Clinicians

The current global healthcare industry is undergoing enormous change and growth, as well as severe crises. Increasing pressures of global and national economic rationalism are impacting management policies and practices in hospitals. These exert unsustainable pressures on medical professionals, leading to diminished patient care and reduced organisational outcomes (Hegland, 2008; Liao & Chuang, 2007; Misra-Herbert et al., 2004). Further, competition is increasing among medical service providers and there is a growing need to enhance staff engagement and retention, particularly that of nurses (Liao & Chuang, 2007; Salanova et al., 2005). Post-industrial countries are facing a critical and growing shortage of nurses, with an increasingly urgent need to solve this problem (Faulkner & Laschinger, 2008; Leiter & Maslach, 2009; Leiter, Price & Laschinger, 2010). This shortage is partly due to large numbers of older nurses retiring, the ageing population and the pending influx of baby boomers into the
healthcare system (Laschinger et al., 2009d; Leiter et al., 2010; Smith, Andrusyszyn & Laschinger, 2010). These researchers highlight a growing rate of attrition in nurse graduates. Attrition may be caused by poor psychological work climates in hospitals, marked by cynicism and bullying that have dominated the nursing literature in recent decades and are linked with major problems of burnout, disempowerment, turnover and lack of patient safety (Buerhaus, Staiger & Auerbach, 2003; Laschinger et al., 2006; Milton, 2005).

Australian nursing studies have identified the same issues, with the additional problem that the role of nurses is much less clearly defined in Australia than in other countries, causing extra and uncertain duties. Such lack of job demarcation is linked with disengagement and burnout (Halcomb, Patterson & Davidson, 2006; Kenny & Duckett, 2005). That is, while nurses have been involved in Australian general medical practice for many years, recent factors, such as staff shortages and an increasing need for chronic, complex and preventative disease management in the community, have led to the development of nurses’ roles (Halcomb et al., 2006; Linn, Gurel & Linn, 1977).

Other factors contributing to role development include increased healthcare costs, technological advancement, the ageing population, shorter stays in hospitals, increasing numbers of patients, increasing community expectations, and reluctance by medical practitioners to provide some services (Blay & Donoghue, 2007). Role development has caused nursing work in Australia to change dramatically during recent years, requiring increased professionalism, advanced practice, greater specialisation and more diverse and complex roles. Many nurses now undertake tasks previously provided by doctors and other health professionals (Blay & Donoghue, 2007). Studies in Australia (Glass & Rose, 2008) and elsewhere (Milnar, Tusak & Karpljuk, 2009) have demonstrated the importance of clinician self-care in order to continue to care for
others. Further research is required on how to engage clinicians optimally in hospital settings in the current economic climate.

Growing pressures on doctors are causing increasing burnout, disengagement, turnover and consequent suboptimal care and major losses for hospitals. As found in nursing, this particularly affects newly recruited doctors (Levin & Kissane, 2006; Misra-Herbert et al., 2004; Prins et al., 2010). Thus, there is an urgent need to enhance understanding of what makes doctors and nurses engaged in the contemporary medical climate.

Hospital contexts are increasingly uncertain. Uncertainty results when the inputs, processes or outputs of work systems are unpredictable, and is created by new competition; rapidly changing technologies; evolving customer demands; and dynamic, unpredictable markets (Griffin et al., 2007; Wall, Cordery & Clegg, 2002). Unpredictable markets of current healthcare include the aging population and pending influx of baby boomers (Laschinger et al., 2009d; Leiter et al., 2010). These are all features critical to the contemporary healthcare industry (Hegland, 2008; Liao & Chuang, 2007; Misra-Herbert et al., 2004). Griffin et al. (2007) asserted employees must adapt in these contexts, giving examples from the work of nurses in hospitals as follows. A nurse who adjusts well with a new procedure for administering medication is adapting. When a hospital undergoes a merge with another hospital, nurses must adapt to the new structure. For example, a nurse might scan the new environment to identify opportunities for better delivery of care, including creating a safer way to administer medication. Griffin et al., (2007) said uncertain contexts require individual proactivity, where employees identify improved work methods under their own initiative. For instance, a nurse might propose a new roster or form of communication to improve team effectiveness. Proactivity demonstrates the extent to which individuals participate in
self-initiative and future-directed behaviour to change the organisation. They explained a nurse might contribute ideas to committees charged with enhancing hospital policy or designing expanded work roles.

### 3.3 Professional Employees

Professional employees, such as accountants, lawyers and healthcare staff, have been distinguished from others by having a personal sense of engagement referred to as a ‘vocation’ (from the Latin word for voice) or a ‘calling’, while other employees are said to have jobs. Professionals have been historically described as committed to their profession (Morrow & Goetz, 1988; Seligman, 2002; Snizek, 1972). For most, medicine is still a vocation; it is said individuals do not choose medicine, they are called to it (Collison, 2001). There is a sense of calling to a life of compassionate service (Landry, 2011; Verghese, 2005). Business employees, in comparison to professional healthcare workers, rarely experience deeply emotional demands and responsibilities in their daily jobs (Maslach, 1976; Maslach & Jackson, 1981; Poland, 2010). Employees who perceive their work as a ‘calling’ or as highly meaningful and who strongly identify with their work, such as healthcare professionals, also show higher levels of work engagement (May et al., 2004). Medical practice involves inherent uncertainty, not found in business work (Hayward, 2007; Maslach, 1982; Tanenbaum, 2005). There is a growing conflict between the professional values of clinicians and the business aspirations of hospitals (Hegland, 2008; Sorensen & Sorensen, 1974). This mismatch is a common contributor to clinician turnover, with researchers increasingly concerned with finding ways to promote better working relationships in hospitals (Burns & Muller, 2008; Misra-Herbert et al., 2004). Clinicians prefer work environments that support their professional status and behavioural and ethical requirements (Stevens et al., 1992).
The professional status and role of doctors is undergoing a worldwide evolution. Pressure is mounting from society for increased accountability of doctors. Pressure is being exerted from within the profession, as the profession is increasing the performance management of doctors (Klass, 2007). This is causing difficulties for doctors in finding employment, anxiety in maintaining employment, lower incomes, negatively affecting doctors’ personal lives, creating stress and placing limitations on professional development (Bolanowski, 2005). There is a need to increase the engagement of physician leaders to transform healthcare settings, manage spiralling costs and maintain quality care (Snell, Briscoe & Dickson, 2011). Engagement has been found to protect doctors from burnout, and further research is required to enhance the engagement of doctors in the current medical environment (Prins et al., 2010). There has been an explosion in the literature on medical professionalism, seeking to understand what makes healthcare professionals satisfied and engaged, as the crisis in healthcare systems worldwide deepens (Cohen, 2007; Kinghorn, McEvoy, Michel & Balboni, 2007; Kushnir, Cohen & Kitai, 2000). Thus, further research is required on how to engage and retain professional medical staff in light of these contemporary challenges.

3.4 Engagement in Medical Contexts

There has been little research on engagement in the medical domain, compared with the large body of research in the business domain. However, engagement is now regarded as critical to the healthcare industry in efforts to address the global crises (Cohen, 2007; Kinghorn et al., 2007; Kushnir et al., 2000). Bargagliotti (2012) contended ‘work engagement is the central issue for 21st century professionals and specifically for registered nurses’ (p. 1414). The nature of nurse and physician engagement remains unclear (Bargagliotti, 2012; Gray, 2012; Schleyer et al., 2013).
Increasing the engagement of nurses is now regarded a business initiative and is measured in hospital contexts as a complex, valued trait (Vestal, 2012). The future of nursing depends on engaging and retaining newcomers to the profession.

Enabling nurses to practice in accordance with professional standards learnt in their training programs fosters engagement (Laschinger et al., 2009b). The same applies to the Australian nursing crisis (Travaglia et al., 2011). The nursing literature previously focused on commitment, satisfaction and intention to stay as outcome measures because research had found a link between these variables and performance (Laschinger, Finegan, Shamian & Casier, 2000). More recently, engagement has been linked with optimal patient care and satisfaction, nurse retention and organisational outcomes (Hayne et al., 2009; Laschinger & Finegan, 2005; Sanfilippo et al., 2008). Engagement has been found to foster innovation and efficiency, helping nurses solve simple problems that can make a critical difference in outcomes (Kimball & Aree, 2011). The increasing uncertainty of the medical context requires employees to become more adaptive, innovative and proactive, even changing their organisations or the way they operate (Griffin et al., 2007). Thus, the medical context may allow employees to be innovative, which is required if employees are to proactively change their environments to maintain engagement (Bakker, 2011; Parker & Griffin, 2011). As an aside, the importance of engagement in the work of contemporary doctors is evidenced by compulsory programs recently introduced in medical schools that explicitly teach students how to engage with patients. Thus, further research that enhances the understanding of doctor and nurse engagement is considered important (Meeks & Looney, 2011).

Leiter and Schaufeli (1996) noted directly after its release, researchers made much use of the Maslach Burnout Index (MBI, 1986) with other occupational groups,
such as civil servants, the military, computer programmers, police officers, managers and entrepreneurs. Scores for these groups differed from human services norms, and the factor structure was not maintained across these other occupational groups. Leiter and Schaufeli (1996) found depersonalisation and emotional exhaustion subscales tended to collapse into one factor when non-human service workers completed the MBI. They note the MBI’s specific focus on emotional demands and rewards resulting from personal relationships with service recipients increase the scale’s power to assess human service occupations. Leiter and Schaufeli (1996) argue all of the MBI’s subscales emphasise service relationships because therapeutic relationships require personal sensitivity, as is mandated by the ethical codes of human service professions. They said personal sensitivity is either not valued or is regarded as a hindrance in other occupations. The main focus of achievement for human service providers is having a beneficial influence on people, while this focus is largely missing in the work of other occupational groups. Thus, engagement with work subsumes engagement with patients for healthcare workers.

Leiter and Schaufeli (1996) explained any attempt to extend the MBI unchanged to other occupational groups showed not only was the service relationship emphasis inappropriate, this risked missing important aspects of work for non-service providers. Modifying the MBI would have compromised the strong foundation of its validity and reliability (Maslach & Jackson, 1986). Thus, sufficient need was found for the development of a separate version for use outside the human service professions, referred to as the MBI—General Survey (MBI-GS) (Schaufeli, Leiter, Maslach & Jackson, 1996). The three components of the MBI-GS burnout construct are conceptualised in broader terms with respect to the job, that is, with less emphasis on personal relationships as part of the job, which is fundamental to the MBI. While the
MBI-GS assesses the same three dimensions as the original MBI, the items have been reworded to maintain a consistent factor structure across a variety of occupations (Maslach et al., 2001). These findings imply the related construct of engagement may also be best measured differently in these different contexts and that a human service component is not necessarily a part of engagement.

3.4.1 The dark side of engagement in medical contexts.

In the mid-2000s, engagement was viewed as a positive construct for organisations and employees. While Bakker and Xanthopoulou (2009) found positive effects of engagement crossed over from an employee to their colleague on a daily basis, only 14% of respondents were employed in the health sector. Organisational researchers and corporations have historically aimed to increase levels of engagement without regard for its complexity in some situations and occupations. For example, some medical employees find the need to maintain a social distance or disengagement from their patients (Goffman, 1961b; Handy, 1991). In many medical and other professional clinical contexts, a certain level of disengagement from the job has traditionally been required of practitioners to ensure best practice (Bandura, 1990; Claire & Dufresne, 2004; Folger & Skarliciki, 1998).

Employees who perceive their work as a calling, such as health professionals, are now considered to be at risk of detrimental effects in the long term from overengagement (Sonnentag, 2011). George (2011) contended in certain contexts, such as medical, disengaged employees might feel better personally and perform better professionally than those who are highly engaged. Such contexts are typically those of work ambiguity and uncertainty which require employees to alter between levels of high and low engagement for optimum functioning, such as in medicine. This can be found
in Kahn’s original conceptualisation of engagement as ‘withdrawal’ (Kahn, 1990, 1992, 2010).

Margolis and Molinsky (2008) explored the nature of engagement when employees have to ‘perform necessary evils’ on a job (p. 847), that is, the necessity of doing harm in order to do good, which is particularly prevalent in the medical professions as doctors and nurses must conduct some procedures inflicting pain. Historically, performers of such tasks used disengagement in order to protect themselves from their own emotions and those of their target, performing as quickly as possible, and typically becoming insensitive in the process (Bandura, 1990; Claire & Dufresne, 2004; Folger & Skarliciki, 1998). Margolis and Molinsky (2008) explained that proficient performers of these necessary evils must be interpersonally sensitive and compassionate. However, they typically experience intense thoughts and emotions such as guilt, which makes this difficult. In a qualitative study, they found some doctors felt highly engaged during these experiences, while others felt disengaged. Those who were highly engaged reported experiencing pro-social emotions, being in touch with how the patient was feeling and experiencing, and being in touch with their own humanity. However, the doctors also stated feeling sadness, awful and bad (Margolis & Molinsky, 2008). Thus, performing necessary evils might produce negative feelings for healthcare practitioners.

As George (2011) argued, this study by Margolis and Molinsky (2008) ‘does drive home the fact that sometimes high engagement is not fun or positive and, under certain conditions, people who are disengaged might actually feel better personally than those who are highly engaged’ (p. 57). Thus, it is unclear when human service workers should engage or disengage. However, in medical contexts, a level of disengagement may be desirable. Consistent with Kahn (1990, 1992, 2010), other findings show
through engagement, more of an employee’s self is involved in their work, and this must be taken into account when devising engagement management systems (George, 2011). However, there is no consensus on how to assess and determine such optimal levels of engagement, particularly in medical contexts, which are known to be emotionally taxing (Maslach & Jackson, 1984). Prins et al. (2010) found general surgery represented the medical occupation with the lowest levels of burnout, followed by obstetrics, gynaecology and any supportive specialty, such as psychiatry. General surgery residents were also found to be more highly engaged than others, perhaps because there is less need to maintain a social distance or disengagement from their patients due to less interaction (Goffman, 1961b: Handy, 1991). Thus, further research is required to understand the dark side of engagement in medical contexts.

3.4.2 Engagement in business and medical contexts.

The development of engagement measures has proliferated across both medical and business contexts for over two decades, with potential underlying structural differences remaining unaddressed. In 2004, the research into engagement in medical contexts was largely discursive and speculative, and there was no specific measure available for these contexts (Braithwaite, 2005). Still, 10 years later, no research is evident examining potential differences in the meaning and measurement of engagement across business and medical contexts. As mentioned, the related construct of burnout had required a different measure for these contexts (Leiter & Schaufeli, 1996). This implied the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) in particular, since it was developed from the burnout literature, may vary across these contexts.

As stated in Chapter 2, soon after this thesis commenced, there was a growing recognition in the literature that engagement measures, particularly the Utrecht Work
Engagement Scale (Schaufeli et al., 2002b), may not be invariant across contexts (Mauno et al., 2005; Mauno et al., 2007; Seppala et al., 2009). However, studies have continued to use these measures across different contexts (Llorens et al., 2006; Schaufeli et al., 2006; Weigl et al., 2010). Seppala et al. (2009) observed that there are few reliable measures in the field of occupational health psychology. Thus, a measure for medical engagement, developed *a priori* may be necessary.

The study by Mauno et al. (2005) was conducted in Finland using the Utrecht Work Engagement Scale-17 (Schaufeli et al., 2002b) and investigated engagement across different work contexts, including doctors and nurses in a healthcare organisation, workers in an information technology firm, and in a carton-board mill. The study found evidence engagement may have different predictors in these different organisational contexts. This study became longitudinal, investigating the factor structure of the Utrecht Work Engagement Scale (Schaufeli et al., 2000b), factorial group and time invariance over divergent occupations (including doctors and nurses) and the rank-order stability of engagement (Mauno et al., 2007; Seppala et al., 2009).

The data were drawn from five studies. One was conducted over three years using five divergent occupational groups, including a healthcare sample. The factorial structure varied across groups, indicating the scale did not measure engagement similarly across these different contexts. Mauno et al. (2007) and Seppala et al. (2009) contended their findings were so diverse they did not know what construct the scale measured. This suggests engagement measures may vary between medical and business contexts, requiring different ways of conceptualising and measuring engagement. No evidence could be found of tests for such potential contextual differences in the development of the Utrecht Work Engagement Scale (Schaufeli et al., 2000b).
A recent study was conducted with doctors \((N = 2,115)\) in the Netherlands using the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) by Prins et al. (2010). No comparison was made between other occupational groups. Prins et al. (2010) reported 27% of the doctors displayed high levels of engagement with their work, while 21% displayed burnout. They added no other research had been performed on the prevalence of engagement and its possible relationships with burnout among resident doctors. The need for further research into understanding what makes doctors and nurses engaged in their work, and particularly with regard to growth in this specific service climate has been evident in the medical and psychological literature (Seppala et al., 2009). Thus, further research is required on the engagement of doctors and nurses.

**3.4.3 A nuanced versus general approach to engagement.**

There are benefits and drawbacks to a nuanced approach differentiating between various contexts or occupations, compared with a general approach that does not consider such potential differences. As stated in Chapter 2, researchers increasingly advocate a contextual approach (Johns, 2001; Rousseau & Yitzhak, 2001). However, the drawbacks of contextual approaches include a resulting lack of generalisability. If context is inherent in the nature of engagement, as many now assert, it may be more accurate to consider context in such studies (Albrecht, 2010; George, 2011; Parker & Griffin, 2011). Griffin et al. (2007) said context shapes and constrains behaviours valued in organisations. As stated by Parker and Griffin (2011), ‘Context can moderate both the extent to which an engaged individual performs well and how they express their engagement’ (p. 64).

Uncertainty is a defining and pervasive feature of context, occurring when work systems are unpredictable due to changes in competition, technology and customer demands, as is occurring in healthcare (Griffin et al., 2007). Uncertainty contributes to
role design. When uncertainty is low, work tasks can be specified and roles become more formalised. Higher uncertainty however means tasks are harder to specify, which produces less formalised roles. Employees must adapt to and initiate change, as exemplified by a hospital nurse who copes well with a new procedure for administering medication (Griffin et al., 2007). Overall, a nuanced approach considering the influence of context may elicit a more accurate understanding of engagement in the uncertain context of medicine.

**3.4.4 Psychological empowerment.**

Research on empowerment has dominated the nursing literature over the past two decades, as healthcare organisations struggle to deliver the same level and quality of services with diminished resources. Nurse empowerment has been consistently linked with positive outcomes of commitment, satisfaction, professionalism, intention to stay, respect, productivity and patient outcomes, and negatively related to stress and burnout (Butts, Vandenberg, DeJoy, Schaffer & Wilson, 2009; Finegan & Laschinger, 2001; Wilson & Laschinger, 1994). Nurse executives have long strived for equality of power and to overcome the perceived powerlessness of their staff (Sabiston & Laschinger, 1995). Kanter (1977) defined power as ‘the ability to mobilise resources to get things done’ (p. 166).

Empowerment has been shown to increase positive attitudes of nurses towards the organisation, resulting in improved organisational outcomes (Finegan & Laschinger, 2001; Laschinger et al., 2000; Manojlovich & Laschinger, 2002). Empowerment has been related to increased engagement, important in the current climate of hospital restructuring and severe nursing shortage (Laschinger et al., 2003; Laschinger et al., 2010; Laschinger & Finegan, 2005). Correspondingly, workplace disempowerment has been found to have detrimental effects on nurses, reducing engagement, with one in
three nurses suffering from burnout as a result (Laschinger, Leiter, Day & Gilin, 2009c; O’Brien, 2011).

Empowering work conditions have been found to include the promotion of professional practice, autonomy, control over practice environment, and positive nurse-physician relationships (Laschinger et al., 2003; McDermott, Laschinger & Shamian, 1996; Sabiston & Laschinger, 1995). Empowerment has been found to play a key role in improving job satisfaction in new graduate nurses in their first year of practice, thus contributing to the critical retention of nurses (Laschinger, Finegan & Wilk, 2011). Structural and psychological empowerment has been linked with these outcomes. Structural empowerment results in nurse psychological empowerment, as found in business samples (Laschinger et al., 2011; Purdy, Laschinger, Finegan, Kerr & Olivera, 2010; Spreitzer, 1995a). Findings emphasise nurse managers have the influence and resources to facilitate both forms of empowerment by promoting collaborative professional relationships (Laschinger et al., 2011; Laschinger, Purdy, Cho & Almost, 2006; Li, Chen & Kuo, 2008). Empowered nurses are more likely to increase their use of strategies to empower patients, resulting in better patient outcomes (Laschinger, Gilbert, Smith & Leslie, 2010).

There has been little specific research on the relationship between engagement and empowerment in nursing (Bakker et al., 2011a; Laschinger et al., 2009d; Tuckey et al., 2012). As stated in the previous chapter, empowerment has been found to totally mediate the relationship between psychological climate and engagement in business samples (Carless, 2004). That is, climate did not directly influence job satisfaction in the business context. Carless (2004) argued, ‘Employee perceptions of their work environment directly influence their perceptions of empowerment, which in turn influence their level of job satisfaction’ (p. 418). In nursing, however, there is consistent
evidence while empowerment is critical to satisfaction climate has a direct effect on satisfaction, and recently engagement (Finegan & Laschinger, 2001; Laschinger et al., 2009d; Leiter et al., 2011). Climate has also been found to have an indirect effect on nurse satisfaction (Laschinger, 2008). Thus, further research is required into the relationship between engagement, empowerment and climate in nursing. Such research could particularly investigate whether empowerment would only partially mediate the relationship between climate and engagement in nursing, as opposed to the full mediation effect found in business contexts. While empowerment is of interest in the nursing literature, no such findings for doctors have been evident.

3.4.5 Psychological climate.

The psychological climate ‘or feel of the professional work environment in hospitals’ has long been associated with physician job satisfaction, professional attitudes, behaviour, autonomy and patient care (Stevens, Diederiks & Philipsen, 1992, p. 295). Findings consistently show negative psychological climates are a serious problem in contemporary nursing, causing cynicism and other dimensions of burnout, the main predictor of nurse turnover. Such findings are not consistently found in the business literature. Characteristics of negative climates include incivility, bullying, poor collegial relationships and lack of support from management (Berry, Barrowclough & Haddock, 2011; Laschinger et al., 2009c; Leiter, Laschinger, Day & Oore, 2011). Psychological climates in which nurses respect others and refrain from incivility have been linked with less burnout and turnover, constructive conflict management, engagement, better quality of patient care and work effectiveness. Poor relationships among nurses have been linked with poor performance, errors and accidents.

Nurses report perceiving their managers do not show them respect, concern or truthfulness regarding decisions affecting their jobs, as reflected by reward for effort,
job security, autonomy and, lastly, financial indicators. Such lack of organisational support impacts nurse attitudes, performance levels and health (Laschinger et al., 2006; Laschinger, Finegan & Wilk, 2009b; Laschinger & Shamian, 1994; Sui, Laschinger & Finegan, 2008). The work environment, particularly teamwork, continues to be found to influence engagement (Van Bogaert, Wouters, Willems, Mondelaers & Clarke, 2013; Vestal, 2012). Hence, psychological climate and its effect on engagement in healthcare is an important area of ongoing research.

The future of nursing depends on improving the psychological climate of work environments by enhancing professional practices, status and interactions (Laschinger et al., 2009a; Laschinger et al., 2009b; Simpson, 2009). Such professional work climates are required to attract and retain newcomers to the profession, as poor work climates are known to cause nurse graduates to leave the profession. Other contributors to psychological climate include nurses’ perceptions of job demands and staffing levels, as well as physician–nurse relationships and support for a nursing (versus medical) model of care. Healthcare work environments require dramatic restructuring to improve trust, engagement and performance. Efforts should also focus on improving leadership, which has been found to increase engagement (Laschinger, 2008; Laschinger et al., 2000; Laschinger et al., 2011; Sanfilippo et al., 2008). Leadership is a key theoretical antecedent of engagement with leaders supporting their team found to be the strongest predictor of engagement (Xu & Cooper-Thomas, 2011). Findings in Australia and other countries emphasise despite this consistent evidence, there is a lack of action to foster more positive nursing work environments (Huntington et al., 2011; Leiter & Maslach, 2009). An organisation perceived to facilitate collaboration between its professional staff is more likely to foster engagement (Pfaff, Baxter, Jack & Ploeg, 2014). Further
research is required into how to improve psychological climates in nursing, and hence improve nurse engagement.

3.4.6 Intrinsic motivation.

Findings show doctors and nurses typically enter their professions as a vocation, or a calling, which implies a level of intrinsic motivation (Collison, 2001; Landry, 2011; Verghese, 2005). As stated in Chapter 1, intrinsic motivation is related to engagement, with an overlap for the affective components, yet remaining a distinct construct. Doctors and nurses are mandated to be personally sensitive and to have a beneficial effect on people (Leiter & Schaufeli, 1996). They are at higher risk of burnout than workers in other occupations (Maslach & Jackson, 1981). Recent findings show doctors may experience less positive feelings than other workers when engaged (George, 2011). However, intrinsic motivation enhances positive feelings, which may counteract the lower levels of positive feelings experienced by medical professionals (Wong & Csikszentmihalyi, 1991). Findings show surgeons’ beliefs about their own quality of work were linked with intrinsic motivation which was also linked with being risk-adjusted (Kolstad, 2013). These findings imply a level of intrinsic motivation is required of doctors and nurses to be able to overcome or deal with personal risk factors.

Intrinsic motivation has a positive influence on nurse engagement, intention to stay and nursing outcomes (Janssen et al., 1999; McNeese-Smith, 1999). Nurses’ motivation decreases when they are not empowered, autonomous or applying their competencies in full, and increases when they are respected and collaborate with doctors (Zydziunaite & Egle, 2007). Nurse burnout has been found to increase when intrinsic motivation diminishes (Janssen et al., 1999). However, intrinsic motivation has been found to be unrelated to the specific emotional exhaustion dimension of burnout (Rubino, Luksyte, Perry & Volpone, 2009). Burnout is particularly prevalent among
nurses who experience an effort–reward imbalance, report high levels of emotional exhaustion and invest relatively high intrinsic motivation into their job (Bakker, Killmer, Siegrist & Schaufeli, 2000). Diminished intrinsic motivation, burnout and intention to leave are related (Bakker & Heuven, 2006; Janssen, et al., 1999). Environmental variables influence intrinsic motivation, such as psychological climate (Carless, 2004; Conger & Kanungo, 1988; Thomas & Velthouse, 1990). Fairchild (2010) contended the current negative nursing work environment reduces morale and satisfaction, creating dissonance between motivation and ethics in practice. Further investigation of the relationships between intrinsic motivation, engagement, burnout, empowerment and climate in nursing is required.

### 3.4.7 Burnout.

Studies on doctors and nurses have consistently shown a close relationship between burnout and engagement (Bakker & Heuven, 2006; Bakker, Schaufeli, Sixma & Bosveld, 2001; Demerouti et al., 2001). Engagement has been found to protect against burnout and intention to leave among doctors and nurses (Janssen et al., 1999; Messmer, Bragg & Williams, 2011; Prins et al., 2010). Researchers argue for the need to further understand engagement and burnout in healthcare with respect to the nursing crisis and high burnout rate of doctors (Jenaro, Flores, Orgaz & Cruz, 2011; Prins et al., 2010). Emotional stress and burnout cause both new and experienced nurses to leave their current positions as well as the entire profession (Fairchild, 2010). One in two new graduate nurses report burnout by their second year of practice (Laschinger et al., 2011; Rudman & Gustavsson, 2011). Burnout has been found to be a serious condition that threatens the health of nurses and their patients (Laschinger, 2008). Job demands are a significant predictor; however, the negative psychological climate in nursing is the main predictor of burnout (Laschinger et al., 2011).
Recently, doctors have been found to experience more burnout than nurses due to harassment by patients (Brazeau, 2010; Koch & Jones, 2010; Satterfield & Becerra, 2010). These findings support the early views of Maslach (1982) and Freudenberger (1974), and indicate ‘the emotional and demanding nature of the physician–patient relationship is a root cause of burnout’ (Van Dierendonck et al., 1994, p. 86). Resident doctors suffer the highest rates of physician burnout. Common concerns leading to burnout have been the understanding of roles and responsibilities, developing an identity as a doctor, building professional confidence, and responding to stress and flaws in healthcare training and delivery systems (Satterfield & Becerra, 2010). Doctor burnout has been found to predict low work quality, lower empathy and care, increased disturbances in the doctor–patient relationship, resigning from the vocation and patient dissatisfaction (Brazeau, 2010; Hazif-Thomasa, Rouleaux & Thomas, 2009; Weng et al., 2011).

Psychological climate has been found a major contributor to doctor burnout and engagement (Prins et al., 2010). Contemporary physicians disengage or suspend their sense of self, critical to Kahn’s (1990, 1992) definition of engagement, to minimise the discomfort and guilt that accompanies inflicting necessary pain, and to operate effectively. This has a dehumanising effect, which has been found to be endemic in medicine. Dehumanisation involves denying the patient has a human mind that can experience pain and has the capacity to plan and exert choice (Haque & Waytz, 2012). As a result, physicians are found to exhibit higher rates of anxiety, depression and suicide than the general population (Cole & Carlin, 2009). Further research is needed to better understand the way engagement and burnout operate for doctors and nurses.
3.4.8 Demographic variables.

Gender has been (weakly) associated with engagement in nursing and medical practitioners, with men reporting slightly higher levels of engagement and women reporting more emotional exhaustion and depersonalisation (Prins et al., 2010; Schaufeli & Bakker, 2004). However, a study of equal numbers of male and female nurses investigated empowerment and found no gender differences (Finegan & Laschinger, 2001). The study found no support for a common theme that male nurses are less empowered because of a ‘token’ status resulting from fewer numbers of men in the profession. Gender differences are evident in Spreitzer’s (1995a) study on empowerment with employees from a Fortune 50 industrial organisation and an insurance organisation. Eylon and Bamberger (2000) identified the two factors Spreitzer found to be the most salient components of empowerment, determination and impact, were so for the predominantly male sample, but were the least salient for the predominantly female sample in their study with students of a Master of Business Administration. Further, Boudrias, Gaudreau and Laschinger (2004) drew on previous findings in asserting the notion of power in empowerment may be considered differently by men and women, with men construing power more as control over their environment and women as communication (see Lips, 1985). Thus, gender differences need to be considered in such research.

Meltzer et al. (2009) found doctors and nurses engage differently in the patient care aspect of their work, and contended these differences need to be understood for better patient care. Nurses were more likely than doctors to engage with patients and their families. Nurses were more likely to seek advice from a colleague when dealing with a difficult patient and their difficult family, while doctors were more likely to refer these groups to a psychosocial professional. Other studies have shown doctors suffer
more burnout than nurses due to patient harassment (Van Dierendonck et al., 1994). Hence, further research into the potential differences between doctor and nurse engagement, and particularly their conceptualisations of engagement, will be of value.

Recent findings show a strong relationship between nurses’ professional status and job satisfaction, with some studies finding status more influential than pay (Simpson, 2009). Higher levels of burnout and turnover are found in new graduate nurses, especially during their first year of practice and particularly because of disempowering workplace experiences, including in Australia (Chang & Hancock, 2003; Laschinger et al., 2011). However, some findings show nurse managers report significantly higher stress levels than staff nurses (Jenaro et al., 2011). Further, engagement has been found to be less important to graduate nurses’ feelings of work effectiveness than empowerment (Laschinger et al., 2009d). These researchers suggest this is due to graduate nurses’ lack of life experience and personal resources for dealing with ambiguities in the workplace, making structural supports more important for their sense of efficacy than personal engagement (Laschinger et al., 2009d). The number of years in training has been weakly, but significantly, related to higher work engagement in resident doctors, who are more prone to burnout than seniors (Prins et al., 2010; Satterfield & Becerra, 2010). Thus, research on medical engagement must cater for potential differences between junior and senior status.

Related to seniority, age has been (weakly) associated with engagement, with older doctors and nurses reporting slightly higher levels of engagement and lower levels of burnout (Li, Shi & Luo, 2003; Prins et al., 2010; Schaufeli & Bakker, 2004). Thus, longer tenure is associated with higher levels of engagement and lower levels of burnout for doctors and nurses. Leiter et al. (2010) asserted significant differences are evident between the three generational cohorts found in the current nursing workforce, Baby
Boomers (born between 1943 and 1960), Generation X (1961 to 1981) and Millennials/Gen Y (born after 1981), in career aspirations and expectations. Differences in the values held by each generation can cause friction and loss of job satisfaction, evidenced by the high levels of incivility in nursing. Similarity in age has been found to promote engagement in general working populations (Avery, McKay & Wilson, 2007). The nursing literature has identified working conditions need to be changed to suit each generation; thus, age is an important consideration in such research (Boychuck-Duchscher & Cowin, 2004; Hu, Herrick & Hodgkin, 2004; Leiter et al., 2010).

3.5 Conclusions

In conclusion, further research is required to understand what makes doctors and nurses optimally engaged in their work. The work of professionals, and particularly doctors and nurses, has been found to differ from business workers; however, little research has focused on engagement in medical contexts (Bargagliotti, 2012; Gray, 2012; Schleyer et al., 2013; Snizek, 1972). Engagement may operate differently in medical contexts as doctors and nurses face emotional challenges and responsibilities not found in business. They must disengage to perform duties that inflict pain, yet must also bond with their patients emotionally (George, 2011; Mandel & Mandel, 2003). Doctors and nurses face pressures from hospital systems that conflict with their values as professionals, while such tensions are not typically experienced by business employees (Cole & Carlin, 2009). Thus, different measures of engagement may be required in these work contexts, as they are for burnout. Empowerment contributes to nurse engagement (Laschinger et al., 2003). Positive psychological climates are linked with increased nurse engagement (Laschinger, Almost, Purdy & Kim, 2004; Laschinger et al., 2009b). Further research is required into the relationship between engagement,
empowerment and climate in nursing. Such research could particularly investigate whether empowerment would only partially mediate the relationship between climate and engagement in nursing, as opposed to the full mediation effect found in business contexts. Intrinsic motivation has been linked with reduced intention to leave (Bakker & Heuven, 2006; Janssen et al., 1999) and engagement has been found to protect against doctor and nurse burnout (Bakker & Heuven, 2006). Thus, further research is required to assess how these constructs relate to engagement in medical contexts.

The thesis proceeds as follows:

- Chapter 4: Pilot Study 1—Engagement Measures
- Chapter 5: Study 2—Engagement Items in Medical and Business Contexts
- Chapter 6: Study 3a—Development of a Scale for Engagement in Medical Contexts
- Chapter 7: Study 3b—Relationships between Engagement and Related Constructs
- Chapter 8: General Discussion and Conclusions.

Each study is presented with its aim, method, results and discussion. A full discussion in Chapter 8 ties each of the studies together.
Chapter 4: Pilot Study 1—Engagement Measures

4.1 Introduction

The previous chapters reviewed the literature on employee engagement and its conceptualisation and measurement over more than two decades, including in the medical context. The overall aim of the studies reported in this and the next chapter (Study 2) was to explore the need for a separate scale for engagement in medical contexts, by investigating all current engagement theories in 2004. The intention was to clarify the existing measures and theories of constructs for use in medical contexts. The research design followed the methodology proposed by Hinkin (1998), as shown in Chapter 1, Figure 1.1. Other researchers have used Hinkin’s (1998) methodology when constructing scales (see, e.g. Armenakis et al., 2007; Bauer et al., 2001; Holt et al., 2007).

The current Pilot Study 1 aimed to collate and assess existing items said to measure engagement, generate items for theories without items, and combine these items into a survey instrument (for examples of similar procedures, see Hart, Wearing, Conn, Carter & Dingle, 2000; Hinkin, 1998; Spreitzer, 1995a).

4.1.1 Hinkin’s (1998) research methodology.

In Step 1, Hinkin (1998) contended it is important the sample of items adequately represents the construct, by deductive or inductive process. Hinkin (1998) contended ‘the theoretical foundation provides enough information to generate the initial set of items’ (p. 106). After the items are identified, their content validity should be assessed, with items deleted that are conceptually inconsistent. Hinkin advised Likert-type scales be used, preferably five-point. Overall, an inductive approach was taken in the current studies, as they explored potential contextual differences for engagement by testing items with different samples. Engagement items were generated...
from published studies of six theoretical constructs for engagement. Likert scales were used in each study.

In Step 2, Hinkin (1998) recommended administering a survey. In Study 2, surveys were administered to samples of nurses, doctors and business employees.

In Step 3, Hinkin (1998) recommended undertaking an initial item reduction and assessment of the internal consistency of the resulting items. These processes were undertaken in Study 2.

In Step 4, Hinkin (1998) recommended using confirmatory factor analyses. These analyses were conducted to test the different factor structures suggested by a purely theoretical approach and an empirical approach (Study 3).

In Step 5, Hinkin (1998) recommended convergent validity be assessed. Convergent validity was assessed between job satisfaction and a higher order model of the other aspects of engagement. Convergent validity was also assessed between the five factors of engagement (Study 3a). Discriminant validity was assessed between engagement and the other work constructs (Study 3b).

4.1.2 Assessing validity.

The statistical validity concerns the meaningfulness of research components and involves assessment of the degree to which components measure what they are intended to measure (Bollen, 1989). Researchers aim to produce strong support for the validity of their measures, however complete certainty is not possible. There are many different types of validity, with three main types: construct (including convergent and discriminant validity), criterion (including concurrent and predictive validity) and content (including representative and face validity) (Bollen, 1989; Cook & Campbell, 1979). Validity is different from reliability, which is the extent to which measurements provide consistent or reliable results. Reliability requires measurements to be similar,
but validity does not always. Thus, a measure can be valid, but not reliable, and vice-versa (Bollen, 1989; Cook & Campbell, 1979). Estimates of reliability and validity are reported in each of the current studies.

Construct validity refers to whether the measurement tools actually represent or measure the construct under investigation, and is the focus of Studies 3a and 3b, Chapters 6 and 7 (Polit & Beck, 2012). Constructs are abstract terms created by researchers to conceptualise latent variables, or variables that are not directly observed, but are inferred mathematically from other variables that are observed or measured directly (Tabachnick & Fidell, 2001). Construct validity is critical to the overall validity of a test (Schotte, Maes, Cluydts, Doncker & Cosyns, 1997). Construct validity comprises convergent and discriminant validity. Convergent validity tests how well two constructs meant to be related theoretically are related, as seen in Study 3a, Chapter 6 where convergent validity was assessed between job satisfaction and a higher order model of the other aspects of engagement. In contrast, discriminant validity tests whether measures meant to be unrelated are unrelated (Campbell, 1959). All of the current studies involve tests of construct validity for the measurement of engagement. Construct validity is assessed by two construct-validation processes: testing the convergence of different measures of the same construct and testing the divergence between measures of related but conceptually distinct constructs (Cook & Campbell, 1979). A potential problem with construct validity is common method variance, the overlap in variance between two variables due to the type of measurement instrument used rather than a relationship between the underlying constructs (Avolio, Yammarino & Bass, 1991).

Criterion or concrete validity refers to how well variables are shown to relate to concrete or ‘real life’ criteria (American Educational Research Association, Psychological Association & National Council on Measurement in Education, 1999). Specifically, it refers to the extent to which one measure estimates or predicts the values
of another measure or construct (Eaves & Woods-Groves, 2007). Eaves and Woods-Groves (2007) explained the first measure is usually referred to as the estimator or predictor variable, and the second the criterion variable when assessing whether measures are to be regarded valid. However, if neither measure shows well-developed evidence of validity, no genuine criterion validity exists. Criterion validity is assessed in Study 3 in Chapters 7 and 8 of this thesis.

Content validity is assessed by a non-statistical or qualitative method of ensuring indicators represent the meaning of a defined concept (Bollen, 1989). Content validity involves ‘the systematic examination of the test content to determine whether it covers a representative sample of the behaviour domain to be measured’ (Anastasi & Urbina, 1997, p. 114). That is, it refers to the extent to which a variable reflects all aspects of a particular construct. The evidence for content validity is found in the degree to which the content of the analysis corresponds with a content domain related to the construct. Typically, items are carefully chosen for analysis by subject matter experts who assess potential items against test specifications (Anastasi & Urbina, 1997; Bollen, 1989). The domain of most concepts in the social sciences is ambiguous and it is the researcher’s responsibility to ensure content validity (Bollen, 1989). As mentioned above in the information about Hinkin’s (1998) methodology, content validity assessment was undertaken in the current studies with students studying the degree Master of Organisational Psychology (Study 1), doctors and nurses (Studies 2 and 3).

4.2 Aims

The first aim of Pilot Study 1 was to collate existing items said to measure engagement from the literature. The second aim was to develop a working definition of engagement for use in the current studies based on the diverse theoretical findings about
engagement. The third aim was to assess the items as appropriate measures of engagement.

The following research questions were investigated:

**Research Question 1: Engagement constructs and measures:**

a: To what extent is engagement an individual or group measure or both?

b: To what extent is job satisfaction subsumed by engagement or is it a separate construct?

c: To what extent is burnout (represented by emotional exhaustion) a different construct to engagement?

As stated in Chapter 2, the Maslach Emotional Exhaustion nine-item subscale is generally considered the core dimension of the burnout index (Cox et al., 1993; Janssen et al., 1999; Maslach, 1993). The scale is often used as a single burnout measure in research (e.g., Janssen et al., 1999).

4.3 Method

All of the engagement items and theories found in the literature were drawn from the literature. Items were developed for the theories which had no items. All items were combined into a survey instrument (for examples of similar procedures, see Hart et al., 2000; Hinkin, 1998; Spreitzer, 1995a). A working definition of engagement was developed for use in the current studies based on the theories in the literature, as outlined below. A focus group was conducted in which the survey was administered and the research questions were posed. Items were assessed as to whether they were appropriate measures of engagement using content validity analysis, following Hinkin’s (1998) Step 1, item generation.
4.3.1 Working definition of engagement derived from the literature.

Seven different theories of engagement were identified in the literature, including job satisfaction. The theories were examined for commonality. While the theories differed in their orientations to job, role, task or organisation, the most common orientation was to role, consistent with Kahn’s (1990, 1992) definition of one’s cognitive and emotional attachment to one’s role. Thus, ‘role’ appeared to be the appropriate orientation for the working definition. There was a similarity among the definitions with respect to the cognitive and emotional aspects of engagement (Kahn, 1990, 1992). Goddard (1999, 2001) defined engagement as being ‘mentally present’. McCashland (2000) cited the Gallup Organization’s (1998a) definition of engagement, as stated by the Gallup Organization ‘an emotional outcome to critical components of the workplace’ (p. 15). Rothbard (1999) defined engagement in terms of attention to and absorption in a role, while Harter, Schmidt and Keyes (2003) defined engagement in relation to various cognitive and emotional antecedents in the workplace. Given the similarity among definitions with respect to the cognitive and emotional aspects of engagement, as well as to role, the working definition of engagement that emerged from the literature was:

the degree to which an employee is emotionally and cognitively attached to their role.

4.3.2 Participants.

Participants comprised 19 students of the Master of Organisational Psychology program at Macquarie University in 2005. These students had completed a three-year undergraduate degree in psychology and a one-year honours degree with a thesis in organisational psychology. They were in their fifth and sixth years of training as organisational psychologists. Hinkin (1998) advised ‘it may be appropriate to use a
small sample of students as this is a cognitive task not requiring an understanding of the phenomenon under examination’ (p. 109). However, during their course work, the students had studied various aspects of employee engagement which was considered appropriate to the study.

4.3.3 Procedure.

Participants read and responded to a survey. The research questions provided in the aims section were posed, as follows.

Participants were briefed about the background and concept of employee engagement, and the nature of the study. They were informed about the different ways in which engagement had been measured, and the debate about whether engagement is a valid higher order construct, or simply an amalgam of existing constructs, such as job satisfaction, commitment and intention to stay. The participants were informed that surveys of engagement were being used in organisations with the aim of increasing levels of engagement, since high levels of engagement had been linked with higher levels of performance and productivity.

The students were asked to participate in the survey and discussion and were assured this was voluntary. Their decision to participate (or not) would not affect their course results, and they could withdraw from the study at any stage without penalty. Participants were given a covering letter with the survey, which included the working definition of engagement and explained the items were from current instruments and theories in the literature for engagement. Items were grouped under the name of their scale or theory.

Respondents were asked to assess the content of items based on key words or themes they found in each scale and with the working definition of engagement in mind. In three separate tasks they were asked to categorise items and to answer the three
research questions listed in the Aims section (Hinkin (1998). Some key words from the scales were provided to help with each task. The tasks were as follows:

Task 1. Category: Individual/group/both.

Key words: individual, person, I/ group, team, member.

Question: To what extent is engagement an individual or group measure or both?


Key words: job satisfaction/positive, enthusiasm, connection.

Question: To what extent is job satisfaction subsumed by engagement or is it a separate construct?


Key words: burnout/positive, enthusiasm, connection.

Question: To what extent is burnout (represented by emotional exhaustion) a different construct to engagement?

Respondents verbally reported their responses in the group environment which were noted on an agreement index by the researcher and director of the Master of Organisational Psychology program, as multiple judges (see Anderson & Gerbing, 1991; Hinkin, 1998). Of 19 surveys distributed, 13 were returned, a response rate of 68%. The survey items are shown in Table 4.1.

4.3.4 Measures.

The survey consisted of 70 items, representing six measures of engagement, 19 job satisfaction items and three burnout items, as follows.

Kahn’s (1990, 1992). One item was used verbatim from each dimension of Kahn’s theoretical conceptualisation of engagement. Meaningfulness was represented by ‘I feel worthwhile, valued, valuable, feel able to give and receive from work and others in the course of work’. Safety was represented by ‘I feel situations are
trustworthy, secure, predictable and clear in terms of behavioural consequences’. Availability was represented by ‘I feel capable of driving physical, intellectual and emotional energies into role performance’.

**Psychological ownership.** For the psychological ownership construct, 10 items were used from McCashland (2000) and Rucci et al. (1998), who based their measures on those by Bagozzi (1992), Schneider et al. (1996) and Gallup Organization (1998a, 1998b). Some of the items were reworded to ensure no breach of copyright and to tailor them for the current studies. Items considered obviously generic and common to other measures in the literature (such as ‘I am proud to work here’) were used verbatim. The word ‘company’ was replaced with ‘organisation’ to cater for later studies in hospital settings and ‘friends and family’ was changed to ‘the people I care about’.

**Time use.** For the time use construct, two items were devised to represent the two facets of time use contended by Goddard (1999, 2001): organisation and task. Time focused on the task was represented by, ‘in my role, my time is spent focused on tasks and goals of the organisation’. Time focused on the organisation was represented by, ‘at work, I am physically and/or mentally present and focused on the goals of the organisation’.

**The Utrecht Work Engagement Scale.** The 17-item version of the Utrecht Work Engagement Scale which conceptualises engagement as the opposite of burnout (Schaufeli et al., 2002b) was used. Items representing the three factors included vigour, ‘when I get up in the morning, I feel like going to work’, dedication ‘to me, my job is challenging’ and absorption ‘when I am working, I forget everything around me’. The reliability and validity of the scale has been documented (see Bakker, Hakanen, Demerouti & Xanthopoulou, 2007; Gonzalez-Roma, Schaufeli, Bakker & Lloret, 2004; Langelaan, Bakker, van Dooran & Schaufeli, 2006; Llorens et al., 2006).
**Instrumentality.** One global item was developed to represent the conceptualisation of engagement as instrumentality, ‘my work tasks are instrumental to the attainment of my future goals’ (Miller & Brickman, 2004).

**Group engagement.** Engagement as a group measure was assessed by the Group Engagement Measure (MacGowan, 2003). The 37 items include multiple dimensions of engagement developed primarily from the social work literature. Several studies have demonstrated its reliability and predictive validity (MacGowan, 1997, 2000; MacGowan & Levenson, 2003). The measure is to be completed by group leaders for each member, who rate members’ levels of engagement. All items from the original scale were used because of the previously established construct validity of the scale, and because it was the only group measure found, and hence the substantial number of items could reasonably be compared with the other individual measures of engagement.

**Burnout.** Measures for burnout were included as a control. One item was included to represent each of the three dimensions and subscales in the original MBI, exhaustion ‘I feel used up at the end of the workday’, depersonalisation ‘I have become more callous towards people since I took this job’ and lack of accomplishment ‘I deal very effectively with the problems of my recipients’ (Maslach & Jackson, 1981).

**Job satisfaction.** A scale of job satisfaction was included, combining items from the traditional JDS (Hackman & Oldham, 1975) and JDI (Smith et al., 1987). These items were included to investigate the relationship between job satisfaction and the measures for engagement. The scale was developed by combining five items from each scale, measuring type of work, supervision, pay, promotions and co-workers. A further nine items were drawn from the work satisfaction literature, measuring task variety, task significance, autonomy and feedback. All 19 items were used because of the previously established construct validity and reliability of the scale, and the need for a substantial
number of traditional job characteristics against which to assess the newer engagement measures. The measures are in Table 4.1.
### Table 4.1

**Survey Items for Study 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feel worthwhile, valued, valuable, feel able to give and receive from work and others in the course of work</td>
<td>Meaningfullness</td>
<td>Kahn (1999, 1992)</td>
</tr>
<tr>
<td>2. Feel situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Safety</td>
<td>Kahn (1999, 1992)</td>
</tr>
<tr>
<td>3. Feel capable of driving physical, intellectual and emotional energies into role performance</td>
<td>Availability</td>
<td>Kahn (1999, 1992)</td>
</tr>
<tr>
<td>4. I’m proud to work here</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>5. I plan to be working here five years from now</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>6. I would recommend this organisation’s products and services to people I care about</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>7. I would recommend this organisation as a great place to work</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>8. I would recommend the purchase of this organisation’s products or services to the people I care about</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>9. There is opportunity for me to pursue my job and career interests here</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>10. I feel positive about the future of the organisation</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>11. The organisation continues development to compete effectively</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>12. I understand the strategic objectives of the organisation</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>13. I see a connection between my job and the organisation’s objectives</td>
<td>Psychological ownership</td>
<td>Schaufeli et al., McCashland (2000); Rucci et al., Goddard (1999, 1992)</td>
</tr>
<tr>
<td>14. At work, I am physically and/or mentally present at work and focused on the goals of the organisation</td>
<td>Time</td>
<td>Goddard (1999, 2001)</td>
</tr>
<tr>
<td>15. At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
<td>Goddard (1999, 2001)</td>
</tr>
<tr>
<td>16. When I get up in the morning, I feel like going to work</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>17. At my work, I feel bursting with energy</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>18. At my work I always persevere, even when things do not go well</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>19. I can continue working for very long periods at a time</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>20. At my job, I am very resilient mentally</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>21. At my job, I feel strong and vigorous</td>
<td>UWES Vigour</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>22. To me, my job is challenging</td>
<td>UWES Dedication</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>23. My job inspires me</td>
<td>UWES Dedication</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Author</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>I am enthusiastic about my job</td>
<td>UWES Dedication</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>I am proud of the work that I do</td>
<td>UWES Dedication</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>I find the work that I do full of meaning and purpose</td>
<td>UWES Dedication</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>When I am working, I forget everything around me</td>
<td>UWES Absorption</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>Time flies when I am working</td>
<td>UWES Absorption</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>I get carried away when I am working</td>
<td>UWES Absorption</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>It is difficult to detach myself from my job</td>
<td>UWES Absorption</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>I am immersed in my work</td>
<td>UWES Absorption</td>
<td>Schaufeli et al. (2002b)</td>
</tr>
<tr>
<td>My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>Miller and Brickman (2004)</td>
</tr>
<tr>
<td>The member arrives at or before start time</td>
<td>GEM Attendance</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member stays until the end of session or leaves only for important reasons</td>
<td>GEM Attendance</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member does not hurry to leave at the end of sessions</td>
<td>GEM Attendance</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member contributes his/her share of talking time (not too much, not too little)</td>
<td>GEM Contributing</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member seems to follow and understand what others are saying</td>
<td>GEM Contributing</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member responds thoughtfully to what all others are saying (not just one or two)</td>
<td>GEM Contributing</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member verbally interacts with other members on topics related to the group’s purpose</td>
<td>GEM Contributing</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member participates in group projects/activities</td>
<td>GEM Contributing</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member follows guidance of the worker (e.g. discusses what worker wants the group to discuss)</td>
<td>GEM Relating to worker</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member shows enthusiasm about contact with worker (e.g. demonstrates interest in the worker)</td>
<td>GEM Relating to worker</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member supports work that the worker is doing with other members (e.g. by staying on topic)</td>
<td>GEM Relating to worker</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member interferes with or contradicts work that the worker is doing with other members in destructive ways</td>
<td>GEM Relating to worker</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member shows enthusiasm for conversations with at least one other member</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member shows enthusiasm for conversations with at least two or more other members</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member likes and cares for other members</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member seems close to most (more than half) of the group’s members</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member helps other group members to maintain good relations with each other</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>The member helps and encourages other members</td>
<td>GEM Relating to member</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Author</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>52 The member expresses continual disapproval about the meeting times</td>
<td>GEM Contracting</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>53 The member expresses continual disapproval about the number of meetings</td>
<td>GEM Contracting</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>54 The member expresses continual disapproval about what the group members are doing together</td>
<td>GEM Contracting</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>55 The member expresses continual disapproval about member roles</td>
<td>GEM Contracting</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>56 The member expresses continual disapproval about worker roles, such as to facilitate group process</td>
<td>GEM Contracting</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>57 The member breaks down problems and works on their parts of the problem</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>58 The member works on achieving the problems of the group</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>59 The member makes an effort to achieve his/her particular goals</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>60 The member finds avenues to solutions to specific problems</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>61 The member works on solutions to specific problems</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>62 The member tries to understand the things that he/she does</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>63 The member reveals feelings that help to understand problems</td>
<td>GEM Own problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>64 The member talks with (encourages) others in ways that help them focus on their problems</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>65 The member talks with (encourages) others in ways that help them break down or specify their problems</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>66 The member talks with (encourages) others in ways that help them do constructive work on solving their problems</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>67 The member challenges others constructively in their efforts to sort out their problems</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>68 The member helps others focus on group goals</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>69 The member helps others attain group goals</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>70 The member helps others achieve the group’s purpose</td>
<td>GEM Others’ problems</td>
<td>MacGowan (1997)</td>
</tr>
<tr>
<td>71 My job allows a good amount of flexibility</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>72 I receive a good level of feedback</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>73 I have a good status within the organisation</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>74 There is a variety of tasks required by my job</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>75 There is opportunity for me to follow through my job to completion</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>76 I have a high level of independence in my job</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>77 My job is significant to the organisation</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>78 I have opportunities to set my own goals</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>79 Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Author</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>80  Your pay and conditions</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>81  I have good relationships with work colleagues/team members</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>82  I have opportunities for professional development</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>83  I have a good level of job security</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>84  Quality and timeliness of communication</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>85  There is a sense of fair play in my organisation</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>86  My skills are fully used to a great extent</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>87  I receive a good quality of supervision</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>88  My job is satisfying overall</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>89  The organisation overall</td>
<td>Job satisfaction</td>
<td>Hackman and Oldham (1975); Smith et al. (1987)</td>
</tr>
<tr>
<td>90  I feel used up at the end of the work day</td>
<td>Burnout</td>
<td>Maslach and Jackson (1981)</td>
</tr>
<tr>
<td>91  I have become more callous towards people since I took this job</td>
<td>Burnout</td>
<td>Maslach and Jackson (1981)</td>
</tr>
<tr>
<td>92  I deal very effectively with the problems of my recipients</td>
<td>Burnout</td>
<td>Maslach and Jackson (1981)</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b). GEM = group engagement measure (MacGowan, 1997). For burnout one item was devised for each dimension of the MBI in the following order: exhaustion, depersonalisation and lack of accomplishment (Maslach & Jackson, 1981). (n = 13; response rate 68%).
4.4 Results

Results are presented in terms of each of the research questions posed. The results of the surveys and agreement indexes were analysed by the researcher and director of the Master of Organisational Psychology program with respect to the working definition of the construct under development (Hinkin, 1998).

4.4.1 Research Question 1a: To what extent is engagement an individual or group measure or both?

In response to Research Question 1a, to what extent is engagement an individual or group measure or both, respondents classified individual and group items into separate categories. The results reflected findings in the literature of only one group measure in the literature. Respondents said because all scales, except one, applied to individuals, engagement should be considered an individual measure, and the Group Engagement Measure should be removed from future studies (MacGowan, 2003).

4.4.2 Research Question 1b: To what extent is job satisfaction subsumed by engagement or is it a separate construct?

In response to the second Research Question 1b, to what extent is job satisfaction subsumed by engagement or is it a separate construct, respondents classified engagement and job satisfaction items into separate categories. Respondents said there was insufficient distinction between job satisfaction and engagement items to remove the items at this stage. They said all other items should be retained for testing with sample populations before any further reduction of items could be undertaken in a valid way as there was no consensus in the literature.
4.4.3 Research Question 1c: To what extent is burnout (represented by emotional exhaustion) a different construct to engagement?

In response to Research Question 1c, to what extent is burnout (represented by emotional exhaustion) a different construct to engagement, respondents considered burnout fundamentally different from engagement as expected, and supporting findings in the literature that burnout is the conceptual antitheses of engagement (Schaufeli et al., 2002b). Respondents unanimously reported burnout was not a scale of engagement.

The respondents expressed opinions about the concept and construct of engagement and these qualitative data are provided in Appendix A. Thus, with the removal of the Group Engagement Measure items (MacGowan, 1997), the engagement measures were reduced from 89 to 51 for the following study (Study 2).

4.5 Discussion

Pilot Study 1 investigated how engagement operated at a time when there were diverse theories and no agreed definition of engagement. Constructs had been developed and used in both human service and business work (Gallup, 1998a; Kahn, 1990; Schaufeli et al., 2002b). The authors of some of the scales emphasised items had been regarded similarly in the psychometric tests conducted to develop the measures in many contexts, including business workers and with doctors and nurses in medical contexts (Buckingham & Coffman, 1999; Schaufeli et al., 2002b). However, other findings had shown the work of professionals differed from that of business employees (Morrow & Goetz, 1988; Seligman, 2002; Snizek, 1972). Work in medical and other clinical contexts specifically had been found to differ from business contexts in requiring a level of detachment (Bandura, 1990; Claire & Dufresne, 2004; Folger & Skarliciki, 1998). Such work is emotionally demanding and requires performing necessary evils not found in business contexts (Margolis & Molinsky, 2008; Maslach, 1982). The closely related
construct of burnout had required a separate scale for these contexts (Leiter & Schaufeli, 1996). Recently, researchers have observed context influences engagement and should be considered in research, particularly in uncertain contexts, such as medical (George, 2011; Parker & Griffin, 2011; Sonnentag, 2011).

Step 1 of Hinkin’s (1998) methodology for scale development was followed in this study, with the main aim to collate the existing measures and theories said to measure engagement in the organisational psychology literature in 2004 (Figure 4.1). Seven widely differing measures were found, demonstrating the lack of consensus on engagement. However, a working definition of engagement emerged from some themes common to the theories. These findings provide empirical support for assertions that engagement is a complex construct that needs further research because of the ‘bottom-up’ manner in which it had developed through practice, rather than through research (Macey & Schneider, 2008).

4.5.1 Limitations.

The main limitation of this study is combining the different engagement theories for assessment, which, in hindsight, was problematic. However, when Pilot Study 1 commenced in 2004, the aim was to clarify theories of engagement when there was no agreement on theory or indication one theory might dominate the literature. To have developed or selected a theory at this time was considered difficult to justify, given the intense debate and conflicting theories in the literature. The method of using the existing items as well as generating other items from existing theoretical constructs and testing the items inductively, may now seem unusual, given the weight of research reported in the literature since 2004. A more deductive way of conducting this study would have been similar to Soane et al. (2012) in their development of a model for engagement. Consistent with the current study, they conceptualised engagement as a higher order
latent variable. They used the existing theoretical conceptualisations of engagement from which to deduce three facets of engagement and then developed items for these facets.

In the current study, the definition of engagement provided to participants in the judgement task aimed to capture the higher order definition of engagement. As a result it may have been vague and may have led respondents to think they should respond personally about their own job. In their more deductive approach, Soane et al. (2012) developed definitions for each of their three facets of engagement prior to developing items. The judgement task given to participants in their studies is unclear.

As Hinkin states, there are disadvantages to the inductive method used in this study. The method relies heavily on post hoc factor analytical techniques. That is, rather than relying on the similar content of items, scale construction should be based on factor structure and item covariance. Factor analyses are reported in Study 2, in the next chapter. However, as Hinkin says, while items may group on the same factor, this does not ensure they measure the same theoretical construct. The results may contain extraneous content domains and factors are difficult to label due to this inductive approach (Hinkin, 1998).

Another limitation is the small number of participants giving opinions in a group environment where some social desirability bias may have occurred, which may have led to the unanimous results. However, their academic expertise was considered appropriate for this initial exploratory study, as recommended by Hinkin (1998).

The distinction between the antecedents of engagement and engagement itself was not apparent until the later work of Macey and Schneider (2008). The Kahn (1990), psychological ownership (McCashland, 2000; Rucci et al., 1998) and Gallup (1998a)
items are now regarded as antecedents. The use of these items may have caused theoretical incoherence in these studies.

The May et al. (2004) scale of engagement was omitted because items were sourced from the literature in February 2004, one month before the May, Gilson and Harter (2004) measure appeared in March. The oversight of having only one item to represent each of Kahn’s (1990, 1992) constructs, only two items for ‘time’ (Goddard, 1999, 2001), only one item for ‘instrumentality’ (Miller & Brickman, 2004) and only one item for each dimension of the burnout scale (Maslach, 1976) is now noted. At least three items should have been used for each construct (Paunonen & Jackson, 1985). Hinkin (1998) asserted items should be as simple and short as possible, in plain English, consistent in perspective, and avoid being double-barrelled. In hindsight, it may have been better to modify more items and either discard poorly worded or irrelevant items, or amend them to be suitably generic.

Comparing the group engagement items against the individual items may not have been appropriate as they are aiming to measure engagement at different levels and hence are clearly going to differ. It may have been appropriate to remove the item ‘organisation overall’ at the beginning of this study as it was too vague.

Stanton, Sinar, Balzer and Smith (2002) advise there are three key aspects of item quality to consider when reducing self-report scales:

1. internal item qualities—‘the properties of items that can be assessed in reference to other items on the scale or in reference to the scale’s summated scores’ (p. 169)
2. external item qualities—‘connections between the scale [or its individual items] and other constructs or indicators’ (p. 169)
3. judgemental item qualities—‘those issues that require subjective judgement and/or are difficult to assess in isolation of the context in which the scale is administered’ (p. 169).

A five-step process ensures this, which, in hindsight would have made the current research more rigorous. In addition, Scarpello and Campbell (1983) found a rating of overall job satisfaction may be a more inclusive measure of overall job satisfaction than summing the many item responses.

These are alternative approaches to the current research design. Future research may be advised to focus on an overall measure for engagement, reduce the length of self-report scales and focus on the quality of items (Scarpello & Campbell, 1983; Stanton et al., 2002).

4.5.2 Conclusions.

In 2004 there was no consensus on engagement as evidenced by diverse survey items for theoretical constructs found in the literature. The study found engagement was an individual measure that included job satisfaction and not burnout. There were 51 engagement items and three burnout items derived from Study 1. In the next study (Study 2) the items resulting from Study 1 were investigated with a heterogeneous group of business employees as well as nurses and doctors at four major metropolitan public hospitals in Sydney, Australia.
Chapter 5: Study 2—Engagement Items in Medical and Business Contexts

5.1 Introduction

This chapter reports the findings of Study 2, in which the survey items from Study 1 were administered to separate samples of business and medical employees. The study investigated one of the primary aims of this research, how measures of engagement derived from the literature would be regarded in medical and business contexts.

5.2 Aims

The first aim of Study 2 was to investigate whether a heterogeneous group of business workers would regard engagement differently to doctors and nurses. The second aim was to explore whether differences being tapped between these occupational contexts remained greater than differences between hospital contexts, that is, that different hospital settings did not produce significant contextual differences of their own. The third aim was to investigate potential differences in the way engagement was conceptualised between doctors and nurses. The fourth aim was to examine the relationship between burnout and engagement for both samples. Finally, the fifth aim was to reduce the number of items in preparation for development of a scale of engagement in medical contexts (Study 3). The following research questions were investigated:

5.2.1 Research Question 2: Engagement in business and medical contexts

a. How is engagement perceived in business and medical contexts?

b. How do differences within the medical context compare with differences between business and medical contexts?
5.3 Method

5.3.1 Participants.

Participants were 409 medical and business employees in Sydney. The business sample comprised a heterogeneous group of workers from approximately 200 businesses. The sample was recruited through business owners, with 217 of approximately 600 employees responding, a response rate of approximately 36%. Business respondents were drawn from employees in neighbouring businesses, a public relations firm, a local car dealership, a suite of serviced offices and various shopping centre businesses. The doctor and nurse sample was drawn from four major public hospitals, three of which were major teaching hospitals. Further details are given in Appendix B, Participants. The medical sample was recruited through the medical and nursing directors, and 192 of approximately 2,500 eligible doctors and nurses responded, a response rate of approximately 8%. Respondents included 104 nurses and 88 doctors.

5.3.2 Procedure.

The 51 engagement items and three burnout items from Study 1 were combined in a paper and electronic survey. The online version was developed and supported by the Macquarie University ‘Laurel’ software, through a student account. For each version, the same outline and working definition of engagement was provided in a covering letter, including an explanation of the nature of the study. Participants were advised in the covering letter that this was a voluntary and anonymous study conducted independently of participating organisations.

Participants were asked to rate each survey item for its relevance for inclusion in an engagement scale, defined as:
How well do you think each of the following items describes the concept of employee engagement, based on the working definition of engagement: the degree to which an employee is emotionally and cognitively attached to their role?

Four-point Likert scales were used, with 1 = not at all, 2 = somewhat, 3 = well, and 4 = highly.

Participants were not asked for their personal perception of work engagement, but the degree to which the item matched the definition provided. Hereafter, in the when describing this task of how engagement items were ‘endorsed’ or ‘regarded’ in the rest of this thesis this distinction is implied rather than restated.

Businesses distributed either the paper survey, with stamped self-addressed envelopes, or the online version to their staff. The hospital data was initially collected onsite at the first hospital by the researcher during nursing staff meetings. Participants were presented with a brief outline, in person, of the overall research project. Participants were invited in person to complete a paper survey and leave it in a collection box at the back of the room, or mail it to the researcher in a stamped self-addressed envelope provided. The same online survey was extended to nurses who had not already completed the previous paper version as well as to doctors. In three further hospitals, the same survey and covering letter with instructions were administered.

Paper and online versions of the survey were again made available to each hospital. Hospitals two and three elected to distribute the online version only and hospital four distributed both versions.
5.3.3 Materials.

The measures were derived from Study 1. That is, 33 individual engagement items representing five constructs of engagement, 19 job satisfaction items and three burnout items.

5.4 Results

Independent t-tests (2-tailed) were conducted to investigate the potential differences in mean ratings. Effect size of t-tests is measured using Cohen’s (1992) formula: $d = (\text{mean 1} – \text{mean 2})/SD$. According to Cohen’s guidelines, an effect size of .2 is small, .5 is moderate and .8 is large. Another way of interpreting $d$ is that it shows the difference between the two means in standard deviation units (Cohen, 1992).

There were 192 medical respondents and 221 business respondents. The medical group comprised 101 paper and 91 electronic responses. The business group comprised 124 paper and 97 electronic responses.

An investigation was conducted on the differences between contexts. The mean rating of each item was rank ordered for each group, medical and business. The means were compared for each group. While the same item was endorsed most strongly by both samples, other items were ranked differently, with the item fifth most highly endorsed by the medical sample being rated forty-sixth by the business sample.

Scatter plots of the total dataset ($N = 409$) with the full set of items showed considerable agreement between the two groups about items considered good examples of engagement and those considered not good examples, compared with considerable disagreement over items moderately endorsed (in the middle of the graph in Figure 5.1). An overall linear relationship between the means of business and medical data was found, with an $r$ value of .74 demonstrating a high correlation between the two samples (that is, how much the variance in one sample explained variance in the other). Hence,
at the bivariate level of analysis, there appeared to be little difference between the samples. The scatter plot shown in Figure 5.1 shows the item means for the business (corporate) and medical (hospital) samples, and identifies the least endorsed items (efficacy, enthusiasm, detachment and feeling used up) and the most highly endorsed item (‘I am proud of the work I do’).

![Figure 5.1](image)

*Figure 5.1.* The plots of the business (corporate) mean against the medical (hospital) mean for each item, with item labels identifying the items rated highest and lowest.

**5.4.1 Comparison of the business and medical contexts.**

Potential differences between the business and medical samples were first explored using t-tests and then by general linear modelling, as follows.
5.4.1.1 Independent t-tests

Independent t-tests were conducted to investigate the potential differences in mean ratings. When multiple comparisons are conducted through t-tests, this produces a problem known as the family wise error rate, that is, it increases the likelihood of producing significant findings due to chance (Tabachnick & Fidell, 2007). Bonferroni correction is a method used to control this problem. A strict Bonferroni adjustment is determined by dividing .05 by the number of items (.05/51 = .001). The items that satisfied this correction are indicated in the following tables by three asterisks. These t-tests were not conducted in order to reduce or select items, but rather to investigate the potential differences in mean ratings.

5.4.1.2 Research Question 2a: How is engagement perceived in business and medical contexts?

In response to Research Question 2a which asked how engagement is perceived in business and medical contexts, thirty-three of the 52 engagement items (63%) were statistically significant different ($p < .05$) between the medical and business samples. Of these items, 17 were at the Bonferroni adjustment of $< .001$, and two were equal to .001. One of the three burnout items, ‘I feel used up at the end of the work day’, was statistically significantly different between the two samples.

A medium effect size was found for six engagement items. Four of these items (24, 25, 26 and 27) were from the psychological ownership scale: ‘I feel good about the future of the organisation’, ‘The organisation is making the changes necessary to compete effectively’, ‘I understand our business strategy’ and ‘I see a connection between the work I do and the organisation’s strategic objectives’. One item was from the time scale: ‘At work, I am physically and/or mentally present and focused on the goals of the organisation’. One item was from Kahn’s (1990) measure: ‘I feel
worthwhile, valued, valuable, feel able to give and receive from work and others in the course of work’. The medical sample more strongly endorsed one engagement item: ‘To me, my job is challenging’ (Utrecht Work Engagement Scale) (Schaufeli et al., 2002b) and the one burnout item; however, each had a small effect size. Results of these t-tests (2-tailed) with their effect sizes ($d$) are provided in Table 5.1.
Table 5.1

T-test Results of the Engagement and Burnout Items for the Business v. Medical Samples

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale</th>
<th>Business M</th>
<th>Medical M</th>
<th>Business SD</th>
<th>Medical SD</th>
<th>d</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 When I get up in the morning, I feel like going to work</td>
<td>UWES Vigour</td>
<td>2.89</td>
<td>2.59</td>
<td>.94</td>
<td>.87</td>
<td>.32</td>
<td>3.35**</td>
</tr>
<tr>
<td>2 At my work, I feel bursting with energy</td>
<td>UWES Vigour</td>
<td>2.62</td>
<td>2.23</td>
<td>.88</td>
<td>.80</td>
<td>.45</td>
<td>4.67***</td>
</tr>
<tr>
<td>3 At my work, I always persevere, even when things do not go well</td>
<td>UWES Vigour</td>
<td>3.02</td>
<td>3.07</td>
<td>.80</td>
<td>.75</td>
<td>.06</td>
<td>.58</td>
</tr>
<tr>
<td>4 I can continue for very long periods at a time</td>
<td>UWES Vigour</td>
<td>2.75</td>
<td>2.75</td>
<td>.95</td>
<td>.98</td>
<td>0</td>
<td>.01</td>
</tr>
<tr>
<td>5 At my job, I am very resilient mentally</td>
<td>UWES Vigour</td>
<td>2.81</td>
<td>2.80</td>
<td>.78</td>
<td>.78</td>
<td>.01</td>
<td>.12</td>
</tr>
<tr>
<td>6 At my job, I feel strong and vigorous</td>
<td>UWES Vigour</td>
<td>2.67</td>
<td>2.49</td>
<td>.88</td>
<td>.76</td>
<td>.22</td>
<td>2.21*</td>
</tr>
<tr>
<td>7 To me, my job is challenging</td>
<td>UWES Dedication</td>
<td>2.76</td>
<td>3.01</td>
<td>.97</td>
<td>.75</td>
<td>.28</td>
<td>2.98**</td>
</tr>
<tr>
<td>8 My job inspires me</td>
<td>UWES Dedication</td>
<td>2.97</td>
<td>2.84</td>
<td>1.00</td>
<td>.82</td>
<td>.14</td>
<td>1.38</td>
</tr>
<tr>
<td>9 I am enthusiastic about my job</td>
<td>UWES Dedication</td>
<td>3.09</td>
<td>2.99</td>
<td>.85</td>
<td>.80</td>
<td>.12</td>
<td>1.26</td>
</tr>
<tr>
<td>10 I am proud of the work that I do</td>
<td>UWES Dedication</td>
<td>3.32</td>
<td>3.36</td>
<td>.75</td>
<td>.70</td>
<td>.06</td>
<td>.59</td>
</tr>
<tr>
<td>11 I find the work that I do full of meaning and purpose</td>
<td>UWES Dedication</td>
<td>3.06</td>
<td>3.11</td>
<td>.91</td>
<td>.78</td>
<td>.06</td>
<td>.60</td>
</tr>
<tr>
<td>12 When I am working, I forget everything around me</td>
<td>UWES Absorption</td>
<td>2.53</td>
<td>2.35</td>
<td>1.03</td>
<td>.92</td>
<td>.18</td>
<td>1.77</td>
</tr>
<tr>
<td>13 Time flies when I am working</td>
<td>UWES Absorption</td>
<td>2.88</td>
<td>2.83</td>
<td>.94</td>
<td>.84</td>
<td>.06</td>
<td>.54</td>
</tr>
<tr>
<td>14 I get carried away when I am working</td>
<td>UWES Absorption</td>
<td>2.63</td>
<td>2.39</td>
<td>.97</td>
<td>.90</td>
<td>.25</td>
<td>2.60**</td>
</tr>
<tr>
<td>15 It is difficult to detach myself from my job</td>
<td>UWES Absorption</td>
<td>2.13</td>
<td>2.12</td>
<td>.92</td>
<td>.97</td>
<td>.01</td>
<td>.10</td>
</tr>
<tr>
<td>16 I am immersed in my work</td>
<td>UWES Absorption</td>
<td>2.58</td>
<td>2.58</td>
<td>.95</td>
<td>.78</td>
<td>0</td>
<td>.03</td>
</tr>
<tr>
<td>17 I feel happy when I am working intensely</td>
<td>UWES Absorption</td>
<td>2.94</td>
<td>2.70</td>
<td>.85</td>
<td>.79</td>
<td>.29</td>
<td>2.98**</td>
</tr>
<tr>
<td>18 I am proud to work here</td>
<td>Psychological ownership</td>
<td>3.03</td>
<td>2.86</td>
<td>.95</td>
<td>.84</td>
<td>.19</td>
<td>1.90</td>
</tr>
<tr>
<td>19 I plan to be working here five years from now</td>
<td>Psychological ownership</td>
<td>2.41</td>
<td>2.38</td>
<td>1.13</td>
<td>1.10</td>
<td>.03</td>
<td>.29</td>
</tr>
<tr>
<td>20 I would recommend the products and services of this organisation to people I care about</td>
<td>Psychological ownership</td>
<td>3.09</td>
<td>2.79</td>
<td>.91</td>
<td>.90</td>
<td>.33</td>
<td>3.37**</td>
</tr>
<tr>
<td>21 I would recommend this organisation as a great place to work</td>
<td>Psychological ownership</td>
<td>3.02</td>
<td>2.64</td>
<td>.93</td>
<td>.96</td>
<td>.39</td>
<td>4.10***</td>
</tr>
<tr>
<td>Item</td>
<td>Scale</td>
<td>Business M</td>
<td>Medical M</td>
<td>Business SD</td>
<td>Medical SD</td>
<td>D</td>
<td>t</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>------------</td>
<td>-----------</td>
<td>-------------</td>
<td>------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>22</td>
<td>I would recommend the purchase of this organisation’s products and services to people I care about</td>
<td>Psychological ownership</td>
<td>3.04</td>
<td>2.65</td>
<td>.94</td>
<td>.93</td>
<td>.41</td>
</tr>
<tr>
<td>23</td>
<td>There is opportunity for me to pursue my job and career interests here</td>
<td>Psychological ownership</td>
<td>2.84</td>
<td>2.80</td>
<td>1.04</td>
<td>.88</td>
<td>.04</td>
</tr>
<tr>
<td>24</td>
<td>I feel good about the future of the organisation</td>
<td>Psychological ownership</td>
<td>2.92</td>
<td>2.39</td>
<td>1.00</td>
<td>.97</td>
<td>.52</td>
</tr>
<tr>
<td>25</td>
<td>The organisation is making the changes necessary to compete effectively</td>
<td>Psychological ownership</td>
<td>2.71</td>
<td>2.17</td>
<td>.98</td>
<td>1.00</td>
<td>.53</td>
</tr>
<tr>
<td>26</td>
<td>I understand our business strategy</td>
<td>Psychological ownership</td>
<td>2.96</td>
<td>2.25</td>
<td>.96</td>
<td>1.01</td>
<td>.68</td>
</tr>
<tr>
<td>27</td>
<td>I see a connection between the work I do and the organisation’s strategic objectives</td>
<td>Psychological ownership</td>
<td>2.98</td>
<td>2.31</td>
<td>.91</td>
<td>.99</td>
<td>.66</td>
</tr>
<tr>
<td>28</td>
<td>At work, I am physically and/or mentally present and focused on the goals of the organisation</td>
<td>Time</td>
<td>3.11</td>
<td>2.51</td>
<td>.85</td>
<td>.89</td>
<td>.66</td>
</tr>
<tr>
<td>29</td>
<td>At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
<td>3.01</td>
<td>2.61</td>
<td>.85</td>
<td>.88</td>
<td>.45</td>
</tr>
<tr>
<td>30</td>
<td>I feel worthwhile, valued, valuable, and able to give and receive from work and others in the course of work</td>
<td>Kahn Meaningfulness</td>
<td>3.20</td>
<td>2.72</td>
<td>.90</td>
<td>.87</td>
<td>.52</td>
</tr>
<tr>
<td>31</td>
<td>I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Kahn Safety</td>
<td>2.89</td>
<td>2.51</td>
<td>.93</td>
<td>.89</td>
<td>.41</td>
</tr>
<tr>
<td>32</td>
<td>I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>Kahn Availability</td>
<td>3.05</td>
<td>2.80</td>
<td>.86</td>
<td>.72</td>
<td>.31</td>
</tr>
<tr>
<td>33</td>
<td>My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>2.82</td>
<td>2.58</td>
<td>.95</td>
<td>.80</td>
<td>.27</td>
</tr>
<tr>
<td>34</td>
<td>Variety of tasks required by your job</td>
<td>Job satisfaction</td>
<td>2.60</td>
<td>2.68</td>
<td>.96</td>
<td>.90</td>
<td>.09</td>
</tr>
<tr>
<td>35</td>
<td>Opportunity to follow through your job to completion</td>
<td>Job satisfaction</td>
<td>3.08</td>
<td>2.76</td>
<td>.84</td>
<td>.82</td>
<td>.38</td>
</tr>
<tr>
<td>36</td>
<td>The significance of your job to the organisation</td>
<td>Job satisfaction</td>
<td>3.10</td>
<td>2.85</td>
<td>.86</td>
<td>.81</td>
<td>.30</td>
</tr>
<tr>
<td>37</td>
<td>The level of independence in your job</td>
<td>Job satisfaction</td>
<td>3.04</td>
<td>2.83</td>
<td>.88</td>
<td>.83</td>
<td>.24</td>
</tr>
<tr>
<td>38</td>
<td>The level of feedback you receive</td>
<td>Job satisfaction</td>
<td>2.98</td>
<td>2.59</td>
<td>.91</td>
<td>.91</td>
<td>.42</td>
</tr>
<tr>
<td>39</td>
<td>Opportunities to set your own goals</td>
<td>Job satisfaction</td>
<td>2.93</td>
<td>2.71</td>
<td>.96</td>
<td>.89</td>
<td>.24</td>
</tr>
<tr>
<td>40</td>
<td>Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>2.90</td>
<td>2.63</td>
<td>.95</td>
<td>.85</td>
<td>.29</td>
</tr>
<tr>
<td>41</td>
<td>Your pay and conditions</td>
<td>Job satisfaction</td>
<td>2.88</td>
<td>2.49</td>
<td>.92</td>
<td>.95</td>
<td>.41</td>
</tr>
<tr>
<td>42</td>
<td>Relations with colleagues/team members</td>
<td>Job satisfaction</td>
<td>3.08</td>
<td>3.14</td>
<td>.80</td>
<td>.77</td>
<td>.06</td>
</tr>
<tr>
<td>43</td>
<td>Opportunities for promotion</td>
<td>Job satisfaction</td>
<td>2.60</td>
<td>2.47</td>
<td>1.00</td>
<td>.89</td>
<td>.14</td>
</tr>
<tr>
<td>Item</td>
<td>Scale</td>
<td>M</td>
<td>SD</td>
<td>d</td>
<td>t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunities for professional development</td>
<td>Job satisfaction</td>
<td>2.99</td>
<td>2.85</td>
<td>.97</td>
<td>.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of job security</td>
<td>Job satisfaction</td>
<td>2.90</td>
<td>2.93</td>
<td>.92</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality and timeliness of communication</td>
<td>Job satisfaction</td>
<td>3.00</td>
<td>2.66</td>
<td>.91</td>
<td>.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sense of fair play in your organisation</td>
<td>Job satisfaction</td>
<td>3.08</td>
<td>2.61</td>
<td>.96</td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The extent to which your skills are fully used</td>
<td>Job satisfaction</td>
<td>3.04</td>
<td>2.81</td>
<td>.91</td>
<td>.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The quality of supervision you receive</td>
<td>Job satisfaction</td>
<td>2.89</td>
<td>2.63</td>
<td>.96</td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your status within the organisation</td>
<td>Job satisfaction</td>
<td>2.73</td>
<td>2.52</td>
<td>.92</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your job overall</td>
<td>Job satisfaction</td>
<td>3.06</td>
<td>2.86</td>
<td>.92</td>
<td>.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The organisation overall</td>
<td>Job satisfaction</td>
<td>2.89</td>
<td>2.47</td>
<td>.91</td>
<td>.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel used up at the end of the work day</td>
<td>Burnout</td>
<td>2.07</td>
<td>2.36</td>
<td>1.03</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have become less enthusiastic about my work</td>
<td>Burnout</td>
<td>1.94</td>
<td>1.91</td>
<td>1.05</td>
<td>1.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have less professional efficacy than I used to have</td>
<td>Burnout</td>
<td>1.79</td>
<td>1.64</td>
<td>.96</td>
<td>.89</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
Note: Cohen’s effect size is represented by $d$ and the t-test score by $t$. Significance at < .05 is indicated by *, at < .01 by **, and at < .001 by ***.
5.4.1.3 The factor structure of items for business and medical samples.

The underlying factor structure of the items for the business and medical samples was investigated. Respondents in the different contexts rated items differently for the question given, which may indicate respondents in the different contexts defined the word engagement differently. Items were grouped on one large factor for the business sample, representing all scales. In contrast, items were grouped on five factors for the medical sample, with a large factor for job satisfaction, three factors for the Utrecht Work Engagement Scale (Schaufeli, et al., 200b) and a factor representing psychological ownership and time items. However the results were not used further as outlined in the limitations section. The results are provided in Tables B.2 and B.3, Appendix B, The factor structure of items for business and medical samples.

5.4.2 Comparison of differences between and within hospital contexts.

While significant differences in the endorsement of engagement items were found between the business and medical samples, it was considered plausible that significant differences might also exist within the medical sample between employees in different hospitals, which could confound these contextual differences. A general linear model full factorial analysis was conducted to compare the three main samples: (i) the business sample, (ii) the medical sample from hospital one and (iii) the medical sample from hospital three. The other two of the four hospital samples were excluded because the datasets were too small for comparisons (n = 18 and n = 10). The contrast results were investigated to compare the business sample with both hospital samples, and the hospital samples with each other. These results provided a basis for assessing whether the business sample differed from the hospital samples, and whether the hospital samples differed from each other.
In response to Research Question 2b, which asked how differences within the medical context compare with differences between business and medical contexts, the means of thirty-nine of the 55 items (71%) showed significant differences between medical and business respondents. Eight (14.5%) also showed differences in the medical context (between hospitals), five being from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) and three from the job satisfaction scale (Hackman & Oldham, 1975; Smith, et al., 1987). These are indicated by a single asterisk in Table 5.2.

Six items from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) showed significant differences between hospitals, but not between medical and business contexts: At my work, I always persevere, even when things do not go well, I can continue working for very long periods of time, To me, my job is challenging, I am enthusiastic about my job, I find the work I do full of meaning and purpose and It is difficult to detach myself from my job.

To summarise the analyses conducted to compare the business and medical samples first used t-tests, finding statistically significant differences in the means of 34 items. Second, the general linear model using data from two of the hospital groups showed statistically significant differences between the business and medical contexts for 39 items, greater than the differences between the hospital contexts, Table 5.2. Note two different datasets were used in each analysis, which accounted for the change in variance.
Table 5.2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
<th>Business Mean (SD)</th>
<th>Hospital 1 Mean (SD)</th>
<th>Hospital 2 Mean (SD)</th>
<th>F-ratios</th>
<th>Partial $\eta^2$</th>
<th>$p$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 When I get up in the morning, I feel like going to work*</td>
<td>UWES Vigour</td>
<td>.90 (.95)</td>
<td>2.40 (.75)</td>
<td>2.72 (.92)</td>
<td>7.07</td>
<td>.038</td>
<td>.001</td>
</tr>
<tr>
<td>2 At my work, I feel bursting with energy</td>
<td>UWES Vigour</td>
<td>2.63 (.87)</td>
<td>2.05 (.80)</td>
<td>2.32 (.83)</td>
<td>12.32</td>
<td>.061</td>
<td>.000</td>
</tr>
<tr>
<td>3 At work, I always persevere, even when things do not go well</td>
<td>UWES Vigour</td>
<td>3.02 (.80)</td>
<td>2.86 (.69)</td>
<td>3.19 (.81)</td>
<td>3.45</td>
<td>.018</td>
<td>.033</td>
</tr>
<tr>
<td>4 I can continue working for very long periods at a time</td>
<td>UWES Vigour</td>
<td>2.75 (.95)</td>
<td>2.41 (.92)</td>
<td>2.97 (.98)</td>
<td>6.21</td>
<td>.033</td>
<td>.002</td>
</tr>
<tr>
<td>5 At my job, I feel strong and vigorous*</td>
<td>UWES Vigour</td>
<td>2.66 (.88)</td>
<td>2.24 (.68)</td>
<td>2.59 (.82)</td>
<td>5.91</td>
<td>.030</td>
<td>.006</td>
</tr>
<tr>
<td>6 To me, my job is challenging</td>
<td>UWES Vigour</td>
<td>2.77 (.96)</td>
<td>2.78 (.70)</td>
<td>3.10 (.82)</td>
<td>5.09</td>
<td>.027</td>
<td>.007</td>
</tr>
<tr>
<td>7 I am enthusiastic about my job</td>
<td>UWES Dedication</td>
<td>3.09 (.85)</td>
<td>2.72 (.72)</td>
<td>3.13 (.86)</td>
<td>5.11</td>
<td>.027</td>
<td>.006</td>
</tr>
<tr>
<td>8 When I am working, I forget everything around me*</td>
<td>UWES Absorption</td>
<td>2.53 (1.03)</td>
<td>2.10 (.87)</td>
<td>2.50 (.92)</td>
<td>4.42</td>
<td>.024</td>
<td>.013</td>
</tr>
<tr>
<td>9 I get carried away when I am working*</td>
<td>UWES Absorption</td>
<td>2.63 (.97)</td>
<td>2.14 (.91)</td>
<td>2.49 (.89)</td>
<td>6.21</td>
<td>.033</td>
<td>.002</td>
</tr>
<tr>
<td>10 I feel happy when I am working intensely*</td>
<td>UWES Absorption</td>
<td>2.94 (.84)</td>
<td>2.47 (.68)</td>
<td>2.80 (.82)</td>
<td>7.78</td>
<td>.041</td>
<td>.000</td>
</tr>
<tr>
<td>11 I would recommend the products and services of this organisation to people I care about</td>
<td>Psychological ownership</td>
<td>3.09 (.91)</td>
<td>2.72 (.99)</td>
<td>2.77 (.86)</td>
<td>6.48</td>
<td>.034</td>
<td>.002</td>
</tr>
<tr>
<td>12 I would recommend this organisation as a great place to work</td>
<td>Psychological ownership</td>
<td>3.02 (.92)</td>
<td>2.69 (.99)</td>
<td>2.49 (.95)</td>
<td>12.00</td>
<td>.061</td>
<td>.000</td>
</tr>
<tr>
<td>13 I would recommend the purchase of this organisation’s products and services to people I care about</td>
<td>Psychological ownership</td>
<td>3.05 (.93)</td>
<td>2.57 (.97)</td>
<td>2.60 (.95)</td>
<td>10.84</td>
<td>.056</td>
<td>.000</td>
</tr>
<tr>
<td>14 I feel good about the future of this organisation</td>
<td>Psychological ownership</td>
<td>2.93 (.99)</td>
<td>2.29 (.84)</td>
<td>2.27 (.99)</td>
<td>20.33</td>
<td>.100</td>
<td>.000</td>
</tr>
<tr>
<td>15 This organisation is making the changes necessary to compete effectively</td>
<td>Psychological ownership</td>
<td>2.72 (.97)</td>
<td>2.17 (.94)</td>
<td>2.03 (.97)</td>
<td>19.97</td>
<td>.098</td>
<td>.000</td>
</tr>
<tr>
<td>16 I understand our business strategy</td>
<td>Psychological ownership</td>
<td>2.97 (.96)</td>
<td>2.16 (.89)</td>
<td>2.13 (1.0)</td>
<td>33.17</td>
<td>.153</td>
<td>.000</td>
</tr>
<tr>
<td>17 I see a connection between the work I do and the organisation’s strategic objectives</td>
<td>Psychological ownership</td>
<td>2.99 (.91)</td>
<td>2.22 (.88)</td>
<td>2.21 (1.0)</td>
<td>30.46</td>
<td>.142</td>
<td>.000</td>
</tr>
<tr>
<td>18 At work, I am physically and/or mentally focused on the goals of the organisation</td>
<td>Time</td>
<td>3.12 (.84)</td>
<td>2.55 (.86)</td>
<td>2.39 (.91)</td>
<td>27.46</td>
<td>.130</td>
<td>.000</td>
</tr>
<tr>
<td>19 At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
<td>3.01 (.85)</td>
<td>2.53 (.90)</td>
<td>2.52 (.89)</td>
<td>14.32</td>
<td>.072</td>
<td>.000</td>
</tr>
<tr>
<td>20 I feel valued, valuable, and able to give and receive from work and others in the course of work</td>
<td>Meaningfulness</td>
<td>3.21 (.90)</td>
<td>2.60 (.72)</td>
<td>2.67 (.91)</td>
<td>18.38</td>
<td>.091</td>
<td>.000</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Business Mean (SD)</td>
<td>Hospital 1 Mean (SD)</td>
<td>Hospital 2 Mean (SD)</td>
<td>F-ratios</td>
<td>Partial $\eta^2$</td>
<td>$p$ value</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----------</td>
<td>--------------------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>----------</td>
<td>-----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Variable 21: I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Safety</td>
<td>2.90 (.92)</td>
<td>2.29 (.73)</td>
<td>2.49 (.90)</td>
<td>14.06</td>
<td>.071</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 22: I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>Availability</td>
<td>3.05 (.86)</td>
<td>2.66 (.58)</td>
<td>2.79 (.76)</td>
<td>7.29</td>
<td>.038</td>
<td>.001</td>
</tr>
<tr>
<td>Variable 23: My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>2.82 (.95)</td>
<td>2.52 (.71)</td>
<td>2.55 (.81)</td>
<td>4.53</td>
<td>.024</td>
<td>.011</td>
</tr>
<tr>
<td>Variable 24: Opportunity to follow through your job to completion</td>
<td>Job satisfaction</td>
<td>3.08 (.83)</td>
<td>2.66 (.76)</td>
<td>2.76 (.83)</td>
<td>.90</td>
<td>.047</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 25: The significance of your job to the organisation</td>
<td>Job satisfaction</td>
<td>3.10 (.86)</td>
<td>2.72 (.74)</td>
<td>2.84 (.86)</td>
<td>6.35</td>
<td>.033</td>
<td>.002</td>
</tr>
<tr>
<td>Variable 26: The level of independence in your job</td>
<td>Job satisfaction</td>
<td>3.04 (.88)</td>
<td>2.66 (.76)</td>
<td>2.91 (.84)</td>
<td>4.81</td>
<td>.026</td>
<td>.009</td>
</tr>
<tr>
<td>Variable 27: The level of feedback you receive</td>
<td>Job satisfaction</td>
<td>2.98 (.90)</td>
<td>2.43 (.75)</td>
<td>2.52 (.94)</td>
<td>14.10</td>
<td>.071</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 28: Opportunities to set your own goals*</td>
<td>Job satisfaction</td>
<td>2.93 (.95)</td>
<td>2.41 (.77)</td>
<td>2.73 (.91)</td>
<td>7.58</td>
<td>.040</td>
<td>.001</td>
</tr>
<tr>
<td>Variable 29: Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>2.91 (.95)</td>
<td>2.40 (.79)</td>
<td>2.67 (.87)</td>
<td>8.10</td>
<td>.042</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 30: Your pay and conditions</td>
<td>Job satisfaction</td>
<td>2.88 (.91)</td>
<td>2.24 (.80)</td>
<td>2.54 (.10)</td>
<td>12.64</td>
<td>.064</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 31: Opportunities for promotion</td>
<td>Job satisfaction</td>
<td>2.61 (1.0)</td>
<td>2.26 (.76)</td>
<td>2.51 (.95)</td>
<td>3.14</td>
<td>.017</td>
<td>.045</td>
</tr>
<tr>
<td>Variable 32: Quality and timeliness of communication*</td>
<td>Job satisfaction</td>
<td>3.00 (.91)</td>
<td>2.38 (.77)</td>
<td>2.68 (.10)</td>
<td>12.23</td>
<td>.062</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 33: Sense of fair play in your organisation</td>
<td>Job satisfaction</td>
<td>3.08 (.95)</td>
<td>2.38 (.87)</td>
<td>2.60 (.11)</td>
<td>15.32</td>
<td>.077</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 34: The extent to which your skills are used*</td>
<td>Job satisfaction</td>
<td>3.05 (.91)</td>
<td>2.50 (.80)</td>
<td>2.90 (.85)</td>
<td>8.89</td>
<td>.046</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 35: The quality of supervision you receive</td>
<td>Job satisfaction</td>
<td>2.90 (.95)</td>
<td>2.55 (.78)</td>
<td>2.54 (.10)</td>
<td>6.34</td>
<td>.033</td>
<td>.002</td>
</tr>
<tr>
<td>Variable 36: Your status within the organisation</td>
<td>Job satisfaction</td>
<td>2.75 (.92)</td>
<td>2.31 (.57)</td>
<td>2.55 (.91)</td>
<td>6.25</td>
<td>.033</td>
<td>.002</td>
</tr>
<tr>
<td>Variable 37: Your job overall</td>
<td>Job satisfaction</td>
<td>3.06 (.92)</td>
<td>2.72 (.70)</td>
<td>2.85 (.80)</td>
<td>4.36</td>
<td>.023</td>
<td>.013</td>
</tr>
<tr>
<td>Variable 38: The organisation overall</td>
<td>Job satisfaction</td>
<td>2.90 (.91)</td>
<td>2.38 (.72)</td>
<td>2.39 (.94)</td>
<td>15.28</td>
<td>.077</td>
<td>.000</td>
</tr>
<tr>
<td>Variable 39: I feel used up at the end of the workday</td>
<td>Burnout</td>
<td>2.07 (1.0)</td>
<td>2.55 (.99)</td>
<td>2.30 (1.1)</td>
<td>5.57</td>
<td>.029</td>
<td>.004</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
Note: Eight items were significantly different between hospitals and are marked * after the item name. ** The df, error df for the business medical contrasts was 2,313 for all items.
5.4.3 Nurse and doctor groups.

Independent t-tests were conducted to investigate differences in the responses between the doctor and nurse groups. Only eight of the 51 engagement items (16%) showed significant differences (< .05), with no items at the Bonferroni adjustment of < .001. The effect sizes were small (d < .5). The nurse group endorsed all items more strongly than the doctor group. See Table B.1 (Appendix B).

5.4.3.1 Research Question 2b: How do differences within the medical context compare with differences between business and medical contexts?

In further response to Research Question 2b, which asked how differences within the medical context compare with differences between business and medical contexts, differences were not found between hospitals or between doctors and nurses. The differences between business and medical contexts remained greater than other differences.

5.4.4 Initial reduction of the engagement items.

Based on the previous studies, evidence had been found to indicate the existence of significant differences between the business and medical contexts, and little difference between the medical groups. Following Step 3 of Hinkin’s (1998) methodology, an initial item selection process was conducted with the medical sample, in preparation for the final survey and item selection in Study 3 (Chapter 6). First, the means were examined to determine the items most highly endorsed by nurses and doctors. Second, items were sought with low standard deviation values, indicating a high level of agreement among doctors and nurses. Third, the data were assessed with a graph of the mean ratings (Figure 5.2). The means were ranked from high to low and joined by lines in to detect where there were clear drops in the means. The item numbers are shown on the x-axis. Item 10 was regarded as the most appropriate item for
medical engagement, and items 35 and 36 were regarded as the least appropriate item for medical engagement. Plotting the means in this way enabled the detection of discontinuities in the mean ratings of the items.
Figure 5.2. Aggregated means for items for doctors and nurses from all hospitals, from highest to lowest.
There was a clear drop in the mean of items after the fortieth item (item 31). The first 40 items also provided a satisfactory representation of subscales other than ‘time’ and ‘instrumentality’. Forty items was considered a feasible number of items to ask participants to answer in a full survey, in consideration of the concern too many items might cause participants not to complete the survey. There is a substantial value in adding items to subscales until the scale has three to four items, after which improvements in internal psychometric qualities sharply reduce (Paunonen & Jackson, 1985; Peterson, 1994). Therefore a third item was developed for the time subscale: ‘In my role, my time is spent focused on tasks and goals of the organisation’.

The single item for instrumentality, which had appeared in the first 40 items, was deleted and not used in future analyses, thus retaining 40 items, due to the new time item.

Thirteen of the 17 Utrecht Work Engagement Scale (Schaufeli et al., 2002b) items appeared in the first 40 items. The three burnout items were weakly endorsed as good measures of the working definition of engagement (Maslach & Jackson, 1981) and were not included in the survey.

The 40 engagement items showed excellent internal consistency, with a Cronbach’s reliability alpha of .96 for the combined doctor and nurse sample, .97 for nurses and .96 for doctors (Cronbach & Meehl, 1955). Thus, the 40 items with highest mean scores of the 55 items were retained, Table B.4, Appendix B.

5.5 Discussion

The main contribution of the study was to investigate whether business workers would regard engagement differently than doctors and nurses in four major public hospitals. Respondents rated most engagement survey items differently in business and medical contexts, supporting recent findings of such differences (Albrecht, 2010;
George, 2011). The items developed predominantly in business contexts were more highly endorsed as measures of engagement by business participants than by medical participants, for example: At work, I am physically focused on a task, issue or problem related to the organisation, I see a connection between the work I do and the organisation’s strategic objectives, I understand our business strategy and the organisation is making the changes necessary to compete effectively. These results may support findings business workers focus on organisational goals, while medical workers focus more on patient outcomes, and find their work more emotionally tiring (Goddard, 1999, 2001; Maslach & Jackson, 1981; Taylor, 1947). The finding that six of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) items were endorsed differently by business and medical samples may support other findings the measure may not be invariant across these contexts (Mauno et al., 2007; Seppala et al., 2009).

Another aim of this study was to ensure differences being tapped between occupational contexts remained greater than differences between hospital contexts, that is, that the hospital settings did not produce significant contextual differences of their own. The two hospital samples were congruent in the way they conceptualised engagement, they were more alike than different, and were more different to the business population than they were between hospital contexts. The eight items differing between hospitals were all more highly endorsed by hospital number two. These items included vigour, absorption, opportunities to set one’s own goals, communication from management and the extent to which one’s skills are used. Hospital number two was smaller and had fewer infrastructures than hospital number one which may explain those differences. These results support findings that reduced infrastructure allows clinicians to follow their professional values and to encounter less conflict with the business values of hospitals (Cole & Carlin, 2009). These results support the argument
that a scale for engagement in medical contexts would generalise across hospital contexts.

Another aim was to create a 40-item engagement scale for medical contexts for Study 3. Five of the original six scales, except ‘instrumentality’, were represented by at least three items in the final 40 items. Four Utrecht Work Engagement Scale (Schaufeli et al., 2002b) items did not appear which is consistent with recent findings of problems of overengagement and compromised professional ethics in medical contexts (Bakker et al., 2011a; Cole & Carlin, 2009; George, 2011). That is, the wording of these items could have these negative connotations in medical contexts by showing unhealthy levels of overengagement: At work, I feel bursting with energy, When I am working, I forget about everything around me, I get carried away when I am working and It is difficult to detach myself from my job.

The finding job satisfaction items were highly relevant to doctors and nurses may support observations that engagement subsumes the construct (Macey & Schneider, 2008). The job satisfaction items were originally included in Study 1 (in 2004) to test the criterion validity of engagement constructs. These items were retained through Studies 1 and 2. The consensus provided by Macey and Schneider (2008) coincided with the retention of these items at the end of Study 2 as engagement items.

The retention of the three items from Kahn (1990, 1992) demonstrates how relevant this original theory of engagement remains, including in medical contexts. Results demonstrate support for the theory that doctors and nurses consider burnout to differ from engagement (Schaufeli & Bakker, 2004). The results that doctors and nurses generally considered the items developed in business contexts least related to engagement further demonstrates the need for a separate scale for engagement in
medical contexts. Hence, this preliminary item selection was largely consistent with theoretical findings.

5.5.1 Limitations.

As in Study 1, the definition of engagement in the judgement task could be regarded as vague. Participants may have responded to the survey items personally, how engagement applied to themselves in their jobs, rather than objectively as to how strongly they thought the survey items were related to the definition of engagement. In hindsight, the definition of engagement in the judgement task may have created misunderstanding. The items were not intended to describe but to measure engagement.

The differential use of paper and electronic surveys raises the question of equivalence. The differences between the two methods were not tested, posing a limitation. There is some evidence that paper and online surveys yield similar results (Dolnicar, Laesser & Matus, 2009: Van de Looij-Jansen & Jan de Wilde, 2008). Online and mailed data have been found to differ from population census data to the same extent, with no differences in the contamination of data. A lower dropout rate and less incomplete data are found in online surveys. Van de Looij-Jansen and Jan de Wilde (2008) note systematic biases are found in both methods due to format-specific self-selection of respondents to participate. They advise multi-method survey approaches as the most reliable form of data collection, as was conducted in the current studies.

The business organisations ranged from small to medium (approximately 50 to several hundred employees each) compared with the large sized hospitals (several thousand employees in each) and this difference in population size may have influenced results. However, the business samples were treated as a combined heterogeneous population which may have reduced some of this influence.
In hindsight a limitation of the study conducted in 2004 was the reduction of items by ranking the means of items and determining a cut-off point. This method would now be considered unorthodox by some (though not all) contemporary researchers. These researchers might argue that a better method might have been to use the results of the factor analyses and further psychometric analyses. However, at the time of the analysis the factor structure of the data reported here was considered virtually meaningless, as it does not draw upon the ratings of the extent to which items are relevant to measuring engagement, but on their perceived relevance to the construct of engagement. Thus, there should be one factor, which represents the construct ‘suitability’ (i.e., relevance to the construct of engagement). The psychometric limitations of this study have been respected by undertaking as much effort as possible to substantially and rigorously re-analyse and re-interpret the data that were collected, using a more current, theoretical and rigorous approach in the next Study 3 (Anderson & Gerbing, 1988; Byrne, 2010; Kline, 2011, 2012; Tabachnick & Fidell, 2001, 2007). Recognised processes for this early stage of scale construction in this Study 2 could have been used as found in contemporary research (Amundsen & Martinsen, 2014). The factor analyses have been included in this study to demonstrate the full reasoning behind the process of scale construction that was carried out.

While the 40 engagement items derived in this study showed excellent internal consistency, Cronbach’s reliability alphas are always high for long scales. Another limitation was the single item for instrumentality was accidentally overlooked and thus was not represented by three items as no further items were included for this theory of engagement (Miller & Brickman, 2004). Thus, the instrumentality theory of engagement was not properly investigated in this series of studies (Paunonen & Jackson, 1985; Peterson, 1994).
Some items were business-focused and hence may have been considered less appropriate in healthcare settings. Business respondents may have rated these items more highly due to the wording being relevant to them rather than their conceptualisation of engagement. At the time, this problem was considered unavoidable due to the approach taken of drawing items verbatim from the literature. In hindsight, it may have been better to modify items to make them more generic earlier in the design. The differences between contexts may have been argued more convincingly if generic items applicable to both contexts had shown differences. However, it is also noted the same results were found for other items and hence the pattern of results holds. Further, the authors of these items emphasise they were developed across different contexts and are regarded similarly by business employees and doctors and nurses (Buckingham & Coffman, 1999; Schaufeli & Bakker, 2003). The measures have since been used by researchers across medical and business contexts (Janssen, Jonge & Bakker, 1999; Mauno et al., 2005; McCashland, 2000).

The limitation of all three psychological conditions for engagement from Kahn (1990, 1992) having only one item continues to be a problem in this study.

5.5.2 Conclusions.

These results provide further support that business and medical employees’ attitudes towards their workplace engagement might be more effectively measured differently in each context, and that contextual differences override differences in hospital contexts. The results suggest high work engagement as defined in a business context may not be appropriate for medical employees, and requires more attention (George, 2011; Margolis & Molinsky, 2008; Sonnentag, 2011). In Study 3 the 40-item scale was investigated to reduce the items to factors pertinent to medical contexts.
Chapter 6: Study 3a—Development of a Scale for Engagement in Medical Contexts

6.1 Introduction

In the previous studies, items said to measure engagement were drawn from the literature, administered to business and medical employees and significant differences were found in responses between these contexts. A 40-item engagement scale was developed for medical context employees. The current Study 3 was conducted in public hospitals in NSW that did not participated in Study 2. Study 3 is divided into parts 3a and 3b. The results of part 3a are reported in this chapter and of part 3b in the next chapter 7. The aims and method common to both parts of the same study 3 are reported in this chapter as follows.

6.2 Aims

The first aim of Study 3a was to use theoretically guided analyses to investigate the 40 items derived from Study 2 as factors of a scale for engagement. These analyses particularly aimed to explore the relationship between job satisfaction and other theories of engagement. The second aim of Study 3a was to use empirical analyses to develop a scale of engagement from the 40 items derived from Study 2. The following research questions were investigated in Study 3a, this chapter:

Research Question 3a: To what extent are job satisfaction and engagement positively related?

Research Question 3b: What is an appropriate model for engagement in medical contexts?
The first aim of Study 3b, the hypotheses and results of which are reported in the next Chapter 7, was to investigate the relationships between engagement and related constructs climate, empowerment and negative affectivity in a path model of engagement.

The second aim of Study 3b was to explore whether the relationship between climate and engagement would be partially mediated by empowerment in the medical context, whereas total mediation had been found in the business context (Carless, 2004). Carless found climate did not directly influence job satisfaction. In the current study, it was expected climate would have both a direct and indirect influence on engagement and only partial mediation would occur. A model for job satisfaction was adapted for use in the research design because it includes some variables of interest: psychological climate, empowerment and job satisfaction (Figure 7.1) (Carless, 2004; Laschinger, 2008; Leiter et al., 2011). Carless (2004) measured job satisfaction with facets drawn from the Job Descriptives Index, as did the current study (Smith et al., 1987).

The third aim of Study 3b was to examine the engagement path model with the addition of intrinsic motivation and burnout, represented by emotional exhaustion. This additional analysis was conducted to respect the medical context and the relevance of these constructs, and in the interest of moving the literature forward. Intrinsic motivation and burnout have been of interest in the literature, but no evidence could be found of their inclusion in models of engagement (Janssen et al., 1999; Maslach et al., 2001; McNeese-Smith, 1999). The psychological climates of hospitals directly influence burnout and intrinsic motivation, which subsequently influence engagement (Finegan & Laschinger, 2001; Laschinger et al., 2011; Wang et al., 2011). Intrinsic motivation has been found to be positively related to engagement and empowerment in medical contexts (Janssen et al., 1999; Maslach et al., 2001; McNeese-Smith, 1999).
Emotional exhaustion is known to be caused by the emotional and demanding nature of work for doctors and nurses, and is the major cause of turnover (Maslach et al., 2001; Schaufeli et al. 2002a; Schaufeli et al., 2002b; Van Dierendonck et al., 1994). Empowerment has been consistently related with decreased nurse burnout (Laschinger et al., 2011; Li et al., 2008; Wang et al., 2011). These aims led to the predictions and results presented in Study 3b, Chapter 7.

### 6.3 Method

A survey was conducted in public hospitals in NSW that did not participate in Study 2. The 40-item engagement scale and other related constructs were included in the survey (Appendix C).

#### 6.3.1 Participants.

The participants comprised doctors and nurses employed in 112 of 220 NSW public hospitals. The total population of doctors and nurses targeted was approximately 77,693. Respondents were 546, a response rate of .70%. There were a total of 392 nurses (of approximately 44,034) and 154 doctors (of approximately 33,659). These figures were derived from various resources at the NSW State Government, and were all for 2009, the most recent figures available. The figures were published in the *NSW Department of Health Annual Report 2011/12* (NSW State Government, 2012), *NSW Health Budget 2010/11* (NSW State Government, 2011), *Profile of the Medical Workforce in NSW 2009* (NSW State Government, 2010a) and *Profile of the Nursing Workforce in NSW 2009* (NSW State Government, 2010b).

Of the nurse respondents, there were 343 females and 49 males, 284 worked full-time and 108 part-time, 366 were permanent and 26 not permanent workers, 323 worked solely in public hospitals and 69 did not. They were predominantly aged 40-60 years. Tenure was predominantly over 10 years (See Table 6.1).
Table 6.1

Demographic Characteristics of Nurse and Doctor Respondents

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Total population (N = 546)</th>
<th>Nurse (n = 392)</th>
<th>Doctor (n = 154)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>424</td>
<td>77.7</td>
<td>343</td>
</tr>
<tr>
<td>Male</td>
<td>122</td>
<td>22.3</td>
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<td><strong>Employment type</strong></td>
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<tr>
<td>Full time</td>
<td>410</td>
<td>71</td>
<td>284</td>
</tr>
<tr>
<td>Part time</td>
<td>120</td>
<td>22</td>
<td>94</td>
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<tr>
<td>Job share</td>
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</tr>
<tr>
<td><strong>Employment status</strong></td>
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<tr>
<td>Permanent</td>
<td>473</td>
<td>86.8</td>
<td>366</td>
</tr>
<tr>
<td>Temporary/fixed-term contract</td>
<td>66</td>
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<td>22</td>
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<tr>
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<td>.2</td>
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<tr>
<td>Senior</td>
<td>216</td>
<td>39.6</td>
<td>134</td>
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<tr>
<td>Junior</td>
<td>330</td>
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<td>Vocational training at TAFE* or similar</td>
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<tr>
<td>20–30</td>
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<td>40–60</td>
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<td>Above 60</td>
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<td><strong>Years with current employer</strong></td>
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</tr>
<tr>
<td>Under 1</td>
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<td>21</td>
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<tr>
<td>1–2</td>
<td>48</td>
<td>8.8</td>
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<td>2–3</td>
<td>44</td>
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<td>3–4</td>
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<td>4–5</td>
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<td>4.8</td>
<td>18</td>
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<tr>
<td>5–10</td>
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<tr>
<td>Over 10</td>
<td>227</td>
<td>41.6</td>
<td>188</td>
</tr>
</tbody>
</table>

Note: * TAFE = Technical and further education.

Further information about the data on participants is provided in Appendix C.

Frequencies for respondents’ main hospital of work and speciality of work are provided in Tables C.1 and C.2, Appendix C. In summary, the largest number of participants per
hospital was from St George \((n = 50)\), then Liverpool \((n = 46)\) and Westmead \((n = 41)\). The largest number of participants per area of work was general medicine \((n = 54)\), surgery \((n = 34)\) and emergency \((n = 33)\). The qualitative data on empowerment and disempowerment are provided in Tables E.1 and E.2, Appendix E. The general comments data are provided in Table E.3, Appendix E.

6.3.2 Response representativeness.

The following analyses were conducted to examine the representativeness of the data. The 2009 Profile of the Nursing and Midwives Workforce in NSW (NSW State Government, 2010b) reported 39,819 female and 4,215 male nurses in NSW. A chi-squared test was conducted to examine whether the proportion of male and female nurses in the current study was representative of the wider nursing population. Significant difference from the null hypothesis is indicated when the calculated chi-squared value is greater than the value shown in the chi-squared table \(\chi^2 \text{value} > 3.84\) \#df = 1; \#p = .05). It was not significant showing the sample of nurses was representative of the NSW nursing population, Table C.3 (Appendix C).

The Profile of the Medical Workforce in NSW 2009 (NSW State Government, 2010b) reported 12,617 (37.48%) female and 21,042 (62.51%) male doctors. Conversely, in the current study, 52.6% of respondents were female and 47.4% were male. The chi-squared value was greater than the value shown in the chi-squared table \(6.64\) \#df = 1; \#p = .05). Hence, the doctor data were not representative of the population, with a higher percentage of female doctors responding to the survey than would have been expected to represent the wider doctor population, Table C.4 (Appendix C).
6.3.3 Procedure.

An online survey was provided to the personal assistants of Directors of Nursing and Medical Services for distribution to staff. In a covering email, employees were invited to participate, and were advised the survey was voluntary, anonymous and State-wide. Employees were briefed about the concept of employee engagement and the nature of the study, that the study aimed to contribute to the understanding of what makes doctors and nurses love and like their work. Employees were informed the study was independent of their hospital. The survey was administered from July to October 2010. All hospitals that had not already participated in the previous studies were invited to participate. The survey is described next.

6.3.4 Measures.

*Psychological climate.* Psychological climate was assessed using 28 items from the first six scales of the Voice Pulse Survey (Langford, 2007): purpose, property, participation, people, peace, progress. The seventh scale, passion, represents engagement and hence was not used. Internal consistency for each scale was reported by Langford (2007) as acceptable, between .73 and .86, with the exception of the two-item peace scale (.53). An example of items include on the purpose scale, ‘I am aware of the values of this organisation’, on the property scale, ‘the buildings, grounds and facilities I use are in good condition’, on the participation scale, ‘I am given opportunities to develop skills needed for career progression’, on the people scale, ‘my co-workers put in effort whenever necessary’, on the peace scale, ‘I feel emotionally well at work’ and on the progress scale, ‘the future of this organisation is positive’. The stem is ‘to what extent do you agree or disagree with the following statements about your work?’ Responses use six-point Likert rating scales, with 1 = Strongly agree, 5 = Strongly disagree and 6 = Don’t know/not applicable.
Psychological empowerment. Psychological empowerment was measured using the 12-item measure developed by Spreitzer (1995a), consistent with Carless (2004). The measure includes the four scales of meaning, competence, self-determination and impact. Spreitzer (1995a) reported Cronbach reliabilities for the scales between $\alpha = .79$ and .87 and Carless (2004) reported between $\alpha = .81$ and .92. An example of items include on the meaning scale, ‘the work I do is very important to me’, on the competence scale, ‘I am confident about my ability to do my job’, on the self-determination scale, ‘I have significant autonomy in determining how I do my job’ and on the impact scale, ‘my impact on what happens in my department is large’. The stem is ‘to what extent do you agree or disagree with the following statements in your role currently?’ Responses use seven-point Likert rating scales, with $1 =$ Strongly disagree and $7 =$ Strongly agree.

Intrinsic motivation. Intrinsic motivation was measured using the three-item scale by Tremblay et al. (2009). Tremblay et al. reported internal consistency with Cronbach’s coefficient alpha of $\alpha = .87$. The scale includes the item ‘because I derive much pleasure from learning new things’. The stem is ‘using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in your work’. Responses use five-point Likert rating scales, with $1 =$ Totally disagree to $5 =$ Totally agree.

Negative affectivity. Negative affectivity was measured with eight items drawn from the 15-item Scale of Emotional Arousability (Braithwaite, 1987). An example of items includes ‘I frequently get upset’. Braithwaite reported alpha reliabilities for the four components of the scale of .67 to .83. The scale had been adapted to reduce item numbers in previous research (unpublished data, 1999). The most salient items had been selected which improved the overall alpha for the scale in the previous research from
.76 to .78. The word ‘mad’ was changed to ‘angry’ to better suit the Australian population. Three of the original four components of negative affectivity (Braithwaite, 1987) were represented in the eight items. Four positively worded items were reverse-coded so higher values represented higher negative affectivity. The stem is ‘which of the following numbers best shows how like you or unlike you the statement is?’ Responses use five-point Likert rating scales, with 1 = No, this is very unlike me; to 5 = Yes, this is very like me.

**Burnout.** Burnout was measured using the nine-item MBI (Maslach & Jackson, 1981) scale for emotional exhaustion. An example of items includes, ‘I feel used up at the end of the work day’. Maslach and Jackson (1981) reported alpha reliabilities between .89 and .86. The stem is ‘the following statements are about job-related feelings. Please read each statement carefully and decide if you ever feel this way about your current job’. Responses use six-point Likert rating scales, with 0 = Never to 6 = Every day.

**Engagement.** Engagement was measured with the 40 items from Study 2. The stem was ‘the following statements are about your feelings about the work you do. Please read each statement carefully and decide how relevant it is to your role currently’. Responses used five-point Likert scales, with 1 = No, this is very unlike me to 5 = Yes, this is very like me. These items were derived as follows.

Thirteen items from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) represented each subscale: vigour, dedication and absorption. Five dedication items included ‘I am proud of the work that I do’. Five vigour items included ‘at my work, I always persevere, even when things do not go well’. Three absorption items included ‘I am immersed in my work’.
Five items captured the common themes found in the theory of psychological ownership such as pride and affinity between one’s career objectives and one’s organisation (Bagozzi, 1992; McCashland, 2000; Rucci et. al., 1998; Schneider et al., 1996). Items included ‘I am proud to work here’.

Three items measured time use (Goddard, 1999, 2001). Items included ‘in my role, my time is spent focused on tasks and goals of the organisation’.

Three items represented each of Kahn’s (1990, 1992) three constructs. Items included one for meaningfulness ‘I feel worthwhile, valued, valuable, feel able to give and receive from work and others in course of work’.

Sixteen items measured job satisfaction and were drawn from two established measures (Hackman & Oldham, 1975; Smith et al., 1987). Items included, ‘I have a good status within the organisation’.

**Demographic variables.** Demographic variables included sex, measured by ‘are you male or female?’ on two categories: male and female. Age was measured by ‘what is your age range?’ on six categories from ‘under 20’ to ‘Above 60’. ‘Tenure was measured by ‘how many full-time years have you worked with your current employer?’ on seven categories from ‘less than 1 year’ to ‘Over 10 years’. Education was measured by ‘what is your level of education?’ on seven categories from ‘high school’ to ‘PhD’. Role was measured by ‘what is your work position?’ on seven categories, ‘nurse, nurse manager, senior doctor, visiting medical officer, registrar, resident, intern’.

### 6.4 Results

#### 6.4.1 Cross-validation.

Structural equation modelling is intended for large samples. The sample must be large enough for model estimation and statistical inference or hypothesis testing regarding the specified model and individual parameters. Kline (2005) said the
minimum sample size should be no less than 200, and preferably no less than 400 or 5–
20 times the number of parameters to be estimated, whichever is larger. Larger models
often contain larger number of model parameters and demand larger sample sizes.
There are problems associated with the post hoc model fitting of models conducted in
structural equation modelling, such as misspecification and overfitting (Byrne, 2010;
Geisser, 1993). Cross-validation is one approach taken to address these problems
(Byrne, 2010). Analyses using half-sample cross-validation were initially considered
(Appendix C). That is, splitting the sample randomly, fitting the model on one half and
validating it on the second. However it was decided not to proceed with cross-validation
as the split data were considered not large enough for factor analysis ($n = 195$).
Tabachnick and Fidell (2007) recommend at least 300 cases. Both the construction and
test sample were small enough any lack of data fit in structural equation modelling
could be due to lack of stability in the samples (Hair et al., 1998; Kline, 2005).

6.4.2 Analyses conducted.

The data were analysed in two stages to investigate the two research questions:

**Research Question 3a:** To what extent are job satisfaction and engagement
positively related?

**Research Question 3b:** What is an appropriate model for engagement in
medical contexts?

First, theoretically guided analyses were undertaken to investigate the 40 items
derived from Study 2 as factors of a scale for engagement. These analyses explored the
relationship between job satisfaction and other theories of engagement.

Second, empirical analyses were used to develop a scale of engagement from the
40 items derived from Study 2, using a three-stage process, as follows:
1. Exploratory factor analyses using SPSS 21.0 (IBM Corporation, 2012b) to examine the factor structure of the measures (Tabachnick & Fidell, 1996)
2. Confirmatory factor analyses using AMOS 21.0 (IBM Corporation, 2012a) to test the measurement model, including discriminant validity tests
3. The structural model was developed and tested.

The last two steps were recommended by Anderson and Gerbing (1988).

6.4.3 Data screening, assumptions and preparation of data.

This section reports the preliminary analyses and preparation of the data. The data were downloaded from the Qualtrics (2009) database into SPSS 21.0 (IBM Corporation, 2012b) for analysis and electronic storage. The data were screened and all values were within range, and the means and standard deviations were plausible (Tabachnick & Fidell, 2007). The climate data were recoded to fall in the same direction as the other variables, due to having been rated on a Likert scale coded in the opposite direction to those of the other variables.

6.4.3.1 Relationships between engagement and other variables.

The correlation matrix with Cronbach alphas is provided in Table 6.2. Correlations between engagement and the other variables were all significant at $p < .001$ and in the directions expected. Positive relationships were found between empowerment, engagement and climate. The job satisfaction and Kahn (1990, 1992) engagement variables were most highly correlated ($.85$). Negative affectivity and the Utrecht Work Engagement Scale showed the lowest correlation ($-.23$). Engagement and emotional exhaustion were moderately negatively related. Multicollinearity was not evident at the bivariate level as correlation coefficients were below $.90$ (Tabachnick & Fidell, 2007). Tabachnick and Fidell (2007) advised, unless performing analysis of structure, to reconsider including two variables with a bivariate correlation of $.70$. As
analysis of structure was being performed analyses later in the study, the variables with correlations greater than .70 were retained. The determinant of the correlation matrix indicated multicollinearity. However multivariate multicollinearity was also assessed in multivariate analyses, reported later in this chapter and analyses proceeded with caution.
Table 6.2

Correlations and Alpha Coefficients for All Variables (n = 392)

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<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>9</th>
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<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
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</thead>
<tbody>
<tr>
<td>1 Time (Goddard, 1999, 2001)</td>
<td>4.09</td>
<td>.73</td>
<td>.85</td>
<td></td>
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<tr>
<td>2 Kahn (1990, 1992)</td>
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<td>.87</td>
<td>.64**</td>
<td>.77</td>
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<td>.59**</td>
<td>.77**</td>
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<td>4.21</td>
<td>.59</td>
<td>.69**</td>
<td>.76**</td>
<td>.67**</td>
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<td>5 Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>3.95</td>
<td>.67</td>
<td>.59**</td>
<td>.85**</td>
<td>.79**</td>
<td>.78**</td>
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<td>6 Empowerment (Spreitzer, 1995a)</td>
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<td>-.55**</td>
<td>-.43</td>
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<td>7 Emotional exhaustion (Maslach, 1986)</td>
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<td>.48**</td>
<td>.63**</td>
<td>.57**</td>
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<tr>
<td>8 Purpose (Langford, 2007)</td>
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<td>.48**</td>
<td>.58**</td>
<td>.68**</td>
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<td>9 Property (Langford, 2007)</td>
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<tr>
<td>10 Participation (Langford, 2007)</td>
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<td>.40**</td>
<td>.63**</td>
<td>.65**</td>
<td>.41**</td>
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<td>.92</td>
<td></td>
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<tr>
<td>11 People (Langford, 2007)</td>
<td>3.86</td>
<td>.83</td>
<td>.27**</td>
<td>.27**</td>
<td>.27**</td>
<td>.24**</td>
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<td>.88</td>
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<tr>
<td>12 Peace (Langford, 2007)</td>
<td>3.88</td>
<td>.84</td>
<td>.33**</td>
<td>.50**</td>
<td>.39**</td>
<td>.43**</td>
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<tr>
<td>13 Progress (Langford, 2007)</td>
<td>3.20</td>
<td>1.02</td>
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<td>.56**</td>
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<td>.38**</td>
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<td>.45**</td>
<td>.89</td>
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<td>14 Intrinsic motivation (Tremblay et al., 2009)</td>
<td>5.50</td>
<td>1.20</td>
<td>.38**</td>
<td>.50**</td>
<td>.44**</td>
<td>.61**</td>
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<td>.11**</td>
<td>.24**</td>
<td>.16**</td>
<td>.91</td>
<td></td>
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<td>15 Negative affectivity (Braithwaite, 1987)</td>
<td>2.21</td>
<td>.63</td>
<td>-.19**</td>
<td>-.20**</td>
<td>-.17**</td>
<td>-.23**</td>
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<td>-.17**</td>
<td>-.16**</td>
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</tr>
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</table>

Note: Alpha coefficients are presented on the diagonal, and correlations are below the diagonal. **$p < .001$.**
6.4.3.2 Reliability of the 40 engagement variables.

A high Cronbach’s alpha reliability was found for each engagement scale, except for that of Kahn (1990, 1992) at .77, which was still accepted at the generally accepted cut-off point of .7 (Garver & Mentzer, 1999; Hair et al., 1995; Kline, 2000). The correlations between all engagement scales were significant (Table 6.3).

The next sections report analyses and preparation of the data prior to factor analyses. An examination of the missing data, outliers, normality, multicollinearity and common method bias was conducted.

6.4.3.3 Missing data.

Missing data were dealt with by single imputation. The theoretical rationale for the way the data were treated is provided in Appendix C. Less than 3% of data values were missing, satisfying the recommendations of Schafer and Graham (2002) for imputation. The expectation maximisation algorithm in SPSS 21.0 (IBM Corporation, 2012b) was used to impute the data at the item level (Kline, 2011). Graham, Hofer, Donaldson, MacKinnon and Schafer (1997) found the expectation maximisation method of data imputation was more consistent and accurate in predicting parameter estimates than methods such as list-wise deletion and mean substitution. The calculations conducted to estimate whether imputation was reasonable for the data are provided in Appendix C.

6.4.3.4 Outliers.

Histograms of the engagement data identified univariate outlying data where a case appeared to be unattached to the rest of the distribution (Tabachnick & Fidell, 1996). Outliers were examined in more detail by calculating the standardised scores or z scores in SPSS (IBM Corporation, 2012b), where scores greater than 3.29 (p < .001, two-tailed test) indicated potential outliers (Tabachnick & Fidell, 2007). One case was
found to have many outliers and was identified as a test case entered by the researcher that had been overlooked when cleaning up the data, and was removed. Another 44 of the remaining 391 cases were identified as having outlying observations, affecting .06% of the data. Twenty of the 40 items had outliers, 10 of which were from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), six from the job satisfaction scale and two each from the time and Kahn (1990, 1992) scales. The item with the highest number of outliers was from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), ‘To me, my job is challenging, affecting 13 cases, followed by the job satisfaction item, ‘My job satisfaction overall’, affecting 10 cases.

The cases were examined individually. None of the data appeared to be mistakenly entered. Eight of the 44 cases were senior nurses, which may have reflected the disproportionate number of junior to senior respondents, as no other demographic data differentiated these senior staff from the other senior staff. The data did not represent unusual circumstances with regard to the hospital locations or any other demographic data. The cases were considered representative of the population and were retained in the analyses.

Histograms identified univariate outlying data for the empowerment, climate and negative affectivity variables (Tabachnick & Fidell, 1996). The outliers were examined in more detail by calculating the standardised scores or z scores in SPSS (IBM Corporation, 2012b). The climate variable had 16 outlying cases. Empowerment had 48 outlying cases, 24 for meaning, 15 for competence and nine for self-determination. Negative affectivity had four outlying cases, two for item one and two for item two. Intrinsic motivation had three outlying observations. There were no outliers in the emotional exhaustion data. While outlying observations were identified, when the cases were checked they were considered representative of the population and
were retained in the analyses (Tabachnick & Fidell, 1996). Tabachnick and Fidell (1996) said a few standardised scores in excess of 3.29 ($p < .001$, two-tailed test) are expected in large sample sizes. Although the remedy for outliers is usually data transformations, transformations can make variables more difficult to interpret and is not always desirable (Tabachnick & Fidell, 2007). The data were not transformed for this reason. Multivariate outliers were assessed when conducting multivariate analyses, as discussed later in this chapter. Multivariate outliers were assessed by Mahalanobis distance, with $p < .001$ for the $\chi^2$ being a very conservative probability estimate for a case being an outlier (Kline, 2011; Tabachnick & Fidell, 2007).

6.4.3.5 Normality, linearity and homoscedasticity.

Scatter plots and histograms were used to assess the distribution normality of the data (Tabachnick & Fidell, 2007). Tabachnick and Fidell (2007) recommended when sample sizes are large, the shape of distribution be used instead of formal inference tests to evaluate the significance of skewness and kurtosis. When there are numerous variables, as in the current study, the statistics on skewness can be used to assess and screen for nonlinearity (Tabachnick & Fidell, 2007). With samples of 200 or more, standard errors for skewness and kurtosis decrease. The current sample size was 392.

Of the 40 engagement items, 24 were normally distributed. The data were positively kurtotic (Appendix C). The apparent non-normality and non-linearity of 16 of the 40 engagement variables was not considered a deterrent to further analysis, given the counteracting effect of large sample size ($n = 392$) (Hair et al., 1998; Tabachnick & Fidell, 2007). Scatter plots showed the assumption of homoscedasticity was not met for these 16 items. Tabachnick and Fidell (2007) advised the test for homoscedasticity used by SPSS is too strict for large sample sizes, such as for the current sample ($n = 392$).
Skewness outside the bounds of +1 and -1 suggested nonlinearity for two climate items, nine empowerment items, two intrinsic motivation items and two emotional exhaustion items. The negative affectivity items were not affected. Further details about the normality, linearity and homoscedasticity for climate, empowerment, negative affectivity, intrinsic motivation and emotional exhaustion are provided in Appendix D. Scatterplots were used to examine pairs of variables that could have true nonlinearity (Tabachnick & Fidell, 2007). The apparent non-normality, nonlinearity and lack of homoscedasticity of these variables was not considered a deterrent to further analysis, given the counteracting effect of large sample size (Hair et al., 1998; Tabachnick & Fidell, 2007).

Tabachnick and Fidell (2007) advised although the remedy for failures of normality, linearity and homoscedasticity is usually data transformations, as mentioned before, transformations are not recommended by all researchers. Transformations can make normally distributed data worse. Improvements from transformations are marginal if all variables are skewed to about the same moderate extent, as was the case with the majority of the data. The data were not transformed for this reason.

6.4.3.6 Common method bias.

As all data were collected from respondents using a single time self-report survey, there was the potential for common method bias, which was examined using Harman’s single factor test (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). All variables were loaded into a single factor analysis, reported later in this chapter. The unrotated factor solution showed multiple factors resulted from the analysis. These results provide evidence common method bias was unlikely to be a concern in these analyses.
6.4.3.7 Factor analysis assumptions.

Tabachnick and Fidell (2007) contend at least 300 cases are needed for factor analysis. Hair, Anderson, Tatham and Black (1995) suggested sample sizes should be 100 or greater. The current dataset satisfied this criteria \( (n = 391) \). The Bartlett Test of Sphericity was used to test for significance of the engagement correlation matrix, and was significant \( (p = .000; \text{approximate chi-square } 10,649.937; df = 780) \). Tabachnick and Fidell (2007) recommended investigating the correlation matrix for correlation coefficients over .30. Hair et al. (1995) categorised these loadings as ± .30 = minimal, ± .40 = important, and ± .50 = practically significant. The inter-item correlations were found to be substantial \((> .30)\) (Tabachnick & Fidell, 1996). The Kaiser-Meyer-Olkin measure was used to establish the suitability of the data and was found to be .96 (.959), which satisfied the recommendation by Tabachnick and Fidell (1996) of greater than .60. A visual examination of the anti-image matrix revealed low values. Thus, the data were considered suitable for factor analysis (Tabachnick & Fidell, 1996).

The Bartlett Test of Sphericity for the climate variable was significant \( (p = .000; \text{approximate chi-square } 7,272.55; df = 378) \). The inter-item correlations were substantial \((> .30)\) (Tabachnick & Fidell, 1996). The Kaiser-Meyer-Olkin measure was .96. A visual examination of the anti-image matrix revealed some values greater than .5. Thus, the data were considered suitable for factor analysis (Tabachnick & Fidell, 1996).

The Bartlett Test of Sphericity for the empowerment variable was significant \( (p = .000; \text{approximate chi-square } 4,626.76; df = 66) \). The Kaiser-Meyer-Olkin measure was .84. The inter-item correlations were greater than .30, being substantial \((> .30)\). Anti-image covariances showed values greater than .5, as required. Thus, the data were considered suitable for factor analysis (Tabachnick & Fidell, 1996).
The Bartlett Test of Sphericity for the intrinsic motivation variable was significant ($p = .000$; approximate chi-square $= 843.10$, $df = 3$). The Kaiser-Meyer-Olkin measure was .73. The inter-item correlations were greater than .30, thus being substantial ($> .30$). A visual examination of the anti-image covariances showed values greater than .5, as required.

The Bartlett Test of Sphericity for the emotional exhaustion variable was significant ($p = .000$; approximate chi-square $= 2,895.10$, $df = 36$). The Kaiser-Meyer-Olkin measure was .91. The inter-item correlations were greater than .30, thus being substantial ($> .30$). Anti-image correlations should be $> .5$; however, several were not and hence the analyses proceeded with caution (Tabachnick & Fidell, 1996).

This first section has provided a preliminary check of the data, and examination of its appropriateness for further analyses. The following section presents the results of two approaches taken to develop a scale for medical engagement: first, theoretical and second, empirical.

### 6.4.4 Theoretical and empirical approaches investigating the construction of a scale to measure medical engagement.

The remainder of this chapter is divided into two sections. First, a theoretical approach was taken in the development of a scale for medical engagement. Second, an empirical approach used the rigour of exploratory factor analyses and confirmatory factor analyses to develop a scale. In each approach, the nurse data ($n = 392$) were analysed first as they comprised the larger homogeneous sample and were considered more likely to provide a stable picture of how engagement was perceived in the medical context.
6.4.4.1 Structural equation modelling.

Structural equation modelling (SEM) was used, following Byrne (2010) and Kline (2011), because a path model was to be assessed later in Study 3b, Chapter 7. Analyses used AMOS 21.0 (IBM Corporation, 2012).

A summary of the following analyses using the nurse data is provided in Table 6.3.

Table 6.3

Summary of the Theoretically and Empirically Based Analyses to Develop a Scale for Engagement Using Consecutive Steps

<table>
<thead>
<tr>
<th>Approach 1: Theoretically derived models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
</tr>
<tr>
<td>1a Single factor models of the 40 items from Study 2 to assess the original five theoretical conceptualisations of engagement—the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), psychological ownership (McCashland, 2000; Rucci et al., 1988), Kahn (1990, 1992), time (Goddard, 1999, 2001) and the job satisfaction scale (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
</tr>
<tr>
<td>1b Measurement model of engagement</td>
</tr>
<tr>
<td>1c Structural model of engagement</td>
</tr>
<tr>
<td>1d Higher order model of engagement</td>
</tr>
<tr>
<td>1e Confirmatory factor analysis of job satisfaction and engagement, a two-factor measurement model</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approach 2: Empirically derived models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2a Exploratory factor analyses of the 40 items from Study 2—job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987), psychological ownership (McCashland, 2000; Rucci et al., 1988), Utrecht Work Engagement Scale (Schaufeli et al., 2002), Kahn (1990, 1992), time (Goddard, 1999, 2001)</td>
</tr>
<tr>
<td>2b Confirmatory factor analyses for each scale of engagement</td>
</tr>
<tr>
<td>2c Discriminant models for each scale of engagement</td>
</tr>
<tr>
<td>2d Measurement model for all scales of engagement</td>
</tr>
<tr>
<td>2e Higher order model for nurse engagement, for use in later path analyses</td>
</tr>
</tbody>
</table>

6.4.5 Approach 1: Theoretical approach.

The aim of the following theoretically guided analyses was to derive a scale for measuring engagement in medical contexts based on the items from engagement theories represented in the 40 items derived from Study 2 (Chapter 5). As outlined in the aims for this study, first, the structures of the five engagement measures were investigated, particularly the relationship between job satisfaction and other theories for
engagement. A measure for assessing engagement was investigated for the nurse sample because this was the largest homogenous dataset. The measure was later tested for equivalence with the doctor data in the path model, Study 3b, Chapter 7.

6.4.5.1 Theoretical approach: Single factor models of the original five theoretical conceptualisations of engagement.

Single factor (congeneric) models were conducted for each theoretically derived scale. Each scale was represented by a single latent variable, with its items forming the indicator variables, as follows.

6.4.5.2 Single factor analysis for the Kahn (1990, 1992) scale.

A model was constructed in which Kahn’s (1990, 1992) theoretical construct of engagement was represented by a latent variable. The three items used from the theoretical source formed indicator variables. Only one indicator item loaded at greater than .7 (Figure 6.1). This scale could not be used and was not considered in future analyses because two items were not satisfactory indicators at less than .7 (Byrne, 1998).

![Figure 6.1. Single factor for Kahn’s (1990, 1992) theory of engagement.](image)

6.4.5.3 Single factor analysis for the time construct of engagement (Goddard, 1999, 2001).

The three items of the time construct (Goddard, 1999, 2001) were represented by a latent variable. All indicator items loaded at greater than .7 (Figure 6.2).
6.4.5.4 Single factor analysis for the psychological ownership construct of engagement (McCashland, 2000; Rucci et al., Kirn & Quinn, 1988).

The psychological ownership construct of engagement was represented by a latent variable, with its five items forming indicator variables (McCashland, 2000; Rucci et al., 1988). All indicator items loaded at greater than .7, except item 18, ‘There is opportunity for me to pursue my job and career interests here’ (.65). Once this item was removed, the remaining four items loaded at greater than .7 (Figure 6.3).

6.4.5.5 Single factor analysis for the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).

Single factor analyses were conducted for the three factors of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
6.4.5.5.1 Dedication factor.

The dedication factor was represented by a latent variable. The six indicator items all loaded at greater than .7 except item five ‘To me, my job is challenging’ (.59). Once this item was removed, all five items loaded at greater than .7 (Figure 6.4).

Figure 6.4. Single factor for the dedication measure of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).

6.4.5.5.2 Vigour factor.

The vigour factor was represented by a latent variable. All but one of the four indicator items loaded at less than .7 (Figure 6.5). This factor could not be used and was not considered in further analyses.

Figure 6.5. Single factor for the vigour measure of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
6.4.5.5.3 Absorption factor.

The absorption factor was represented by a latent variable. All but one of the three indicator items loaded at less than .7 (Figure 6.6). This factor could not be used and was not considered in further analyses.

*Figure 6.6. Single factor for the absorption measure of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).*

6.4.5.6 Single factor analysis for the job satisfaction construct of engagement *(Hackman & Oldham, 1975; Smith et al., 1987).*

The job satisfaction variable was represented by a latent variable, with its 16 items forming indicator variables (Hackman & Oldham, 1975; Smith et al., 1987). Only five indicator items loaded at greater than .7 (Figure 6.7).

*Figure 6.7. Single factor for the job satisfaction theory (Hackman & Oldham, 1975; Smith et al., 1987).*
6.4.5.7 Theoretical approach: The relationship between job satisfaction and the other theories of engagement.

Confirmatory factor analysis was conducted to investigate the relationships between the job satisfaction factor (Hackman & Oldham, 1975; Smith et al., 1987) and the other factors of psychological ownership, time and dedication (Goddard, 1999, 2001; McCashland, 2000; Rucci et al., 1988; Schaufeli et al., 2002b). First, the factors were tested in a measurement model. All 12 items loaded at greater than .7. The three factors displayed moderate correlations (of .63, .70 and .64), demonstrating that while related, they were distinct factors (Figure 6.8).

![Figure 6.8. Measurement model for theoretically derived engagement factors.](image)

The three engagement factors and job satisfaction were tested in a measurement model. All 12 items loaded at greater than .7. The four factors displayed moderate to high correlations, again demonstrating that while related, they were distinct factors (Figure 6.9). The standardised residual covariances were assessed. Only one item failed to meet the criterion of less than 1.96 (Jöreskog & Sörbom, 1994) a psychological
ownership item, ‘I am proud of the work that I do’, indicating a slight weakness in the effectiveness of the model in explaining the sample covariance.

The next analysis investigated the correlation between job satisfaction and the measurement model representing engagement. That is, job satisfaction was treated as a construct distinct from the measures representing engagement to test whether it may be an aspect of what some researchers refer to as ‘a set of constructs’ for engagement (Macey & Schneider, 2008, p. 24).

Figure 6.9. Measurement model for the theoretically derived model of engagement, including job satisfaction.
Research Question 3a: To what extent are job satisfaction and engagement positively related?

A model was developed for the engagement variables to enable assessment of the relationship between the constructs. In response to Research Question 3a which asked to what extent are job satisfaction and engagement positively related, a high correlation was found between the two aspects of engagement (.98). A further structural model tested all of the variables (Figure 6.10).

Figure 6.10. Structural model for the theories of engagement.
6.4.5.9 **Multicollinearity.**

Multicollinearity had not been evident at the bivariate level for the engagement variable as all correlations were below .90 (reported earlier in this chapter). However, correlations at this multivariate level indicated the possibility of multicollinearity, with the correlation between job satisfaction and the other engagement variables being .98 (Tabachnick & Fidell, 2007). As the psychometric properties of the measures used from Study 2 for this theoretically guided scale of engagement were in question, the scale was considered imperfect (Kline, 2011). Thus, further analyses were conducted to empirically investigate the 40 items resulting from Study 2, as reported in the following section.

6.4.6 **Approach 2: Empirical approach.**

The first section of this chapter provided a preliminary examination and analysis of the data, and established the appropriateness of the data for multivariate analysis. The second section tested factor structures suggested wholly by the theoretical structures and produced a model that was difficult to interpret. Hence, further analyses were conducted to empirically investigate the 40 items resulting from Study 2. The following sections report the results of a three-stage process:

1) Exploratory factor analyses conducted in SPSS 21.0 (IBM Corporation, 2012b) to examine the factor structure of the measures used in Study 3 (Step 3 from Hinkin, 1998; Tabachnick & Fidell, 1996, 2007)

2) A measurement model conducted in AMOS 21.0 (IBM Corporation, 2012a) to determine discriminant validity

3) A structural or path model to determine relationships among the variables. These last two steps were recommended by Anderson and Gerbing (1988).
6.4.6.1 Factor analysis theory.

The main purpose of exploratory factor analysis is to obtain a parsimonious conceptual understanding of a set of variables (Fabrigar et al., 1999). The intercorrelations between variables are assessed to create factors (Tabachnick & Fidell, 2007). The process often reduces the number of items to produce a measure that fits the construct, it establishes underlying dimensions between measured variables and latent constructs, enabling development and refinement of theory and it provides evidence of construct validity for self-report scales (Tabachnick & Fidell, 2007). There are limitations in exploratory factor analyses. Decisions about the number of factors and rotation method are often based on pragmatic, rather than theoretical, criteria (Tabachnick & Fidell, 2007). Henson and Roberts (2006) contend systematic process and sound judgement of latent variables, factor reduction and construction must be used to limit the subjectiveness of exploratory factor analyses. The first step is extraction, the second is rotation. Multiple criteria are recommended to determine the correct number of factors to extract because each method has inherent problems (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum & Strahan, 1999). Byrne (2010) referred to Fabrigar et al. (1999) for guidance on exploratory factor analyses.

The most common extraction processes are principal axis factoring and principal components analysis. Principal axis factoring aims to investigate underlying factors, whereas principal components analysis is used as a data reduction technique (Henson & Roberts, 2006). Principal axis factoring seeks the least number of factors that can account for the common variance (correlation) of a set of variables (Polit & Beck, 2012).

Many rotational techniques have been proposed. Each procedure represents a different theoretical orientation acceptable mathematically, with equally valid outcomes.
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(Sternberg, 1977). The fit of each model or factor analysis alone does not provide a sufficient basis for selecting a rotation procedure. Rotation methods seek simple structure to provide easier interpretation of results, and produce a solution that is parsimonious (Fabrigar et al., 1999; Hair et al., 1995). The two common rotation techniques are orthogonal (varimax/quartimax) and oblique (oblimin/promax). Orthogonal varimax rotation was developed by Thompson (2004) and produces factor structures that are uncorrelated. Oblique rotation produces factors that are correlated. When using an orthogonal approach the varimax rotation is most commonly used (Tabachnick & Fidell, 2007). The selection of rotation method depends on whether underlying factors should be related. In orthogonal rotation factors are uncorrelated, whereas oblique rotation permits correlations among factors (Tabachnick & Fidell, 2007). Hence, if factors are not expected to be related, an orthogonal rotation should be used, ideally varimax.

Tabachnick and Fidel (2007) explained the varimax rotation aims to simplify factors by maximising the variance of the loadings in factors. High loadings are made higher and low loadings lower for each factor. The varimax method attempts to spread large loadings across the pattern matrix to a great extent, or to equalise the amount of variance explained by each factor. The orthogonal alternative quartimax rotation aims to simplify variables, compared with the way varimax aims to simplify factors. Quartimax rotation retains an important first factor and thus tends to provide less information, which was considered less rigorous in the current study (Tabachnick & Fidell, 2007).

The varimax method was considered most appropriate for the current study because, while the scales under investigation were all said to measure engagement, they were drawn from different theoretical orientations and thus the underlying factor structure was expected to differ and would be better represented using varimax rotation.
This was supported by the findings for the theoretically based analyses reported earlier in this chapter. Thus, theory rather than the fit of the factor model was used in the selection of the varimax rotation method. Fabrigar et al. (1999) advised design and analytic decisions should be made carefully as they have major consequences.

Next, exploratory factor analysis was undertaken to determine the underlying factor structure of the 40 items. Second, single confirmatory factor analyses were conducted. Third, in the following chapter (Chapter 7) analyses determined the discriminant validity of the engagement model in relation to other constructs and developed an engagement path model (Anderson & Gerbing, 1988; Hinkin, 1998 [Step 5]). The results of the first two stages of analyses are reported next.

**6.4.7 Exploratory factor analysis.**

An exploratory factor analysis was conducted on the 40 engagement items. The extraction process of principal axis factoring was used because it aims to investigate underlying factors (Henson & Roberts, 2006). Following this step, varimax rotation was selected because the items were drawn from different theoretical conceptualisations of engagement. Kaiser’s criterion of eigenvalues of greater than one was applied, and obtained a seven-factor solution (Tabachnick & Fidell, 2007). The un-rotated factor solution was inspected to assess the improvement due to rotation. When using a varimax rotation, the rotation sums of squared loadings should be assessed to compare the variance of factors after extraction. The rotated solution should be better than the un-rotated solution. Before extraction, factor one accounted for considerably more variance than the remaining six (42.40%). After extraction, it accounted for only 17.76% of the variance. The data showed generally moderate bivariate intercorrelations. Kline (2011) asserted a low Cronbach’s alpha reliability indicates the content of items
may be highly heterogeneous. While these data had high alpha reliabilities, that is usual for a large set of items.

6.4.7.1 Communalities, variance and covariance.

Tabachnick and Fidell (2007) recommended checking the communalities, variance and covariance of factors. Fabrigar et al. (1999) advised selecting variables with sound psychometric properties, which are indicated by the communalities of variables, the amount of variance explained by the common factors. Variables with low communalities have low reliability and should be avoided because they produce substantial distortion in results. The communalities were generally moderate.

Factor one accounted for 17.76% of the variance, and factor two accounted for 10.78%. The two factors together accounted for 28.54%. The proportion of covariance is the proportion of variance in the factor solution accounted for by a factor, and is calculated by dividing the sums of squared loadings for the factor by the sum of communalities.

6.4.7.2 Omitting items after varimax rotation.

Items that loaded highly on one factor and minimally on another were retained. Items loading above .50 and with cross-loading of less than .20 were retained. Factor one comprised eight items. Factor two comprised five items. Factor three comprised four items. Factors four and five consisted of only two items each satisfying these criteria and hence were omitted. Factors six and seven consisted of no items. Items five, nine, 11, 14, 16, 20, 21, 23, 24, 26, 28, 30, 32 and 37 cross-loaded and hence were removed from any further consideration. Thus, three factors resulted.

6.4.7.3 Further exploration of the three-factor solution.

As multiple criteria are recommended to determine the correct number of factors to extract (Costello & Osborne, 2005; Fabrigar et al., 1999), two further methods were
used. First, Cattell’s scree test was applied, showing a substantial drop in eigenvalues after the third factor. Second, a parallel analysis was conducted to assess the optimal number of factors for this dataset. Parallel analysis generates random data for as many variables (40) and subjects ($n = 392$) as in the original dataset, using principal axis factoring and comparing the eigenvalues for both data, and tends to be a conservative estimate of the data (Hubbard, 2009). A Monte Carlo principal components analysis was used and indicated three factors were optimal as the eigenvalue for the fourth factor in the current dataset was smaller than that for the random data (Hubbard, 2009). While the previous exploratory factor analyses had used principal axis rather than principal components analysis, in SPSS (IBM Corporation, 2012b) both methods start with a principal components analysis (Dunteman, 1989). Principal components analysis is usual in Monte Carlo analysis. These procedures were applied to avoid over-extracting factors (Table 6.5).
### Table 6.4

**Exploratory Factor Analysis of Engagement: Organisation, Self and Time (n = 392)**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>UWES</td>
<td>I am proud of the work that I do</td>
<td>.132</td>
<td>.599</td>
<td>.177</td>
<td>.290</td>
<td>.095</td>
<td>.162</td>
<td>-.125</td>
</tr>
<tr>
<td>UWES</td>
<td>I have good relations with work colleagues</td>
<td>.290</td>
<td>.138</td>
<td>.133</td>
<td>.443</td>
<td>.029</td>
<td>.027</td>
<td>-.277</td>
</tr>
<tr>
<td>UWES</td>
<td>I find the work that I do full of meaning and purpose</td>
<td>.300</td>
<td>.738</td>
<td>.124</td>
<td>.236</td>
<td>.149</td>
<td>.080</td>
<td>-.052</td>
</tr>
<tr>
<td>UWES</td>
<td>At my work I always persevere … do not go well</td>
<td>.066</td>
<td>.180</td>
<td>.142</td>
<td>.637</td>
<td>.083</td>
<td>.025</td>
<td>-.015</td>
</tr>
<tr>
<td>UWES</td>
<td>To me, my job is challenging</td>
<td>.144</td>
<td>.366</td>
<td>.159</td>
<td>.482</td>
<td>.048</td>
<td>.048</td>
<td>.190</td>
</tr>
<tr>
<td>UWES</td>
<td>I am enthusiastic about my job</td>
<td>.230</td>
<td>.644</td>
<td>.297</td>
<td>.449</td>
<td>.064</td>
<td>.101</td>
<td>.080</td>
</tr>
<tr>
<td>UWES</td>
<td>I have a good level of job security</td>
<td>.354</td>
<td>.129</td>
<td>.098</td>
<td>.233</td>
<td>.033</td>
<td>.057</td>
<td>-.059</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>My job is satisfying overall</td>
<td>.439</td>
<td>.645</td>
<td>.101</td>
<td>.186</td>
<td>.179</td>
<td>.232</td>
<td>-.045</td>
</tr>
<tr>
<td>Psychological ownership</td>
<td>I am proud to work here</td>
<td>.494</td>
<td>.449</td>
<td>.205</td>
<td>.176</td>
<td>.465</td>
<td>.091</td>
<td>.078</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>My job is significant to the organisation</td>
<td>.456</td>
<td>.268</td>
<td>.216</td>
<td>.266</td>
<td>.193</td>
<td>.112</td>
<td>.188</td>
</tr>
<tr>
<td>UWES</td>
<td>Time flies when I am working</td>
<td>.110</td>
<td>.265</td>
<td>.384</td>
<td>.449</td>
<td>.124</td>
<td>.146</td>
<td>.236</td>
</tr>
<tr>
<td>UWES</td>
<td>My job inspires me</td>
<td>.363</td>
<td>.595</td>
<td>.326</td>
<td>.193</td>
<td>.151</td>
<td>.170</td>
<td>.237</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>I have opportunities for professional development</td>
<td>.668</td>
<td>.188</td>
<td>.103</td>
<td>.165</td>
<td>.105</td>
<td>.110</td>
<td>.147</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>I have a high level of independence in my job</td>
<td>.384</td>
<td>.229</td>
<td>-.048</td>
<td>-.022</td>
<td>.120</td>
<td>-.488</td>
<td>.121</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>My skills are fully used to a great extent</td>
<td>.563</td>
<td>.378</td>
<td>.097</td>
<td>.162</td>
<td>.184</td>
<td>.202</td>
<td>.176</td>
</tr>
<tr>
<td>Kahn</td>
<td>I feel capable of driving physical … my role performance</td>
<td>.283</td>
<td>.485</td>
<td>.386</td>
<td>.300</td>
<td>.108</td>
<td>.237</td>
<td>.042</td>
</tr>
<tr>
<td>UWES</td>
<td>At my job, I am very resilient mentally</td>
<td>.221</td>
<td>.167</td>
<td>.162</td>
<td>.468</td>
<td>.046</td>
<td>.239</td>
<td>-.098</td>
</tr>
<tr>
<td>Psychological ownership</td>
<td>There is opportunity for me to pursue … interests here</td>
<td>.714</td>
<td>.287</td>
<td>.109</td>
<td>.194</td>
<td>.173</td>
<td>.100</td>
<td>.134</td>
</tr>
<tr>
<td>Scale</td>
<td>Item</td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 3</td>
<td>Factor 4</td>
<td>Factor 5</td>
<td>Factor 6</td>
<td>Factor 7</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Psychological ownership (McCashland, 2000; Rucci et al., 1998)</td>
<td>I would recommend the products ... people I care about</td>
<td>.373</td>
<td>.148</td>
<td>.189</td>
<td>.133</td>
<td>.800</td>
<td>.128</td>
<td>-.017</td>
</tr>
<tr>
<td>UWES (Schaufeli et al., 2002b)</td>
<td>I can continue working for very long periods at a time</td>
<td>.132</td>
<td>.089</td>
<td>.206</td>
<td>.444</td>
<td>.218</td>
<td>.298</td>
<td>-.183</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>There is opportunity for me to follow ... to completion</td>
<td>-.442</td>
<td>.249</td>
<td>.126</td>
<td>.128</td>
<td>.209</td>
<td>-.477</td>
<td>-.111</td>
</tr>
<tr>
<td>Kahn (1990, 1992)</td>
<td>I feel worthwhile, valued, valuable ... in courses of work</td>
<td>.712</td>
<td>.227</td>
<td>.230</td>
<td>.119</td>
<td>.154</td>
<td>.230</td>
<td>-.055</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>I have opportunities to set my own goals</td>
<td>.536</td>
<td>.166</td>
<td>.194</td>
<td>.200</td>
<td>.132</td>
<td>.543</td>
<td>.147</td>
</tr>
<tr>
<td>UWES (Schaufeli et al., 2002b)</td>
<td>I feel happy when I am working intensely</td>
<td>.140</td>
<td>.251</td>
<td>.297</td>
<td>.340</td>
<td>.077</td>
<td>.448</td>
<td>.006</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>There is a variety of tasks required by my job</td>
<td>.119</td>
<td>.173</td>
<td>.176</td>
<td>.598</td>
<td>.056</td>
<td>.158</td>
<td>.149</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>There is a good level of quality ... communication in my job</td>
<td>.459</td>
<td>.348</td>
<td>.128</td>
<td>.161</td>
<td>.138</td>
<td>-.184</td>
<td>-.100</td>
</tr>
<tr>
<td>Psychological ownership (McCashland, 2000; Rucci et al., 1998)</td>
<td>I would recommend the purchase ... to people I care about</td>
<td>.359</td>
<td>.164</td>
<td>.245</td>
<td>.085</td>
<td>.689</td>
<td>.205</td>
<td>.035</td>
</tr>
<tr>
<td>Psychological ownership (McCashland, 2000; Rucci et al., 1998)</td>
<td>I would recommend this organisation ... great place to work</td>
<td>.654</td>
<td>.159</td>
<td>.230</td>
<td>.107</td>
<td>.643</td>
<td>.085</td>
<td>.018</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>I receive a good quality of supervision</td>
<td>.611</td>
<td>.093</td>
<td>.167</td>
<td>.132</td>
<td>.204</td>
<td>.111</td>
<td>-.048</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>My job allows a good amount of flexibility</td>
<td>.446</td>
<td>.084</td>
<td>.130</td>
<td>.087</td>
<td>.117</td>
<td>.545</td>
<td>.022</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>There is a sense of fair play in my organisation</td>
<td>.701</td>
<td>.148</td>
<td>.226</td>
<td>.060</td>
<td>.259</td>
<td>.174</td>
<td>-.059</td>
</tr>
<tr>
<td>UWES (Schaufeli et al., 2002b)</td>
<td>When I get up in the morning, I feel like going to work</td>
<td>.394</td>
<td>.448</td>
<td>.428</td>
<td>.103</td>
<td>.108</td>
<td>.288</td>
<td>.088</td>
</tr>
<tr>
<td>Time (Goddard, 1999, 2001)</td>
<td>At work, I am physically focused on a task ... organisation</td>
<td>.263</td>
<td>.152</td>
<td>.721</td>
<td>.254</td>
<td>.067</td>
<td>.174</td>
<td>-.013</td>
</tr>
<tr>
<td>UWES (Schaufeli et al., 2002b)</td>
<td>I am immersed in my work</td>
<td>.179</td>
<td>.341</td>
<td>.570</td>
<td>.255</td>
<td>.131</td>
<td>.131</td>
<td>.209</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>I receive a good level of feedback</td>
<td>.626</td>
<td>.176</td>
<td>.186</td>
<td>.059</td>
<td>.037</td>
<td>.231</td>
<td>-.086</td>
</tr>
<tr>
<td>Job satisfaction (Hackman &amp; Oldham, 1975; Smith et al., 1987)</td>
<td>I have a good status within the organisation</td>
<td>.451</td>
<td>.150</td>
<td>.248</td>
<td>.285</td>
<td>.039</td>
<td>.212</td>
<td>-.020</td>
</tr>
<tr>
<td>Item</td>
<td>Scale</td>
<td>Item</td>
<td>Scale</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UWES (Schaufeli et al., 2002b)</td>
<td>At my job, I feel strong and vigorous</td>
<td>Time (Goddard, 1999, 2001)</td>
<td>At work, I am physically and/or mentally … organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kahn (1990, 1992)</td>
<td>I feel that situations are trustworthy … consequences</td>
<td>Time (Goddard, 1999, 2001)</td>
<td>In my role, my time is spent focused … of the organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.338</td>
<td>.406</td>
<td>.468</td>
<td>.338</td>
<td>.091</td>
<td>.281</td>
<td>-.084</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.264</td>
<td>.242</td>
<td>.672</td>
<td>.198</td>
<td>.222</td>
<td>.035</td>
<td>-.066</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.612</td>
<td>.195</td>
<td>.242</td>
<td>.112</td>
<td>.249</td>
<td>.195</td>
<td>-.149</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.245</td>
<td>.110</td>
<td>.628</td>
<td>.223</td>
<td>.222</td>
<td>.029</td>
<td>-.076</td>
<td></td>
</tr>
</tbody>
</table>

Note: Factor loadings > .5 are underlined.
6.4.7.4 Scales and items represented by the factors.

Factor one comprised items that represented the benefits of the organisation to the employee, and hence was labelled organisation. Five items resulted from the job satisfaction scale (Hackman & Oldham, 1980; Smith et al., 1987), represented by a minimum of three items as recommended by Paunonen and Jackson (1985). Two of the other items were from Kahn (1990, 1992) and one was from psychological ownership (McCashland, 2000).

Factor two comprised items representing the employee’s experience or sense of self in the job or work, and hence was labelled self. Four items resulted from the dedication subscale of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) and one from the job satisfaction scale (Hackman & Oldham, 1980; Smith et al., 1987).

Factor three comprised items representing how time was spent, and hence it was labelled time. The three time items resulted from Goddard (1999, 2001) and one item from the absorption subscale of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b).

The finding that items from different theoretical orientations loaded on the same factor suggests these items could be grouped in the same measure, irrespective of their different origins. Further, the correlations between the factors were reasonably high, ranging from .3 to .6.

The next step was to conduct confirmatory factor analyses using structural equation modelling, following Anderson and Gerbing (1988), Byrne (2010) and Kline (2011) (Hinkin, 1998 [Step 4]).

6.4.8 Confirmatory factor analysis.

In confirmatory factor analyses, inter-item reliability is used to determine the utility of the factors. Tabachnick and Fidell (2007) suggest factors that produce
coefficients above .7 are considered to be meaningful. This was the cut-off point used in the current study to estimate internal consistency.

A single factor analysis was conducted in which the organisation factor was represented by a latent variable, with its eight items forming indicator variables. One item (‘There is a good level of quality and timeliness of communication in my job’) loaded at less than .7 (.66) and was deleted (Figure 6.11).

**Figure 6.11.** Organisation factor for empirical engagement model.

A second item (‘There is a sense of fair play in my organisation’) then loaded at less than .7 (.68) and was deleted, reducing the model to six items (Figure 6.12).

**Figure 6.12.** Revised organisation factor for empirical engagement model.
Next, a model was constructed in which the self factor was represented by a latent variable, with its five items forming indicator variables. All items loaded at greater than .7 (Figure 6.13).

**Figure 6.13.** Self factor for empirical engagement model.

Next, a model was constructed in which factor three was represented by a latent variable, with its three items forming indicator variables. All items loaded at greater than .7 (Figure 6.14).

**Figure 6.14.** Time factor for empirical engagement model.

### 6.4.8.1 Research Question 3b: What is an appropriate model for engagement in medical contexts?

Three factors were combined in a measurement model. In response to Research Question 3b, which asked, what is an appropriate model for engagement in medical contexts, all items continued to load at greater than .7. The covariances between factors were moderately high, showing that while related, they were separate and distinct factors. The standardised residual covariances were assessed and all items met the
criterion of less than 1.96, indicating the model was effective in explaining the sample covariance (Jöreskog & Sörbom, 1994) (Figure 6.15).

![Figure 6.15. Measurement model for empirical engagement model.](image)

### 6.4.8.2 Multivariate outliers.

Outliers had been assessed, as reported earlier, at the univariate level, and were now assessed at the multivariate level. Multivariate outliers were assessed by the Mahalanobis distance, with \( p < .001 \) for the \( \chi^2 \) being a very conservative probability estimate for a case being an outlier (Tabachnick & Fidell, 2007). Seventeen cases appeared to be outliers at \( p < .001 \) for the \( \chi^2 \). Tabachnick and Fidell (2007) emphasised the importance of identifying deviant cases. In this study, 14 cases were junior nurses and three were seniors. A factor that the seniors had in common was their intention to leave the organisation within the next five years. The juniors varied on this aspect. There was nothing else evident to distinguish the 17 cases as being not properly part of
the sample. A decision was made not to delete these outliers at this stage until the other variables had been assessed, and to assess multivariate outliers at the path model stage.

**6.4.8.3 Higher order model for engagement.**

A higher order model was developed. All items continued to load at greater than .7. Factors loaded at between .72 and .89, showing while related, they were distinct factors (Figure 6.16).

![Figure 6.16. Higher order model for empirical engagement model.](image)

In the process of developing path models, it is not acceptable to change data sets and hence tests of equivalence were conducted on the doctor data at the path model stage, Study 3b, Chapter 7 (Kline, 2011).

The discussion for Study 3a is presented in the discussion section for Study 3, at the end of Chapter 7.
The next Chapter 7 reports Study 3b, the results of analyses for the path model of engagement.
Chapter 7: Study 3b—A Path Model for Engagement

7.1 Introduction

The previous chapter introduced Study 3 and presented the aims and method of the study. Study 3a was reported in which a scale for nurse engagement was developed.

The rationales for Study 3b were presented in the aims section at the beginning of Study 3, Chapter 6. The first aim of this Study 3b was to investigate the relationships between engagement and the related constructs of psychological climate, psychological empowerment and negative affectivity in a path model for engagement.

The second aim of Study 3b was to explore whether the relationship between psychological climate and engagement would be partially mediated by psychological empowerment in the medical context, whereas total mediation had been found in the business context (Carless, 2004). The Carless path model for job satisfaction was adapted for use in the research design by replacing job satisfaction with engagement and later by testing intrinsic motivation and burnout (represented by emotional exhaustion) in the model (Figure 7.2). Carless found climate did not directly influence job satisfaction. In the current study, it was expected climate would have both a direct and indirect influence on engagement and only partial mediation would occur, rather than full mediation as found by Carless. Study 3a had demonstrated job satisfaction was a facet of engagement in medical contexts, providing support for the use of the Carless (2004) job satisfaction model as a basis for developing the path model of engagement.

The third aim of Study 3b was to examine the engagement path model with the addition of intrinsic motivation and burnout, represented by emotional exhaustion. Intrinsic motivation and burnout have been of interest in the literature, but no evidence could be found of their inclusion in models of engagement (Janssen et al., 1999; Maslach et al., 2001; McNeese-Smith, 1999). Intrinsic motivation and burnout were
added to the engagement model later in the study, as shown in the research model Figure 7.2.

Figure 7.1. The job satisfaction model (Carless, 2004) that was adapted for a model of engagement.

These aims led to the following predictions:

**Hypothesis 1: Relationships between climate, empowerment and engagement in medical contexts—the engagement model.**

*Hypothesis 1a. Significant positive relationships will be found between climate, empowerment and engagement in an engagement model.*

*Hypothesis 1b. Empowerment will be a stronger predictor of engagement than will climate.*

*Hypothesis 1c: The engagement model will be structurally equivalent for nurse and doctor data.*

*Hypothesis 1d. The relationship between engagement and climate will be partially mediated by empowerment.*

**Hypothesis 2: Relationships between climate, empowerment, engagement, emotional exhaustion and intrinsic motivation—extending the engagement model**
Hypothesis 2a. Intrinsic motivation will be positively related to engagement.

Hypothesis 2b. Engagement and emotional exhaustion will be moderately negatively related.

Hypothesis 2c. Intrinsic motivation will be positively rather than negatively related to emotional exhaustion.

Hypothesis 2d. Different strengths will be found for the predictors of engagement and emotional exhaustion.

7.2 Results

This section reports the results of analyses conducted to develop the research model, a path model of engagement. The research model is depicted in Figure 7.2. The analyses were first conducted with the nurse respondents (n = 392) and then tested with the doctor respondents (n = 154). The correlations between variables were reported in the previous chapter, Study 3a.

7.2.1 Alternative, equivalent and reciprocal models.

Alternative models are recommended in SEM (Byrne, 2010; Kline, 2011; Vandenberg & Grelle, 2009). Alternative models are tested in situations where more than one a priori model is available, or conflicting theories occur (Jöreskog, 1993; Kline, 2011). The alternative model should be specified before model fitting, and is used to pit the theoretical argument against an alternative structure to strengthen claims of measurement validity (Vandenberg & Grelle, 2009). Alternative, equivalent and reciprocal models were explored, as detailed in Appendix D. The results of the models are reported later in this chapter 7.
7.2.2 The research model.

Models were developed for the independent variables psychological climate, empowerment and intrinsic motivation, the covariate negative affectivity and the dependent variable emotional exhaustion. These models were then inserted into the full research model and evaluated in terms of their fit indices. The following three-stage process was used:

1. Exploratory factor analyses were conducted in SPSS 21.0 (IBM Corporation, 2012b) to examine the factor structure of the measures (Tabachnick & Fidell, 1996)

2. Measurement model was conducted in AMOS 21.0 (IBM Corporation, 2012a) including discriminant validity tests.

3. Structural model was built and tested (Anderson & Gerbing, 1988).
7.2.3 Exploratory factor analyses.

First, scale reliability analysis and exploratory factor analysis were undertaken to determine the underlying factor structure of the variables and items, and to assess the internal consistency of each measure. Cronbach coefficient alpha scores of greater than .70 were obtained, indicating reliable measurement. Second, confirmatory factor analyses were conducted for each construct. The only exclusion to the varimax rotation was the use of the oblimin rotation method for the intrinsic motivation variable, as outlined below. Items were excluded when loading at less than .50 or cross-loading at greater than .20. Exploratory and confirmatory factor analyses were conducted as follows.

7.2.3.1 Climate independent variable exploratory factor analysis.

An exploratory factor analysis was conducted on the climate items using principal axis factoring. The components of the Langford (2007) climate scale were not theoretically closely related. Langford did not indicate which method of rotation was used but advised caution should be taken when using the scale until it had demonstrated consistently strong psychometric qualities in future studies (see Appendix D). No other reference could be found for the use of this scale. Carless (2004) reported similar difficulties in using the Hart et al. (2000) climate scale. These difficulties may indicate the climate measure attempts to simplify something that is more complex or multidimensional. Hence varimax rotation was used for the climate scale in the current study for these reasons. A six-factor solution was obtained using the criterion of eigenvalues greater than one. Several tests were conducted as recommended (Costello & Osborne, 2005; Fabrigar et al., 1999). First, Kaiser’s criterion of eigenvalues of greater than one was applied. Second, Cattell’s scree test was applied, showing a substantial
drop in eigenvalues after the sixth factor. Third, parallel analysis was applied confirming the six-factor solution. Seven items were deleted at the < .5 criterion and cross-loading > .2. Factor one comprised six items, all from the participation scale. Factor two comprised four items from the purpose scale. Factor three comprised three items from the purpose scale. Factor four comprised three items from the people scale. Factor five comprised three items from the property scale. Factor six comprised only two items and hence was omitted (Table 7.1).

Table 7.1

Results of the Exploratory Factor Analysis for the Climate Variables Using a Varimax Rotation (n = 392)

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am aware of the values of this organisation</td>
<td>.214</td>
<td>.712</td>
<td>.085</td>
<td>.020</td>
<td>.120</td>
<td>.128</td>
</tr>
<tr>
<td>This organisation has a strong focus on achieving positive results</td>
<td>.283</td>
<td>.639</td>
<td>.392</td>
<td>.094</td>
<td>.212</td>
<td>.046</td>
</tr>
<tr>
<td>I believe in the values of this organisation</td>
<td>.252</td>
<td>.797</td>
<td>.244</td>
<td>.109</td>
<td>.131</td>
<td>-.013</td>
</tr>
<tr>
<td>This organisation is ethical</td>
<td>.305</td>
<td>.538</td>
<td>.479</td>
<td>.098</td>
<td>.247</td>
<td>.079</td>
</tr>
<tr>
<td>I understand how my job contributes to the overall success of this organisation</td>
<td>.275</td>
<td>.569</td>
<td>.152</td>
<td>.164</td>
<td>.211</td>
<td>.164</td>
</tr>
<tr>
<td>There is equal opportunity for all staff in this organisation</td>
<td>.495</td>
<td>.343</td>
<td>.340</td>
<td>.063</td>
<td>.295</td>
<td>.093</td>
</tr>
<tr>
<td>I have easy access to all the information I need to do my job well</td>
<td>.327</td>
<td>.243</td>
<td>.099</td>
<td>.098</td>
<td>.530</td>
<td>.241</td>
</tr>
<tr>
<td>Our policies and procedures are efficient and well designed</td>
<td>.261</td>
<td>.271</td>
<td>.242</td>
<td>.097</td>
<td>.689</td>
<td>.029</td>
</tr>
<tr>
<td>This organisation makes good use of technology</td>
<td>.196</td>
<td>.220</td>
<td>.343</td>
<td>.108</td>
<td>.565</td>
<td>.051</td>
</tr>
<tr>
<td>Keeping high levels of health and safety is a priority of this organisation</td>
<td>.251</td>
<td>.512</td>
<td>.346</td>
<td>.052</td>
<td>.334</td>
<td>.109</td>
</tr>
<tr>
<td>The buildings, grounds and facilities I use are in good condition</td>
<td>.145</td>
<td>.103</td>
<td>.376</td>
<td>.092</td>
<td>.098</td>
<td>.010</td>
</tr>
<tr>
<td>Senior management are good role models for staff</td>
<td>.698</td>
<td>.247</td>
<td>.441</td>
<td>.082</td>
<td>.079</td>
<td>-.099</td>
</tr>
<tr>
<td>Managers in this organisation know the benefits of employing the right people</td>
<td>.564</td>
<td>.244</td>
<td>.409</td>
<td>.182</td>
<td>.153</td>
<td>-.057</td>
</tr>
<tr>
<td>Knowledge and information are shared throughout this organisation</td>
<td>.565</td>
<td>.226</td>
<td>.443</td>
<td>.056</td>
<td>.284</td>
<td>.049</td>
</tr>
<tr>
<td>There is commitment to ongoing training and development of staff</td>
<td>.500</td>
<td>.188</td>
<td>.443</td>
<td>.072</td>
<td>.292</td>
<td>.147</td>
</tr>
<tr>
<td>I am consulted before decisions that affect me are made</td>
<td>.649</td>
<td>.176</td>
<td>.256</td>
<td>.092</td>
<td>.247</td>
<td>.082</td>
</tr>
<tr>
<td>The rewards and recognition I receive from this job are fair</td>
<td>.625</td>
<td>.223</td>
<td>.155</td>
<td>.091</td>
<td>.140</td>
<td>.190</td>
</tr>
<tr>
<td>The way my performance is evaluated provides me with clear guidelines for improvement</td>
<td>.633</td>
<td>.206</td>
<td>.103</td>
<td>.106</td>
<td>.204</td>
<td>.154</td>
</tr>
<tr>
<td>I have confidence in the ability of my manager</td>
<td>.771</td>
<td>.205</td>
<td>.122</td>
<td>.072</td>
<td>.070</td>
<td>.102</td>
</tr>
<tr>
<td>I am given opportunities to develop skills needed for career progression</td>
<td>.653</td>
<td>.181</td>
<td>.237</td>
<td>.066</td>
<td>.127</td>
<td>.210</td>
</tr>
<tr>
<td>My coworkers invest extra effort whenever necessary</td>
<td>.102</td>
<td>.084</td>
<td>.110</td>
<td>.852</td>
<td>.069</td>
<td>.050</td>
</tr>
<tr>
<td>My coworkers are productive in their jobs</td>
<td>.082</td>
<td>.066</td>
<td>.121</td>
<td>.895</td>
<td>.080</td>
<td>.120</td>
</tr>
</tbody>
</table>
### 7.2.3.1.1 Communalities, variance and covariance.

Tabachnick and Fidell (2007) recommended checking the communalities, variance and covariance of factors. Fabrigar et al. (1999) advised selection of variables with sound psychometric properties, which is indicated by the communalities of variables, the amount of variance explained by the common factors. Variables with low communalities have low reliability and are to be avoided as they produce substantial distortion in results. The communalities of the climate factors were moderate to high. Factor one accounted for 17.98% of the variance and factor two accounted for 12.46%. The two factors together accounted for 30.44%. The proportion of covariance is the proportion of variance in the factor solution accounted for by a factor, and is calculated by dividing the sums of squared loadings for the factor by the sum of communalities.

### 7.2.3.2 Empowerment independent variable exploratory factor analysis.

Spreitzer (1995a) reported low alpha reliabilities for the measure of empowerment but accepted these because the study had been an initial attempt at measurement and because the four dimensions were assessing different aspects of empowerment. The combined reliability of subscales ($n = 324$) was .74, suggesting heterogeneity between the items. The loadings of some factors were poor in Spreitzer’s (1995a) analyses (.58, .49 and .49). Heterogeneity of Spreitzer’s (1995a) subscales was suggested by Tierney and Farmer (2011) whereas other studies, including in nursing, have reported good reliabilities (Calarco, 2011; Carless, 2004; Chen et al., 2010; Sun et
al., 2011). As mentioned in Chapter 6, a recent study highlighted the overlap between the constructs of engagement and empowerment by using two items from Spreitzer’s (1995a) meaning facet of empowerment combined with two items from an engagement scale; an alpha reliability of .89 was reported for the four items (Vinarski-Peretz & Carmeli, 2011). Spreitzer (1995a) did not report conducting an exploratory factor analysis prior to the confirmatory factor analysis. Spreitzer (1995a) contended the four dimensions were assessing different aspects of empowerment, which suggested there would be different underlying factors.

A principal axis factor extraction was conducted. The aforementioned difficulties may indicate the empowered measure attempts to simplify something that is more complex or multidimensional and hence varimax rotation was used. A four-factor solution was obtained using the criterion of eigenvalues greater than one. The same tests were conducted as for the climate variable to confirm the solution (Costello & Osborne, 2005; Fabrigar et al., 1999). The items were examined at >.5 criterion and cross-loading >.2. The 12 items loaded onto the four factors as reported by Spreitzer (1995a), meaning, competence, self-determination and impact. Spreitzer’s (1995a) measure was represented without alteration (Table 7.2).
Table 7.2

Results of the Exploratory Factor Analysis for the Empowerment Variables Using a Varimax Rotation \((n = 392)\)

<table>
<thead>
<tr>
<th>Scale items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>The work I do is very important to me</td>
<td>.171</td>
<td>.840</td>
<td>.215</td>
<td>.121</td>
</tr>
<tr>
<td>My job activities are personally meaningful to me</td>
<td>.207</td>
<td>.863</td>
<td>.172</td>
<td>.143</td>
</tr>
<tr>
<td>The work I do is meaningful to me</td>
<td>.180</td>
<td>.892</td>
<td>.210</td>
<td>.185</td>
</tr>
<tr>
<td>I am confident about my abilities to do my job</td>
<td>.120</td>
<td>.236</td>
<td>.875</td>
<td>.174</td>
</tr>
<tr>
<td>I am self-assured about my capabilities to perform my work activities</td>
<td>.117</td>
<td>.216</td>
<td>.881</td>
<td>.187</td>
</tr>
<tr>
<td>I have mastered the skills necessary for my job</td>
<td>.075</td>
<td>.133</td>
<td>.793</td>
<td>.206</td>
</tr>
<tr>
<td>I have significant autonomy in determining how I do my job</td>
<td>.215</td>
<td>.186</td>
<td>.248</td>
<td>.759</td>
</tr>
<tr>
<td>I can decide on my own how to go about doing my work</td>
<td>.184</td>
<td>.170</td>
<td>.184</td>
<td>.873</td>
</tr>
<tr>
<td>I have considerable opportunity for independence and freedom in how I do my job</td>
<td>.283</td>
<td>.103</td>
<td>.185</td>
<td>.864</td>
</tr>
<tr>
<td>My influence on what happens in my department is large</td>
<td>.743</td>
<td>.232</td>
<td>.135</td>
<td>.232</td>
</tr>
<tr>
<td>I have a great deal of control over what happens in my department</td>
<td>.912</td>
<td>.155</td>
<td>.096</td>
<td>.239</td>
</tr>
<tr>
<td>I have significant influence over what happens in my department</td>
<td>.945</td>
<td>.179</td>
<td>.089</td>
<td>.190</td>
</tr>
</tbody>
</table>

Note: Factor loadings > .5 are underlined.

### 7.2.3.2.1 Communalities, variance and covariance.

The communalities were high. Factor one accounted for 21.47% of the variance, and factor two accounted for 21.24%. The two factors together accounted for 42.71%.

### 7.2.3.3 Negative affectivity covariate variable exploratory factor analysis.

As referred to in the method section in the previous chapter, the four positively worded items were reverse-coded so higher values represented higher negative affectivity. Braithwaite (1987) did not report conducting a factor analysis in the development of her scale for negative affectivity. However, other researchers reported using a varimax rotation when analysing Braithwaite’s (1987) scale (see, e.g. Murphy, 2008). An exploratory factor analysis was conducted on the eight negative affectivity items using principal axis factoring. A two-factor solution was obtained using the criterion of eigenvalues greater than one. The same tests were conducted as for the climate variable to confirm the solution (Costello & Osborne, 2005; Fabrigar et al.,
1999). The analysis used a varimax rotation and six of the eight items loaded onto two factors (Table 7.3).

Table 7.3

Results of the Exploratory Factor Analysis for the Negative Affectivity Variables Using a Varimax Rotation (n = 392)

<table>
<thead>
<tr>
<th>Scale items</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can tolerate frustration better than most</td>
<td>-.243</td>
<td>.546</td>
</tr>
<tr>
<td>It takes a lot to make me angry</td>
<td>-.218</td>
<td>.780</td>
</tr>
<tr>
<td>There are not many things that annoy me</td>
<td>-.128</td>
<td>.655</td>
</tr>
<tr>
<td>I am known as hot blooded and quick tempered</td>
<td>.488</td>
<td>-.319</td>
</tr>
<tr>
<td>I am somewhat emotional</td>
<td>.583</td>
<td>-.222</td>
</tr>
<tr>
<td>I have trouble controlling my impulses</td>
<td>.730</td>
<td>-.141</td>
</tr>
<tr>
<td>I frequently get upset</td>
<td>.774</td>
<td>-.243</td>
</tr>
<tr>
<td>I am almost always calm—nothing ever bothers me</td>
<td>-.298</td>
<td>.428</td>
</tr>
</tbody>
</table>

Note: Factor loadings > .5 are underlined.

7.2.3.3.1 Communalities, variance and covariance.

The communalities varied, with three being low (.27, .34 and .36) and the rest being moderate to high. Factor one accounted for 24.02% of the variance, and factor two accounted for 21.85%. The two factors together accounted for 45.87%.

7.2.3.4 Intrinsic motivation independent variable exploratory factor analysis.

An exploratory factor analysis was conducted on the three intrinsic motivation items using principal axis factoring. The analysis was followed by a direct oblimin rotation, as Tremblay et al. (2009) reported, using an oblique rotation for the measure. A one-factor solution was obtained using the criterion of eigenvalues greater than one. The same tests were conducted as for the climate variable to confirm the solution (Costello & Osborne, 2005; Fabrigar et al., 1999). The three items met the >.5 criterion and cross-loading >.2, as shown in Table 7.4.
Table 7.4

Results of the Exploratory Factor Analysis for the Intrinsic Motivation Variables Using an Oblique Rotation (n = 392)

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I derive much pleasure from learning new things</td>
<td>.84</td>
</tr>
<tr>
<td>For the satisfaction I experience from taking on interesting challenges</td>
<td>.96</td>
</tr>
<tr>
<td>For the satisfaction I experience when I am successful at doing difficult tasks</td>
<td>.85</td>
</tr>
</tbody>
</table>

Note: Factor loadings > .5 are underlined.

7.2.3.4.1 Communalities, variance and covariance.

The communalities were high. Factor one accounted for 78.15% of the variance.

7.2.3.5 Emotional exhaustion dependent variable exploratory factor analysis.

An exploratory factor analysis was conducted on the nine emotional exhaustion items using principal axis factoring. The analysis was followed by a varimax rotation, as this rotation was used by Maslach and Jackson (1981). A one-factor solution was obtained using the criterion of eigenvalues greater than one. The same tests were conducted as for the climate variable to confirm the solution (Costello & Osborne, 2005; Fabrigar et al., 1999). All items met the criterion of >.5 criterion and cross-loading >.2 (Table 7.5).

Table 7.5

Results of the Exploratory Factor Analysis for the Emotional Exhaustion Variables Using Varimax Rotation (n = 392)

<table>
<thead>
<tr>
<th>Scale item</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel emotionally drained from my work</td>
<td>.79</td>
</tr>
<tr>
<td>I feel used up at the end of the workday</td>
<td>.80</td>
</tr>
<tr>
<td>I feel fatigued when I get up in the morning and have to face another day on the job</td>
<td>.85</td>
</tr>
<tr>
<td>Working with people all day is really a strain for me</td>
<td>.72</td>
</tr>
<tr>
<td>I feel burnt out from my work</td>
<td>.90</td>
</tr>
<tr>
<td>I feel frustrated by my job</td>
<td>.78</td>
</tr>
<tr>
<td>I feel I’m working too hard on my job</td>
<td>.78</td>
</tr>
<tr>
<td>Working with people directly puts too much stress on me</td>
<td>.74</td>
</tr>
<tr>
<td>I feel like I’m at the end of my rope</td>
<td>.83</td>
</tr>
</tbody>
</table>

Note: Factor loadings > .5 are underlined.
7.2.3.5.1 Communalities, variance and covariance.

The communalities were moderate to high. Factor one accounted for 63.85% of the variance.

7.2.4 Reliability of the variables.

A high Cronbach’s alpha reliability was found for each scale, except for two climate scales property (.76) and peace (.66) which were noted to be low by Langford (2007). These reliabilities were acceptable at a generally accepted cut-off point of .7 (Garver & Mentzer, 1999; Hair et al., 1995; Kline, 2000). The correlations between all engagement scales were significant (Table 6.2).

7.2.5 Structural equation path modelling.

Structural equation modelling allows variables to be simultaneously considered dependent or independent, permitting multiple relationships in a model (Hair, Black, Babin, Anderson & Tatham, 2006; Kline, 2011). SEM is recommended when three conditions occur in a research design: when the relationship of interest has measurement error, when there is independence among the observed variables, and when important explanatory variables are omitted (Goldberger, 1973; Jöreskog & Sörbom, 1993). SEM was used to check the constructs in the research model, and to test the path models.

When interpreting each model, the following standard methods were used. The analysis properties of maximum likelihood discrepancy or goodness-of-fit were estimated. Several indicators were examined, as detailed later in the path model section.

It is generally accepted that multiple-fit indices should be met when estimating the fit of models to minimise Type I and Type II errors (Hu & Bentler, 1999; Newsom, 2001). The modification indices were also considered. Kline (2012) outlined five assumptions of structural equation models that must be met before a causal relationship
can be inferred between variables. Causal relations were not inferred in the current studies, however all of Kline’s other assumptions were met in the structural models presented in this thesis. The assumptions for data, maximum likelihood and measurement models and multiple regression outlined by Kline (2012) were met, as detailed next.

7.2.5.1 Multivariate outliers and multicollinearity.

Multivariate outliers were identified later in the structural models by computing the Mahalanobis Distance (Hair et al., 2006; Tabachnick & Fidell, 1996).

Multicollinearity is indicated first by the squared multiple correlation between each variable and the rest (Kline, 2011; Tabachnick & Fidell, 2007). High correlations indicate highly related variables and multicollinearity. The squared multiple correlations between the engagement items ranged between .57 and .77, indicating potential multicollinearity. Second, multivariate collinearity is indicated by tolerance criteria, which is one, minus the squared multiple correlation of a variable. A higher value indicates less overlap between variables, with a tolerance value of .50 or higher generally considered acceptable (Tabachnick & Fidell, 2001). Tabachnick and Fidell (2007) contended tolerance levels should range between .01 and .0001, with variables excluded when squared multiple correlations are .99 to .9999. Kline (2011) contended tolerance values of < .10 may indicate extreme multivariate collinearity. Tolerance levels for the engagement variable ranged between .43 and .23, indicating multicollinearity of some items. As multicollinearity was not extreme, the analyses proceeded with caution. Third, multicollinearity is indicated by the variable inflation factor scores, when scores are greater than .50 for at least two variables (Tabachnick & Fidell, 2007). The variable inflation factor statistics were calculated in SPSS (IBM Corporation, 2012a) and were all < .50, and hence not redundant.
The squared multiple correlations between the climate items ranged between .51 and .86, between empowerment items was .39 to .96, between negative affectivity items was .38 to .69, between intrinsic motivation items was .69 to .93 and between emotional exhaustion items was .50 to .82 indicating potential multicollinearity.

Tolerance levels ranged between .49 and .86 for climate, .61 and .04 for empowerment, .62 and .31 for negative affectivity, .31 and .62 for intrinsic motivation and .50 and .18 for emotional exhaustion, indicating multicollinearity of some items. As multicollinearity was not extreme, analyses proceeded with caution.

The variable inflation factor statistics were calculated in SPSS (IBM Corporation, 2012a) and were all < .50 for climate, negative affectivity, intrinsic motivation and emotional exhaustion and hence were not redundant. Three items were greater than .50 for empowerment, indicating potential multicollinearity. Analyses proceeded with caution.

The single factor analysis for each variable is reported next.

**7.2.6 Single factor analyses.**

**7.2.6.1 Climate independent variable.**

Factor one, participation, was represented by a latent variable, with its six items forming indicator variables. The measurement weights were greater than .7 and all were retained (Figure 7.3).
Figure 7.3. Single factor for climate participation.

Factor two, purpose, was represented by a latent variable, with its four items forming indicator variables. The measurement weights were greater than .7 except for item five ‘I understand how my job contributes to the overall success of this organisation’ (.67) and this item was deleted (Figure 7.4).

Figure 7.4. Single factor for climate purpose.

Factor three, progress, was represented by a latent variable, with its three items forming indicator variables. The measurement weights for all items were greater than .7 (Figure 7.5).
Figure 7.5. Single factor for climate progress.

Factor four, people, was represented by a latent variable, with its three items forming indicator variables. The measurement weights were greater than .7 and all items were retained (Figure 7.6).

Figure 7.6. Single factor for climate people.

Factor five, property, was represented by a latent variable, with its three items forming indicator variables. The measurement weights for two items were less than .7 and this factor was deleted (Figure 7.7).

Figure 7.7. Single factor for climate property.
The four factors of 15 items were combined in a measurement model, to demonstrate the discrimination between each factor. The participation and progress factors were strongly correlated and hence less distinct (.79) than were the purpose and progress factors (.72) (Figure 7.8).

A higher order model for the climate variable was investigated because Langford (2007) contended the factors representing climate are a higher order variable. The loadings indicated the first three factors were measuring some fundamentally different aspect of climate than the fourth factor, people. Thus, a higher order model was not supported (Figure 7.9).
However, once the people factor was removed, the factors and items all loaded at greater than .7 (Figure 7.10).
Further analyses investigated whether the people factor could be retained. Carless (2004) reported using the generic version (Hart, Wearing, Griffin, & Cooper, 1996) of the climate measure by Hart et al. (2000). The Hart et al. (2000) and Langford (2007) measures each have seven subscales, mapping partially. Langford’s (2007) property and peace scales have no similar counterparts in the Hart et al. (1996) scale. Carless (2004) reported due to the large number of items (30) in the Hart et al. (2000) measure, subscale scores were used to represent each factor and were used as indicators for the latent variable of climate. Carless observed the intercorrelations between the facets of climate were reasonably high ($r = .61$) and James and James (1989) proposed a single higher order factor be used in such cases. It is unclear from Carless (2004) how these subscale scores were created and used as indicators. The 28 items in Langford’s (2007) scale were investigated with single item index scores (calculated by computing the means of each subscale) to determine whether this would better represent all five....
factors resulting from the exploratory factor analysis. The people factor continued to load poorly (Figure 7.11).

![Diagram of Langford's (2007) climate scale represented by scale items.](image)

**Figure 7.11.** Langford’s (2007) climate scale represented by scale items.

The four subscales related to Hart et al. (2000) used by Carless (2004)—that is, excluding the property factor were investigated. The people factor continued to load at less than .7 (.34). Another model explored the loading of the subscale indicators excluding the people factor and found the three factors loaded greater than .7.

The difficulties Carless (2004) reported in using the Hart et al. (2000) scale and the difficulties found in the current analyses may indicate these climate measures attempt to simplify something that is more complex or multidimensional. The poor fit of the higher order model (Figure 7.10) and subscale model (Figure 7.11) demonstrate factors participation, purpose and progress appear to be measuring the same dimension. The people factor appears to be measuring a different dimension and may not be a good measure of the underlying theoretical concept of climate for the nurse data in the present study. The items in the people factor all focus on the concepts and wording of ‘my co-workers’ and expressions of ‘support’, ‘extra effort’ and ‘productivity’. The items in the other factors focus on the individual in the organisation. Analyses proceeded with the
higher order model (Figure 7.10), which provided more information with which to assess relationships with the other variables and was developed using the same methodology as the other scales developed for the final model for consistency. These analyses suggest the Langford (2007) scale should be treated with caution (Appendix D).

7.2.6.1.1 Discriminant validity for engagement and climate.

A measurement model was conducted to test the relationship between the engagement and climate variables for discriminant validity. A high correlation (.82) was found between the two variables showing that while distinct variables, they were highly correlated. Items loaded at greater than .7 (Figure 7.12).

*Figure 7.12. Discriminant model for engagement and climate.*
Discriminant validity tests are critical to the development of structural equation models. If constructs do not pass this test, they should not be used in final models (Anderson & Gerbing, 1988). These variables had passed the discriminant validity tests and could be used in the final structural model.

7.2.6.2 Empowerment independent variable.

The meaning factor was represented by a latent variable, with its three items forming indicator variables. The measurement loadings were all greater than .7 and were retained (Figure 7.13).

![Figure 7.13. Single factor for empowerment meaning.](image)

The impact factor was represented by a latent variable, with its three items forming indicator variables. The measurement loadings were all > .7 and were retained (Figure 7.14).

![Figure 7.14. Single factor for empowerment impact.](image)

The self-determination factor was represented by a latent variable, with its three items forming indicator variables. The measurement loadings were all > .7 and were retained (Figure 7.15).
The competence factor was represented by a latent variable, with its three items forming indicator variables. The measurement loadings were all > .7 and were retained (Figure 7.16).

The four factors of 12 items were combined in a measurement model (Figure 7.17).
A higher order model was constructed for empowerment. The items continued to load well onto each factor (> .7). However, the first three factors loaded poorly onto the higher order factor (< .7), with only self-determination loading at greater than .7, indicating this factor measured an aspect of empowerment fundamentally different from the other three factors. The four factors were not supported by a higher order model (Figure 7.18); however, although this was a limitation it did not render the model invalid.
Carless (2004) reported finding a good fit for the higher order model of Spreitzer’s (1995a) variable, but did not report the loading of items or factors. The researcher reported subsequently using a model with subscale scores to minimise the number of indicators in the final full model. It is unclear how these subscale scores were created and used as indicators. Carless found only the meaning subscale loaded at greater than .7, which is similar to the loadings in the higher order model in Figure 7.18, where only self-determination loaded at greater than .7. Spreitzer’s (1995a) research showed the measurement loadings varied substantially between subscales and between the two samples studied, with a Cronbach’s alpha reliability coefficient of only .62 and .72 for each sample. The 12 items in Spreitzer’s (2005) scale were investigated with scale items to determine whether this would better represent the factors. However, the loadings for the subscales were the same as for the higher order model and as in
Carless’s (2004) model. The use of subscales as indicators did not improve the fit of the model (Figure 7.19).

![Subscale model for empowerment.](image)

Analyses proceeded using the higher order model (Figure 7.18), which provided more information with which to assess the relationships with the other variables, which may show good relationships with other variables in the final path models, and was developed using the same methodology as the other scales developed for the final path model. These analyses provided evidence Spreitzer’s (2005) empowerment scale should be treated with caution.

7.2.6.2.1 Discriminatory validity for engagement and empowerment.

A measurement model was conducted to assess the relationship between the engagement and empowerment variables for discriminant validity. A high correlation (.89) was found between the two variables showing while distinct variables, they were highly correlated. All empowerment items loaded at less than .7, other than the meaning factor (.78). The factors for engagement all loaded at greater than .7. Thus, analyses proceeded with caution (Figure 7.20).
A measurement model was conducted to assess the relationships between the engagement, climate and empowerment models. The correlation between engagement and empowerment continued to be high (.85) showing that while distinct variables, they were highly correlated. Engagement and climate continued to be highly correlated (.79) and climate and empowerment were moderately correlated (.47). The factors continued to load onto their higher order latent variables in the same way they had previously, with three empowerment factors loading at less than .7 (Figure 7.21). Thus, analyses proceeded with caution.
Figure 7.21. Discriminant model for engagement, climate and empowerment.

7.2.6.3 Negative affectivity covariate variable.

Factor one of negative affectivity was represented by a latent variable, with its three items forming indicator variables. Two of the items loaded at less than .7 (Figure 7.22). The items focused on neuroticism.
Factor two was represented by a latent variable, with its three items forming indicator variables. Two of the measurement weights were less than .7 (Figure 7.23). The items focused on anger or arousal.

A higher order model was investigated for negative affectivity, but three of the item measurement weights were less than .7 (Figure 7.24).
The Cronbach alpha reliability for the six items produced by the exploratory factor analysis was .76, with .73 for factor one and .75 for factor two.

Carless (2004) reported using the NEO-FFI neuroticism scale by Costa and McCrae (1992). The 12 items were examined in a single factor model, for which a poor fit was obtained. To obtain a better fit, Carless reduced the 12 items to four by iteratively removing items with squared multiple correlations of less than .4. Following the method used by Carless, a single factor with the six items was explored. The loadings for the second factor were poor, with only one of the six items loading at greater than .7 (.43, .50 and .55) (Figure 7.25).

![Figure 7.25. Single factor for negative affectivity.](image)

Items were iteratively removed until the first factor remained, with all items showing squared multiple correlations greater than .4. The reliability of the factor at .75 was close to the reliability (.76) for the six items in both factors, which is the justification that Carless (2004) used for her reduced model. These three items for neuroticism more closely replicate those used by Carless (2004). Three of the four items in the Carless model loaded at greater than .7, whereas only one did in this factor.
A further consideration was to form scale items for each factor. However, the scale item for neuroticism loaded at only .58 and this model was not further investigated (Figure 7.26).

![Figure 7.26. Scale items for negative affectivity.](image)

The higher order model for negative affectivity was used in the following analyses with caution.

### 7.2.6.4 Goodness-of-fit indices for measurement and structural models.

Byrne (2010) said the analysis of covariance structures requires large samples in order to obtain precise parameter estimates and hence it is unrealistic in most structural equation modelling to find well-fitting hypothesised models, that is, models where the chi-square value approximates the degrees of freedom. Byrne (2010) stated that the findings of a large chi-square relative to the degrees of freedom are common, indicating that the model must be modified to fit the data. This as an unrealistic and problematic aspect of the likelihood ratio test, and explains that, no matter how good the postulated model, it can never fit real-world data exactly, only approximately. Thus, more pragmatic goodness-of-fit indices were developed by researchers to evaluate models (Byrne, 2010). Byrne (2010) observed while there have been a number of fit indices, an original statistic developed to address this problem was the chi-square/degrees of freedom ratio (CMIN/DF) in the AMOS 21.0 (IBM Corporation, 2012) output file.
Most of the remaining AMOS 21.0 output file provides alternative indices of fit typically used as adjuncts to the chi-square statistic.

Hair et al. (1998) advised the chi-square statistic should not be relied on for samples greater than 200. In the current study, the main sample was 391 and hence other fit statistics were also used. The comparative fit index (CFI) (Bentler, 1990) is a population measure recommended for model comparison (Byrne, 2010). The Tucker-Lewis index (TLI) (Tucker & Lewis, 1973), also known as the normed fit index, results from the comparison of a hypothesised model with the independence (or null) model (Byrne, 2010). Byrne (2010) observed the values for the CFI and TLI range from 0 to 1.00. Values close to .95 indicate a superior fit, while a value of .91 suggests a marginally adequate fit (Byrne, 2010; Hu & Bentler, 1999). Thus, a CFI and TLI of greater than .95 indicates the hypothesised model adequately describes the sample data, whereas lower numbers indicate that it does not (Byrne, 2010).

Finally, the root mean square error of approximation (RMSEA, Steiger & Lind, 1980) is an estimate of the discrepancy between the model and the data per degree of freedom for the model (Fabrigar et al., 1999). That is, it considers the error of approximation in the population. The RMSEA has recently been recognised as one of the most informative criteria (Byrne, 2010). Values of .05 or less indicate a good fit, that is, a close fit in relation to the degrees of freedom. An RMSEA in the range of .05 to .08 indicates reasonable errors of approximation in the population (Byrne, 2010; Fabrigar et al., 1999).

The analyses that follow are summarised in Table 7.6. They were conducted with the nurse data because this provided the largest homogeneous dataset.

7.2.6.5 Discriminant validity for engagement, climate, empowerment and negative affectivity.
A discriminant model was conducted to assess the relationships between all variables, engagement, climate, empowerment and negative affectivity. The correlation between engagement and empowerment continued to be high (.85) showing that, while distinct variables, they were highly correlated. Engagement and climate continued to be highly correlated (.79) and climate and empowerment were moderately correlated, as in previous models (.47). Negative affectivity showed a low negative correlation with each of the three other variables. The factors continued to load onto their higher order latent variables in the same way they had previously (Figure 7.32). These variables had passed the discriminant validity tests and could be used in the Carless (2004) structural model (Anderson & Gerbing, 1988). That is, having developed models for each construct (reported in this and the previous chapter), this measurement model was used to identify any potential measurement problems in the full Carless (2004) model. All covariances between the four latent variables were estimated. The fit was acceptable, with CMIN/DF = 2.14, TLI = .91, CFI = .92 and RMSEA = .05 (Figure 7.27).
Figure 7.27. Measurement model for engagement, climate, empowerment and negative affectivity.

7.2.6.6 Intrinsic motivation independent variable.

The factor for intrinsic motivation was represented by a latent variable, with its three items forming indicator variables. All measurement weights were greater than .7 (Figure
7.28)

**Figure 7.28.** Single factor for intrinsic motivation.

### 7.2.6.7 Emotional exhaustion dependent variable.

The factor for emotional exhaustion was represented by a latent variable, with its nine items forming indicator variables. All measurement loadings were greater than .7 (Figure 7.29).

**Figure 7.29.** Confirmatory factor analysis for emotional exhaustion, representing burnout.
7.2.7 Engagement path model.

In the first analysis, an engagement model was based on the path model proposed by Carless (2004) that climate leads to empowerment which leads to engagement. The model was an acceptable fit to the observed data: CMIN/DF = 2.13, TLI = .92, CFI = .92 and RMSEA = .05 (Figure 7.30).

Figure 7.30. Model A: The path model of engagement (n = 392).

7.2.7.1 Multivariate outliers.

Multivariate outliers were identified in the structural model by computing the Mahalanobis Distance (Hair et al., 2006; Tabachnick & Fidell, 1996). The Mahalanobis Distance values were investigated to determine whether the fit of the model could be
improved by removing the furthest outlying data without significantly reducing the data size. Tabachnick and Fidell (2001) recommended removing no more than 5% of data. The conservative probability estimate of $p < .001$ for the $\chi^2$ was used for a case being an outlier (Tabachnick & Fidell, 2007). Originally, 29 items met this estimate. The first five cases were nurses on low incomes, which were considered non-representative of the sample and were removed to improve the fit of the model (Figure 7.30). The majority of the remaining 24 cases were junior nurses who planned to be working in the organisation in five years’ time and were representative of the sample. No other distinguishing reasons for the outliers were found and hence the last 24 cases were not removed. Removing five cases improved the fit: $\text{CMIN/DF} = 2.11$, $\text{TLI} = .92$, $\text{CFI} = .93$ and $\text{RMSEA} = .05$. That is, the $\text{CMIN/DF}$ was reduced from 2.132 to 2.106 ($n = 387$).

The arguments for the following hypotheses were outlined in the introduction to Study 3a, Chapter 6.

**7.2.7.2 Hypothesis 1a: Significant positive relationships will be found between climate, empowerment and engagement.**

Support was found for Hypothesis 1a. The relationships between climate, empowerment and engagement were significant and positive. The individual relationships between psychological climate and engagement ($.50$, $p < .001$) and empowerment and engagement ($.61$, $p < .001$) were moderate to strong. The relationship between psychological climate and empowerment ($.42$, $p < .001$) was moderate. The influence of negative affectivity on psychological climate ($-.23$, $p < .05$) and empowerment ($-.18$, $p < .05$) was small, yet significant. Negative affectivity did not have a significant influence on engagement.

**7.2.7.3 Hypothesis 1b: Empowerment will be a stronger predictor of engagement than will climate.**
Support was found for Hypothesis 1b as empowerment was related to engagement more strongly than it was to climate.

7.2.8 The engagement path model for the doctor group.

The path model was investigated for the doctor group. The model was a poor fit to the observed doctor data: CMIN/DF = 1.83, TLI = .85, CFI = .86 and RMSEA = .07 (Figure 7.36). The organisation factor of engagement was over identified. The relationships between climate, engagement and empowerment were all significant and positive. The individual effects of climate (.67, p < .001) and empowerment (.32, p < .001) on engagement were significant. The effect of climate on empowerment was significant (.51, p < .001). The effect of negative affectivity on psychological climate was moderate and highly significant (-.57, p < .001). Negative affectivity had no significant effect on engagement or empowerment.

*Figure 7.31. Model B: The engagement path model for the doctor group (n = 154).*
Multivariate outliers were investigated by calculating the Mahalanobis Distance values and four non-representative cases were removed at the criterion of $p < .001$ for the $\chi^2$ (Tabachnick & Fidell, 2007). The fit of the model was not improved.

7.2.8.1 Hypothesis 1c: The engagement model will be structurally equivalent for nurse and doctor data.

Support was not found for Hypothesis 1c as structural equivalence was not found for the doctor data. The doctor data provided a poor model fit and some of the paths within the model changed substantially from those for the nurse data. The path between climate and empowerment was .42 and .46 for nurses and doctors respectively. The path between climate and engagement was .50 and .67 for nurses and doctors respectively. However, the path between empowerment and engagement was .61 and .36 for nurses and doctors respectively. Path coefficients were all significant and moderate to high, other than between empowerment and engagement, as for the nurse data. Negative affectivity did not predict engagement, as for the nurse data. Climate predicted engagement more strongly than empowerment, which differed from the nurse data and was a structural difference between the groups (Kline, 2011).

7.2.9 Alternative models for the engagement path model.

An alternative model, in which the paths between climate and engagement were reversed, tested engagement led to climate. While the model had the same fit as the engagement model, the model was rejected as it was not supported by the bulk of the literature and the rule of parsimony. A model testing the potential reciprocal relationship between engagement and empowerment in which a path from engagement to empowerment was investigated as well as the path from empowerment to engagement. The reciprocal relationship between engagement and empowerment was
not demonstrated (Byrne, 2010). The fit indices for these models (G and H) are provided in Table 7.7.

### 7.2.10 The theoretically derived model of engagement examined in the path model.

The theoretically derived engagement model, reported in Chapter 6, was explored in the path model. The model was a less acceptable fit to the observed data than when using the empirically derived model for engagement: CMIN/DF = 2.38, TLI = .89, CFI = .90 and RMSEA = .06 (Figure 7.32).

![Model C](image_url)

**Figure 7.32.** Model C: The theoretically derived model for engagement inserted into the path model for the nurse group (n = 392).

The relationships between climate, engagement and empowerment were all significant and positive. The individual effects of climate (.42, $p < .001$) and
empowerment (.70, \(p < .001\)) on engagement were significant and strong. The effect of climate on empowerment was moderate (.42, \(p < .001\)). The effect of negative affectivity on climate (-.22, \(p < .05\)) and empowerment (-.16, \(p < .05\)) was moderate and significant. Negative affectivity had no significant effect on engagement. Structural equivalence was found between this model and the empirically derived path model (Figure 7.35), with relationships between latent variables almost identical to relationships when using the empirically-derived measure of engagement (Kline, 2011).

Analyses continued using the path model with the empirically-derived model of engagement due to the better fit indices for the model.

When tested with the doctor data, the model was a less acceptable fit to the observed data than when using the empirically derived model for engagement: CMIN/DF = 1.87, TLI = .83, CFI = .84 and RMSEA = .08. As found when using the empirically derived model for engagement, one engagement factor, job satisfaction, was overidentified for the doctor data.

### 7.2.11 Does empowerment mediate the relationship between climate and engagement?

Mediation analyses were conducted using the steps recommended by Baron and Kenny (1986). Kenny (2011) advised these analyses can be conducted using either standardised or unstandardised coefficients, the unstandardised weights were used in this analysis. In an unmediated model, when variable X is assumed to affect another variable Y, X is known as the initial variable and Y the outcome. The path between them is known as Path \(c\) or the total effect. In a mediated model, the effect of X on Y is mediated by variable M, and the variable X may still affect Y directly. The path between X and Y is then known as \(c'\) or the direct effect. Complete mediation occurs when variable X no longer affects Y after M has been controlled and so path \(c'\) is zero.
Partial mediation occurs when the path from X to Y is reduced but continues to be different from zero when the mediator is introduced.

The total, direct and indirect effects of climate on engagement were estimated, and their significance was tested using the default 200 bootstrap samples and bias-corrected confidence intervals (see MacKinnon, Fairchild & Fritz, 2007). The two-tailed test of significance was used to assess the initial structural model (Figure 7.35). In the first step, the relationship between the independent variable and the outcome, climate and engagement, was tested. This total effect (path c) was significant and positive at .75, $p < .05$ ($\beta = .76$, $p < .05$, standardised).

In the second step, it must be shown that the independent variable affects the potential mediator, the first stage of the indirect effect (path a). Climate did affect empowerment, with a significant positive correlation of .45, $p < .05$ ($\beta = .42$, $p < .05$, standardised).

Third, it must be shown that the potential mediator relates to the outcome, adjusting for the independent variable. This is the second stage of the indirect effect (path b), and empowerment did relate significantly to engagement .57, $p < .05$ ($\beta = .61$, $p < .05$, standardised). The direct effect of climate on engagement was significant .50, $p < .05$ ($\beta = .50$, $p < .05$, standardised), as was the indirect effect .26, $p < .005$ ($\beta = .26$, $p < .05$, standardised), which was also calculated using the Sobel test as path a multiplied by path b (Preacher & Hayes, 2008). Thus, the indirect effect of climate on engagement was significant, in accordance with Carless (2004), however, so too was the direct effect, as indicated in Table 7.6 (below).

7.2.11.1 Hypothesis 1d: The relationship between engagement and climate will be partially mediated by empowerment.
Support was found for Hypothesis 1d as the relationship between engagement and psychological climate was partially mediated by empowerment. While Carless (2004) found total mediation by empowerment of the effect of climate on engagement, in the present study only partial mediation was found.

Table 7.6

<table>
<thead>
<tr>
<th>Effects</th>
<th>R</th>
<th>Significance (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>.76***</td>
<td>.011</td>
</tr>
<tr>
<td>Direct</td>
<td>.50***</td>
<td>.004</td>
</tr>
<tr>
<td>Indirect</td>
<td>.26***</td>
<td>.005</td>
</tr>
</tbody>
</table>

7.2.12 The engagement path model including intrinsic motivation.

In the next analyses, the engagement path model was adapted to include intrinsic motivation as an independent variable. The theoretical justification for the paths is provided in the literature review, Chapter 3 and the introduction to this chapter. First, a measurement model was conducted to assess the relationships between variables to identify any potential measurement problems. As the model for intrinsic motivation could not be taken to the higher order level, analysis took a step back, assessing relationships between the single factors of each variables in the measurement model (Figure 7.38). The model was a good fit to the observed data: CMIN/DF = 1.83, TLI = .93, CFI = .94, RMSEA = .05 (Figure 7.38). The model demonstrated intrinsic motivation was a distinct variable as correlations with the other variables were less than .8 (Tabachnick & Fidell, 2007). Discriminant validity tests are critical to the development of structural equation models; if constructs do not pass this test, they should not be used in final models, according to Anderson and Gerbing (1988).
Intrinsic motivation was moderately positively related to all three factors of engagement in the measurement model (Figure 7.33) (.50, .65 and .41).

The structural model was explored. Intrinsic motivation had a large positive effect on engagement (.62, \( p < .001\)). Including intrinsic motivation reduced the effect of empowerment on engagement from .61 to .22. Climate continued to predict engagement at .50. The model fit was poor: \( \text{CMIN/DF} = 2.36, \ TLI = .90, \ CFI = .90 \) and \( \text{RMSEA} = .06 \) (Figure 7.39).

\[ \text{Figure 7.33. Model D. The engagement path model including intrinsic motivation (} n = 392) \].

The standardised residual covariances were assessed for covariances over 1.96 (Jöreskog & Sörbom, 1994). Items in each variable were found to have problematic covariances, except some engagement items. The intrinsic motivation items each had
problematic covariances of over 1.96 however this variable was retained as an important variable. The other most problematic items were removed, the impact empowerment factor, the anger factor of negative affectivity, the self factor of engagement, item 13 from the organisation factor of engagement, the climate participate scale and item 19 of climate. The RMSEA remained at .06.

Multivariate outliers were investigated by calculating the Mahalanobis Distance and three outlying cases were removed (Tabachnick & Fidell, 2007). The fit of the model was improved to CMIN/DF = 2.09, TLI = .94, CFI = .94 and RMSEA = .05.

7.2.12.1 Hypothesis 2a: Intrinsic motivation will be positively related to engagement.

Support was found Hypothesis 2a, as intrinsic motivation had a large positive effect on engagement (.62, p <.001).

7.2.13 The relationship between engagement and emotional exhaustion.

The relationship between engagement and emotional exhaustion was investigated in a measurement model to assess the relationships between variables to identify any potential measurement problems. As the model for emotional exhaustion could not be taken to the higher order level, analysis took a step back, assessing relationships between the single factors of each variable from the path model in a measurement model.

7.2.13.1 Hypothesis 2b: Engagement and emotional exhaustion will be moderately negatively related.

Support was found for Hypothesis 2b, as the first two factors for engagement, organisation and self, were moderately related to emotional exhaustion ($\beta = -.55, .54$, standardised). The last factor for engagement, time, showed a small negative correlation (-.35) with emotional exhaustion.
7.2.14 The path model replacing engagement with emotional exhaustion.

In the next analyses, the engagement path model was tested with emotional exhaustion replacing engagement as the dependent variable, since it had been found to be closely related to engagement in the literature (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002). The theoretical justification for the paths is provided in the literature review Chapter 3 and the introduction to this chapter.

A poor fit was found to the observed data: CMIN/DF = 2.60, TLI = .90, CFI = .90 and RMSEA = .06. Climate (.57) predicted emotional exhaustion more strongly than did empowerment (.38). The coefficients for negative affectivity could not be obtained.

An examination of the Mahalanobis Distance identified 22 multivariate outliers with \( p < .001 \) for the \( \chi^2 \) being a conservative probability estimate for a case being an outlier (Tabachnick & Fidell, 2007). The removal of non-representative cases did not improve the fit. The squared standardised residual covariances were assessed for covariances over 1.96 (Jöreskog & Sörbom, 1994). Covariances for items in most of the variables were problematic. As further justification for deletion, items were removed that had loaded least highly in the exploratory factor analysis and that had loaded poorly in the discriminant model. The fit of the model could not be improved.

7.2.15 The path model replacing engagement with emotional exhaustion and including intrinsic motivation.

The structural model for emotional exhaustion was tested with the inclusion of intrinsic motivation. A poor fit was found to the observed data: CMIN/DF = 3.58, TLI = .87, CFI = .88 and RMSEA = .07. Climate continued to be the strongest predictor of emotional exhaustion (.51), followed by intrinsic motivation (.41) then empowerment.
(24). Again, the coefficients for negative affectivity could not be obtained. The Mahalanobis Distance identified 25 multivariate outliers at the criterion of $p < .001$ for the $\chi^2$ (Tabachnick & Fidell, 2007). The removal of three justifiable cases improved the fit slightly. CMIN/DF = 2.79, TLI = .87, CFI = .88 and RMSEA = .07. Climate continued to be the strongest predictor (.47), followed by intrinsic motivation (.42), then empowerment (.24).

The model was investigated with the removal of various combinations of the outlying cases at the criterion of $p < .001$ for the $\chi^2$ based on non-representativeness; however, this did not improve the fit. Removing all 25 cases did not improve the fit either.

7.2.15.1 Hypothesis 2c: Intrinsic motivation will be positively rather than negatively related to emotional exhaustion.

Support was found for Hypothesis 2c as intrinsic motivation was found to have a moderate positive relationship with emotional exhaustion rather than a negative relationship.

7.2.15.2 Hypothesis 2d: Different strengths will be found for the predictors of engagement and emotional exhaustion.

Support was found for Hypothesis 2d, as the relationship between climate and emotional exhaustion was stronger than that between empowerment and emotional exhaustion, the opposite of findings for engagement. However, intrinsic motivation became the strongest influence on both emotional exhaustion and engagement when included in these models. Intrinsic motivation reduced the influence of climate and empowerment on emotional exhaustion, with empowerment being the second strongest influence on emotional exhaustion. Intrinsic motivation reduced the influence of empowerment on engagement, with climate becoming the second strongest predictor.
7.2.16 Summary of the models.

A summary of the models is provided in Table 7.7.

Table 7.7

<table>
<thead>
<tr>
<th>Model</th>
<th>Specifications</th>
<th>CMIN/DF</th>
<th>P</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Path model</td>
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<td>.05</td>
<td>.92</td>
<td>.93</td>
<td>.05</td>
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<tr>
<td></td>
<td>After removing five outliers from the Mahalanobis Distance</td>
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<td>.05</td>
<td>.92</td>
<td>.93</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>First subset of nurse data (n = 196)</td>
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<td>.05</td>
<td>.88</td>
<td>.89</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Second subset of nurse data (n = 196)</td>
<td>1.87</td>
<td>.05</td>
<td>.88</td>
<td>.89</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Junior nurse data (n = 258)</td>
<td>2.21</td>
<td>.05</td>
<td>.90</td>
<td>.90</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Senior nurse data (n = 134)</td>
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<td>.05</td>
<td>.86</td>
<td>.87</td>
<td>.07</td>
</tr>
<tr>
<td>B</td>
<td>Path model with doctor data</td>
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<td>.05</td>
<td>.90</td>
<td>.90</td>
<td>.06</td>
</tr>
<tr>
<td>C</td>
<td>Path model with theoretically derived engagement model inserted in the model</td>
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<td>.05</td>
<td>.89</td>
<td>.90</td>
<td>.06</td>
</tr>
<tr>
<td>D</td>
<td>Path engagement model including intrinsic motivation</td>
<td>2.36</td>
<td>.05</td>
<td>.90</td>
<td>.90</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Path engagement model including intrinsic motivation after removal of items and factors from the standardised residual covariances and three outliers from Mahalanobis Distance</td>
<td>2.09</td>
<td>.05</td>
<td>.94</td>
<td>.94</td>
<td>.05</td>
</tr>
<tr>
<td>E</td>
<td>Path model with emotional exhaustion replacing engagement</td>
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<td>.05</td>
<td>.90</td>
<td>.90</td>
<td>.06</td>
</tr>
<tr>
<td>F</td>
<td>Path model for emotional exhaustion including intrinsic motivation</td>
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<td>.88</td>
<td>.07</td>
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<td>Path model for emotional exhaustion and intrinsic motivation after three outliers removed</td>
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<td>.88</td>
<td>.07</td>
</tr>
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<td>Reversed model: engagement predicting empowerment</td>
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<td>.92</td>
<td>.92</td>
<td>.05</td>
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<tr>
<td>H</td>
<td>Reciprocal model of engagement predicting empowerment</td>
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<td>.05</td>
<td>.92</td>
<td>.92</td>
<td>.05</td>
</tr>
</tbody>
</table>

7.3 Discussion

The major contribution of this Study 3 is in providing a more rigorous investigation of the measures for engagement in medical contexts than was available in 2004, using theoretically and empirically guided analyses. A measure for nurse engagement was developed. Another main contribution is the development of a path model for engagement including related variables of interest in the literature,
particularly in the medical context. While there is a large body of research on engagement in business contexts, relatively little is found in medical contexts, which have focused instead on job satisfaction. The need for research specifically on the relationships between engagement, climate, empowerment, intrinsic motivation and burnout in medical contexts has been highlighted in the nursing literature. The findings in this study extend the understanding of these relationships. The results are discussed next.

7.3.1 The theoretically guided analysis of engagement items.

A major contribution of this study is a 17-item scale demonstrating nurse engagement developed by theoretically guided analyses. The four engagement factors have moderate correlations, showing that, while related, they are distinct factors, represented by a higher order construct for engagement. All theoretical constructs of engagement were supported in the nurse context, shown by the theoretically guided analyses except the Kahn (1990, 1992) construct. That is, psychological ownership (McCashland, 2000; Rucci et al., 1988), time (Goddard, 1999, 2001), the dedication factor of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), and the job satisfaction measure (Hackman & Oldham, 1975; Smith et al., 1987) were supported.

Research Question 3a, asked to what extent job satisfaction and engagement were positively related? Job satisfaction was demonstrated as being highly related to constructs of engagement. The finding provides evidence job satisfaction may be an aspect of what Macey and Schneider (2008) and others have referred to as a higher order definition of engagement or ‘a set of constructs’ (p. 24) (Hallberg & Schaufeli, 2006; Kelloway & Arla, 2005; Newman & Harrison, 2008). Job satisfaction measured by traditional job characteristic items is supported as an engagement construct in the nursing context (Hackman & Oldham, 1975; Smith et al., 1987).
The theoretically derived measure for engagement demonstrates the dedication factor of the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) is supported in the nurse context. At five items, and representing only one factor, the dedication factor was not a good representation of the original Utrecht Work Engagement Scale, and was considered inappropriate for use as a single scale for medical engagement (Schaufeli et al., 2002b).

Next, the results of the empirical analyses are discussed.

**7.3.2 The empirical analysis of engagement items.**

A major contribution of Study 3 is the development of an empirically derived measure for nurse engagement from a wide and representative sample, in response to Research Question 3b, which asked what is an appropriate model for engagement in medical contexts?

**7.3.2.1 The engagement path model.**

Another major contribution is a path model for engagement investigating how the engagement scale related to other constructs, climate, empowerment, intrinsic motivation and emotional exhaustion, in response to Research Questions 4a, b and c. These relationships were shown to be important in the literature, particularly in the medical context. The following hypotheses were investigated.

Hypothesis 1a predicted significant positive relationships would be found between empowerment, engagement and climate in a path model. Support was found for Hypothesis 1a, with the relationships between climate, engagement and empowerment being significant and positive. The individual effects of climate and empowerment on engagement were strong, as was the effect of climate on empowerment. The influence of negative affectivity on climate and empowerment was
small, yet significant. Negative affectivity did not have a significant effect on engagement.

Hypothesis 1b predicted empowerment would be a stronger predictor of engagement than climate. Support was found for Hypothesis 1b as empowerment predicted engagement more strongly than did climate.

Hypothesis 1c predicted the path model would be structurally equivalent for the doctor data. Support was not found for Hypothesis 1c as the model was a poor fit to the observed data. However, the minimum sample size should be no less than 200 in structural equation modelling and the doctor sample was $n = 154$ (Kline, 2005). Climate was more predictive of doctor engagement than empowerment, opposite to the findings for nurse engagement.

Hypothesis 1d predicted the relationship between engagement and climate would be partially mediated by empowerment. Support was found for Hypothesis 1d as the relationship between engagement and climate was partially mediated by empowerment. While Carless (2004) empowerment totally mediated the relationship between climate and engagement, in the present study only partial mediation was found.

Hypothesis 2a predicted intrinsic motivation would be positively related to engagement. Support was found for Hypothesis 2a, with intrinsic motivation having a strong, positive relationship with engagement, becoming the highest predictor of engagement and reducing the effect of empowerment. The influence of climate on engagement was unaffected when considering the influence of intrinsic motivation. Empowerment became the variable least predictive of engagement.

Hypothesis 2b predicted engagement and emotional exhaustion would be moderately negatively related. Support was found for Hypothesis 2b, with the first two factors of engagement, organisation and self, demonstrating a moderately negative
relationship with emotional exhaustion in the measurement model. The last factor, time, showed only a small negative correlation with emotional exhaustion. However, as the coefficients for the negative affectivity paths could not be obtained this model may not be valid.

Hypothesis 2c predicted intrinsic motivation would be positively rather than negatively related to emotional exhaustion. Support was found for Hypothesis 2c as intrinsic motivation was found to have a moderate positive effect on emotional exhaustion rather than a negative effect. That is, intrinsic motivation led to increased emotional exhaustion, rather than diminishing it. However, as the coefficients for the negative affectivity paths could not be obtained this model may not be valid.

Hypothesis 2d predicted different strengths would be found for the predictors of engagement and emotional exhaustion. Engagement would be predicted by job demands, represented by climate, and personal resources of empowerment. Emotional exhaustion would be caused more by environmental factors, represented by climate, than by personal factors of empowerment. Support was found for Hypothesis 2d, with climate predicting emotional exhaustion more strongly than empowerment, the opposite to the findings for engagement. However, intrinsic motivation became the strongest predictor for both emotional exhaustion and engagement when included in the models. Intrinsic motivation reduced the effects of climate and empowerment on emotional exhaustion, with empowerment becoming the second strongest predictor of emotional exhaustion. Intrinsic motivation reduced only the effect of empowerment on engagement, with climate becoming the second strongest predictor of engagement. However, as the coefficients for some of the other paths on the models for emotional exhaustion and intrinsic motivation could not be obtained the models may not be valid.
7.3.3 Theoretical implications.

Study 3 has several theoretical implications. Both measures for engagement demonstrate job satisfaction is strongly related to engagement, supporting other findings on the theory of engagement as a higher order construct subsuming job satisfaction (Hallberg & Schaufeli, 2006; Kelloway & Arla, 2005; Macey and Schneider; 2008; Newman & Harrison, 2008). The dedication factor of the Utrecht Work Engagement Scale (UWES, Schaufeli et al., 2002b) is empirically and theoretically demonstrated in each engagement measure. The finding only the dedication factor of the UWES was demonstrated may have been due to the incomplete number of items for the UWES resulting from the previous Study 2. Alternatively, it may be evidence the factor structure varies between business and medical contexts (Mauno et al., 2005, 2007; Seppala et al., 2009). The UWES data presented the most outlying observations of all variables. Kahn (2010) recently asserted engagement is not as simple as vigour, absorption and dedication, but its essence is in expressing oneself and one’s true opinions, rather than defending or withdrawing them. The result is somewhat at odds with the assertion by Macey and Schneider (2008) that engagement is best measured by scales such as the UWES. However, while the 13 items from the UWES did not fit the medical data well, in Study 2, the UWES items had not fit the business data well either and hence no conclusions could be drawn about how well the UWES (Schaufeli et al., 2002b) operationalises across business and medical contexts.

The time or focused effort theory is theoretically and empirically demonstrated (Goddard, 1999, 2001). This supports Macey and Schneider’s (2008) argument focused effort is an aspect of engagement. The finding psychological ownership was represented in the theoretically derived but not in the empirically derived measure weakly supports Macey and Schneider’s (2008) assertion models of engagement should embrace the
psychological state. The finding Kahn’s (1990, 1992) measures were not represented may be due to the lack of sufficient items to represent the three dimensions of the measure or because the items have been shown to be antecedents rather than items of engagement (Macey & Schneider, 2008).

Further implications of these analyses relate to the theoretical requirements for factor analyses recommended by Tabachnick and Fidell (2007). First, hypotheses should be generated about the factors, and this was undertaken in the current studies by the research questions posed in Chapter 1. Five or six factors should be hypothesised to ensure the solution is stable; this criterion was met because five factors were hypothesised. Each factor should have five or six variables considered pure measures of the factor, which load on only one factor. Complex variables correlate with several factors, are less desirable and may correlate not merely because they relate to the same underlying factor, but because of their complexity. In generating hypotheses about factors and their variables, complexity should be estimated. The Utrecht Work Engagement Scale (Schaufeli et al., 2002b) was designed for factor analytic work and meets this theoretical criterion, although it did not operationalise in this way in the current factor analyses.

Apart from the engagement variable, only the climate variable met the criterion of containing five or six factors to ensure the solution is stable. Three of the climate factors and the emotional exhaustion factor met the criterion of five or six variables considered pure measures of the factor, that load on only one factor (Tabachnick & Fidell, 2007). The empowerment, negative affectivity and intrinsic motivation items loaded onto the correct factors, indicating these items may be salient variables.

Alternative models were fitted before the hypothesised path models to avoid bias, as advised by Byrne (2010) and Kline (2011). A reciprocal model assessing
whether engagement could be found to predict empowerment, as well as empowerment engagement, based on findings by Salanova et al. (2005) was not demonstrated. This result provides additional support for the engagement path model and findings of relationships between variables (Byrne, 2010; Kline, 2011). However, a reversed model, based on the same study by Salanova et al. (2005) with hotel staff, demonstrated nurse engagement predicted climate. These findings support the assertion by Bakker and Demerouti (2008) engaged workers proactively change their work environment in order to stay engaged. Other researchers contended engaged workers can only change their work environment to stay engaged if there are no constraints in the environment inhibiting innovative behaviours (Parker & Griffin, 2011). Nursing has been found to be an increasingly uncertain context in which innovation and initiative is supported.

While the theoretically derived engagement measure was assessed in the path model, the empirically derived model for engagement provided a better fit to the observed data. The structural equivalence of the path models using the theoretically and empirically derived engagement measures provides support for the following results from the empirical path model.

The finding empowerment predicted engagement more strongly than did climate supports other findings in the psychological and nursing literature (Laschinger et al., 2011; Mone et al., 2011). Theoretical overlap between the engagement and empowerment constructs is shown by the meaning facet of Spreitzer’s (1995a) measure of empowerment being the strongest predictor of job satisfaction (Carless, 2004; Spreitzer et al., 1997). The findings in this study that negative affectivity was not related to engagement contradict notions of the influence of negative affectivity on engagement; however, negative affectivity should be controlled in self-report studies (McCrae & Costa, 1986; Spector & Brannick, 2011; Terry et al., 1996). The finding for
negative affectivity may be an indication of contextual difference, given Hart et al. (2000) reported the same finding in another professional context, teaching. However, Carless (2004) reported the same finding with business employees.

Another contribution of the study is the finding empowerment partially mediates the relationship between climate and engagement. The finding contributes evidence of contextual difference in the way engagement operates. With business samples, Carless (2004) found evidence of full mediation, or the indirect effect of climate on engagement. In the current study, climate and empowerment were shown to have direct and indirect effects on engagement, consistent with other findings in medical contexts (Laschinger, 2008; Leiter et al., 2011). The results support consistent findings medical contexts have a specific type of psychological climate characterised by emotional demands and stress reactions (Laschinger, 2010; Maslach, 1976; Siu, Laschinger & Finegan, 2008). The finding highlights the need for specific research on the relationship between engagement and empowerment in nursing (Laschinger et al., 2009d).

Engagement is a protective factor against burnout, with burnout being a common problem for medical staff, linked with suboptimal patient care and staff turnover (Prins et al., 2010; Schaufeli et al., 2002b). The study contributes evidence for the moderate negative relationship between engagement and burnout, consistent with earlier results in Studies 1 and 2 and findings in the literature that while they are distinct variables, there is an overlap between the two (Demerouti et al., 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002b). The finding that Kahn’s (1990, 1992) measure for meaning appeared in the scale for engagement may support the previous findings, as loss of meaning is a critical component of burnout (Maslach & Jackson, 1981; Schaufeli et al., 2002a).
A lack of research on the relationships between engagement and motivation was highlighted in the literature (Meyer et al., 2004). Other findings contended professional workers have a sense of vocation, or a calling, which implies a level of intrinsic motivation (Morrow & Goetz, 1988; Snizek, 1972). The emotional pressures and responsibilities carried by doctors and nurses, putting them at higher risk of burnout than other workers also imply a level of intrinsic motivation (Maslach & Jackson, 1981). The strong positive effect of intrinsic motivation on engagement, above empowerment and climate, supports findings of the positive influence of intrinsic motivation on nurse engagement. Nurses have been found to invest relatively high intrinsic motivation into their jobs (Bakker et al., 2000; Janssen et al., 1999; McNeese-Smith, 1999).

Burnout is particularly prevalent among nurses who experience an effort–reward imbalance in their work. They report high levels of emotional exhaustion partly due to investing high intrinsic motivation into their job (Bakker et al., 2000). Diminished intrinsic motivation, burnout and intention to leave are related (Bakker & Heuven, 2006; Janssen et al., 1999). Environmental variables have been found to influence intrinsic motivation, such as psychological climate (Carless, 2004; Conger & Kanungo, 1988; Thomas & Velthouse, 1990). Fairchild (2010) asserted the current negative nursing work environment reduces morale and satisfaction, creating dissonance between motivation and ethics in practice. The finding in the current study of a moderate positive relationship between intrinsic motivation and emotional exhaustion supports these findings, and indicates the need for further investigation into the relationships between intrinsic motivation, engagement, emotional exhaustion, empowerment and climate in nursing.
Empowerment was initially the highest predictor of engagement for the nurse group. Another aim was to investigate whether this would be sustained when adding intrinsic motivation to the model, based on findings in the psychological and nursing literature (Laschinger et al., 2011; Mone et al., 2011). Providing support for these findings, intrinsic motivation most strongly predicted engagement.

Evidence was found that engagement and emotional exhaustion have different predictors. Before considering intrinsic motivation, engagement was most strongly predicted by psychological empowerment, a personal factor, emotional exhaustion was most strongly predicted by climate, a more environmental factor. Climate, followed by the personal factors intrinsic motivation, and then empowerment predicted emotional exhaustion. These findings support and strengthen the argument engagement and emotional exhaustion are distinct constructs with engagement predicted by job demands and personal resources and emotional exhaustion more by environmental than personal factors (Schaufeli & Bakker, 2004; Schaufeli et al., 2002b). These results provide more evidence to support the assertion by Schaufeli and Bakker (2004) because burnout and engagement exhibit different patterns of possible predictors and outcomes, different intervention methods should be used when aiming to reduce burnout or enhance engagement.

The finding intrinsic motivation was related to increased emotional exhaustion was contrary to previous findings of no relationship between the variables (Rubino, et al., 2009). That is, intrinsic motivation may not protect clinicians from the danger of this aspect of burnout although it has been found to protect from other aspects of burnout (Janssen et al., 1999). Kline (2011) asserted ‘no statistical technique, structural equation modelling or otherwise, can somehow “prove” causality in nonexperimental designs’ (p. 9). Thus, causal language should be avoided.
7.3.4 Practical implications.

A measure and path model for engagement is provided for use in medical contexts developed for nursing and with some application for doctors. The measures may inform training and performance assessment processes for nurses and doctors. Measures of job satisfaction, dedication, psychological ownership and time are supported as measures of engagement in the nurse context. The measures provide information about how nurses perceive engagement, which can be used by managers to understand what makes their staff engaged and in coaching supervisors to recognise, promote and manage these aspects in staff.

The findings from the path engagement model help address a number of practical issues in employee recruitment, performance management and retention. First, the model clearly indicates empowerment and climate directly and indirectly are related to levels of nurse engagement. Psychological empowerment has been shown to be the most critical factor that an organisation can influence in staff to create an engaged nurse workforce, with climate the second most important factor. The personal trait of intrinsic motivation has been shown to be more important than these environmental factors, and could be screened for during recruitment selection processes. As the development of psychological empowerment requires an existing level of personal empowerment, the assessment of this trait could be part of selection processes (Spreitzer, 1995a). Nurse empowerment has been consistently linked with positive outcomes of commitment, satisfaction, professionalism, intention to stay, respect, productivity and patient outcomes, and negatively related to stress and burnout (Butts et al., 2009; Finegan & Laschinger, 2001; Wilson & Laschinger, 1994). Training, workplace design and performance management processes aiming to increase these attributes may foster engagement, and hence productivity and retention. The qualitative data provided on
empowerment can be used to inform intervention, training and workplace design processes in public hospitals, particularly in NSW.

Second, the model indicates the psychological climate of hospitals is the next most important factor. Climate has been consistently linked with empowered and engaged staff in nursing. These results provide further specific evidence that can be used in initiatives with administrators and management to improve the climate in public hospitals.

A third advantage of the model is the recognition increasing engagement may positively influence climate because engaged workers proactively change their work environment in order to stay engaged (Bakker & Demerouti, 2008). Roles are increasingly viewed as emergent and flexible, rather than static, with employees self-initiating new tasks (Griffin et al., 2007). The findings of the study may help hospitals to enhance clinician engagement and empowerment, highly relevant in the tightly linked alliances of staff in hospital settings (Burns et al., 2001). Engagement is critical in the current climate of hospital restructuring and severe nursing shortage, and as healthcare organisations struggle to deliver the same level and quality of services with diminished resources (Laschinger et al., 2003; Laschinger et al., 2010; Laschinger & Finegan, 2005).

A major contribution of the study is the data were collected in over 220 hospitals and approximately 200 businesses across the state of NSW, Australia, of which the data were representative. Hence, the scale was developed from a wide sample and will presumably generalise beyond Australia to other individualistic Western cultures. The qualitative data from this study provide rich insights into what makes doctors and nurses feel empowered and disempowered, addressing the need identified in the literature for such data (Laschinger et al., 2009d). At the commencement of these studies there were
no findings of research on empowerment with doctors. While the current study reflects this lack of importance of empowerment for doctors, the increasing pressures and rate of burnout experienced by doctors may make empowerment important to these professionals in the future (Levin & Kissane, 2006; Misra-Herbert et al., 2004; Prins et al., 2010).

7.3.5 Limitations.

As in the previous studies, the definition of engagement provided in the judgment task aimed to capture the higher order nature of engagement. In hindsight, the definition may have caused respondents to respond personally about their own jobs. A fundamental limitation of this study arose from the nature of the preliminary research (Study 1) in which engagement theories were gathered according to Step 1—item generation, of Hinkin’s (1998) scale construction methodology. The method of using the existing items as well as generating other items from the other theoretical constructs and testing the items inductively, may now seem unusual, given the weight of research reported in the literature since 2004. A more deductive way of conducting this study would have been similar to Soane et al. (2012).

As Hinkin states, there are disadvantages to the inductive method used in the current studies, with the method relying heavily on post hoc factor analytical techniques. As noted in Study 2, while the psychometric properties of items were assessed (in Study 2), this information about factor structure and item covariance was not used in the scale construction in Study 3a. The reduction of items by ranking the means of items would now be considered unorthodox by some contemporary researchers. A better method may have been to use the results of the factor analyses and further psychometric analyses, however, the data was considered virtually meaningless, as discussed in Study 2. The psychometric limitations of Study 2 have been respected.
by undertaking as much effort as possible to substantially and rigorously re-analyse and re-interpret the data that were collected, using a current, theoretical and rigorous approach in the current Study 3 (Anderson & Gerbing, 1988; Byrne, 2010; Kline, 2011, 2012; Tabachnick & Fidell, 2001, 2007). The scale produced in this Study 3 was therefore imperfect (Kline, 2011). In addition, as Hinkin says, while items may group on the same factor, this does not ensure they measure the same theoretical construct. The results may contain extraneous content domains and factors are difficult to label due to this inductive approach (Hinkin, 1998). Due to the different theoretical sources for the items, the scale may be regarded theoretically incoherent.

The missing data that were imputed in the current study may have caused some of the problems in the structural equation modelling. Since multiple imputation was used, the results with and without imputation should have been assessed for differences. In hindsight, all outliers should have been removed at the measurement models and the analyses re-run. Any further outliers occurring at the structural models should have been transformed or removed if non-representative of the data, as this is an assumption of structural equation modelling (Tabachnick & Fidell, 2007). The multivariate outliers may have caused measurement problems in the path analyses, and could have been investigated in more detail. They should possibly have been transformed or deleted at the measurement model stage (Tabachnick & Fidell, 2007).

With regard to the theoretical requirements for factor analyses, the Kahn and time items did not meet the criterion of five to six items (Tabachnick & Fidell, 2007). As the Kahn items are now known to be antecedents of engagement, they could not be considered salient variables. The 10 psychological ownership items met the criterion of at least five to six items, but did not load as pure items. For job satisfaction, five items loaded on factor one, indicating potentially pure items. The sample should exhibit a
spread of scores for the variables and factors. While there was a spread of scores, many items were severely skewed. In accordance with Tabachnick and Fidell (2007), all variables were skewed and kurtotic in the same direction. The apparent non-normality of some of the variables may have been better dealt with by using expected normal probability plots and de-trended expected normal probability plots (Tabachnick & Fidell, 2007). Pooling the results of several samples or repeated samples also presents limitations and may have been a limitation in the study (Tabachnick & Fidell, 2007).

Analyses were conducted with the following reservations. As the items for all variables had been reduced in the previous studies (following Hinkin, 1998), it was anticipated that, in this Study 3, where original scales such as the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) did not contain their full set of items, the scale might not fit well in structural equation modelling. While the measure for job satisfaction was developed from recognised scales, and had been shown to have a good alpha reliability in a previous study, this scale was not in itself a recognised scale of job satisfaction (Hackman & Oldham, 1975; Smith et al., 1987). The other two scales for time and psychological ownership included in the final measure, while based on the theoretical sources of their items, were not recognised scales either and thus their psychometric qualities were unknown. Further, three items representing each of Kahn’s (1990, 1992) three dimensions of engagement theory would have been preferable to three items overall (Paunonen & Jackson, 1985). With the benefit of hindsight it is important to select measures with strong psychometric properties, without which statistical results can be meaningless (Kline, 2011). Again, this problem may have been overcome with more rigorous psychometric testing in Study 2. Since the psychometric properties had not been first established for the scales used in Study 3, the theoretically guided engagement scale that was developed could not be used. For the same reason,
while job satisfaction was shown to be strongly related to the other theoretical factors of engagement, this result should be treated with caution.

For the empirically derived measure of engagement, it could be considered that because the constructs were all related to engagement, oblique rotation would be more appropriate than the orthogonal approach taken. However, as demonstrated throughout this thesis, engagement is a complex, multidimensional construct (see also various current theorists’ arguments, e.g., Macey and Schneider (2008). The findings that the engagement factors one and two correlated well together, but not with factor three, may indicate construct confusion.

Since the nurse scale was not structurally equivalent for the doctor sample, the scale and path model could not be used for direct comparisons of these groups, nor specifically as a general measure for medical engagement. The extra analysis on the doctor sample ($n = 154$) was conducted with awareness of the limitations of data size, that at least 300 cases are needed for factor analysis and 200 for structural equation modelling (Kline, 2005; Tabachnick & Fidell, 2007). The lack of equivalence may have been influenced by the lack of data.

The replication of the results of the engagement scale with a new sample (Hinkin’s 1998 Step 6), was not possible in this study and half-sample cross-validation was not conducted due to the lack of data (Hair et al., 1998; Kline, 2005). There are problems associated with the post hoc model fitting of models conducted in structural equation modelling, such as misspecification and overfitting (Byrne, 2010; Geisser, 1993). Cross-validation or model validation is one approach taken to address these problems. Without halving the data, the number of parameters of many models caused problems of data fit due to the sample size, confirming half-sample cross-validation was not appropriate for this data.
As mentioned before, at the time of investigation (2004), the distinction between the antecedents of engagement and engagement itself was not known, not until the work of Macey and Schneider (2008). These researchers asserted the Gallup Organization’s non-core measures, from which the psychological ownership (McCashland, 2000) items were derived, are antecedents of employees’ opinions that have been relabelled indicators of engagement. Macey and Schneider (2008) asserted the Kahn (1990, 1992) and job characteristics items (which formed the measure used for job satisfaction) are now regarded indicators, and hence this may detract from the usefulness of the measure developed in these studies.

Regarding the path engagement model, while empowerment was found to predict engagement more strongly than was climate, the two paths should have been assessed to see if they were significantly different. The difference in findings of partial mediation, compared with full mediation found by Carless (2004), may have been due to the different outcomes being predicted, that is, engagement in this study and job satisfaction by Carless (2004), rather than differences between the contexts. However, the bulk of the literature had shown job satisfaction is most likely subsumed by engagement (Harrison et al., 2006; Langford, 2009; Macey & Schneider, 2008; Newman & Harrison, 2008). Others had argued for a more focused conceptualisation of engagement (Rothbard, 2001; Saks, 2006, 2008). The job satisfaction items had been endorsed in Studies 1 and 2 as items of engagement. Further, a high correlation had been found between these constructs in Study 3a (Chapter 6). Hence, it is more likely the differences in mediation were due to differences between the populations, rather than to differences in the concepts of job satisfaction and engagement.

Regarding the independent variables, in hindsight, better measures could have been used for these variables. The alpha reliabilities reported by the authors of the
scales were not ideal and made them unsuitable for the rigour of structural equation modelling. The use of all 15 items for negative affectivity rather than only eight may have improved reliability of the scale and the way it operated in the models. With regard to the theoretical requirements for factor analyses, the empowerment, negative affectivity and intrinsic motivation variables did not meet the criterion of five to six items (Tabachnick & Fidell, 2007). As recommended by Tabachnick and Fidell (2007), when generating hypotheses about factors and their variables, complexity should be estimated. This was overlooked in the current study, and is a limitation. While there was a spread of scores regarding the variables and factors, Tabachnick and Fidell (2007) said when data are skewed or kurtotic, all variables should be in the same direction. The data for negative affectivity, emotional exhaustion and intrinsic motivation differed in direction to the other variables, which may have contributed to problems in the structural equation models. The apparent non-normality of some of the variables may have been better dealt with by using expected normal probability plots and de-trended expected normal probability plots (Tabachnick & Fidell, 2007).

Carless (2004) noted there has been a debate in the literature regarding whether psychological climate and job satisfaction are distinct constructs. The constructs overlap because perceptions of psychological climate include an affective component. Similarly, Langford (2009) advised when using the Voice Project Scale climate measure in studies assessing outcomes of engagement, the affective passion or job satisfaction subscale should be excluded, thereby limiting the overlap with engagement, it was excluded in the current study. The climate, empowerment and engagement measures showed some psychometric problems involving heterogeneity, causing difficulties in modelling some of these variables. Langford (2007) advised caution should be taken when using the climate scale until it has demonstrated consistently strong psychometric qualities in
future studies (see Appendix D). No other reference could be found for the use of this scale.

It could be considered that the elements of the climate and empowerment measures should be sufficiently theoretically related to their respective construct that oblique rotation would be more appropriate than the orthogonal method used. However, the difficulties mentioned in the results section may indicate that the measures attempt to simplify something that is complex or multidimensional, as noted by the authors of the scales (Langford, 2009; Spreitzer, 1995a). The subscales for the empowerment variable did not load on a higher order factor but in subsequent analyses a higher order factor was used. This decision was made in order to replicate the Carless (2004) model and because Carless and Spreitzer (1995a) also found poor loadings for empowerment. Hence the Carless model was used with caution.

Another limitation was Carless (2004) used a measure for climate in a professional context that remained unpublished at the time of the current study (Hart et al., 1996). The authors of the measure did not consent to the use of the measure in the current study. Alternatives were considered. Professionalism is not a recognised concept in the organisational psychology literature, and the literature was deemed more important as this thesis aimed to contribute to that domain. Hence, a professional climate scale was not used. The different theoretical orientation of the Langford (2007) measures may be a limitation when comparing the study with that by Carless (2004). Further, while Carless (2004) used a scale of professional climate, her participants were business employees. Conversely, the business-based scale of Langford (2009) was used in the current study with professionals. Hence, the current results may be difficult to compare with the Carless (2004) model. The Langford (2007) measure does not appear to have been used in published articles since the research by Langford (2007).
Some items in the empowerment measure by Spreitzer (1995a) and the items in the job satisfaction subscale of engagement were drawn from the same traditional job characteristics measures by Hackman and Oldham (1975) and Smith et al. (1987). The high correlations among these measures in the current studies may thus be best understood by these findings of the overlap in constructs and the heterogeneity of items. In another example of the overlap, a recent study used two items from Spreitzer’s (1995a) meaning facet of empowerment combined with two items from an engagement scale, and reported an alpha reliability of .89 for the four items (Vinarski-Peretz & Carmeli, 2011). Further, Spreitzer’s (1995a) measure for empowerment shows low alpha reliabilities that were accepted by the author because the study was an initial attempt at measurement and because the four dimensions were assessing different aspects of empowerment. This may explain why the variable was problematic in the current study. Spreitzer reported the combined reliability of subscales \((n = 324)\) was .74, suggesting heterogeneity between the items, which was found in the current study. Heterogeneity of Spreitzer’s (1995a) subscales was suggested by Tierney and Farmer (2011) whereas other studies, including in nursing, have reported good reliabilities (Calarco, 2011; Carless, 2004; Chen et al., 2011; Sun et al., 2011), see Appendix D.

As negative affectivity was included in the model, it is possible positive affectivity should have been included, due to recent findings of the effect of both positive and negative affectivity on engagement (Bledow, Schmitt, Frese & Kuhnel, 2011; Salanova et al., 2011). The use of only eight items of the 15-item Scale of Emotional Arousability (Braithwaite, 1987) may have caused the difficulties in developing a model for the items. While the most salient items had been selected in developing the adapted scale, it was unpublished and other attempts to use it were not found. Several items loaded at less than .70 in the single factor models and should
normally be deleted but were not. The limitation was accepted as negative affectivity was not under specific investigation and in order to replicate the Carless (2004) model.

Maslach et al. (2001) advised controls should be used in research predicting burnout, such as age, gender, marital status, education, neuroticism, met expectations, tenure and average number of hours worked weekly. Several of these controls were assessed at the univariate level as demographics are generally not assessed in structural equation modelling, unless the correlations table highlights particular lines of enquiry. The severe gender imbalance of the data may have interfered with the results.

The cross-sectional nature of the research needs to be supported by longitudinal studies, which are generally accepted to provide better tests of mediation (Maxwell & Cole, 2007). While various theoretical models now exist to measure engagement, at the time of the scale development research (2004), they either did not exist or were not used to measure engagement (Bakker & Demerouti, 2007, 2008; May et al., 2004; Rich et al., 2010; Schaufeli & Bakker, 2004).

The lack of a performance outcome measure may have influenced the outcomes. Efforts were made to include a measure because of the limitations of self-report measures, particularly for performance, and the importance of sources of external validity (Griffin et al., 2007). However, independent performance measures could not be obtained from hospitals, unions or the NSW Health Department due to workplace privacy legislation.

Conducting the survey online ensured confidentiality, anonymity and independence for participants from their employer, however not all staff had access to the internet on wards or at home which may have caused bias in the results. Forcing respondents to answer all questions raises ethical questions of whether it is fair. It may be that there were hospitals where the survey was not distributed to staff by personal
assistants. If distribution had been possible to track it could have yielded a more accurate response rate. However, it was not possible to track due to lack of control over distribution.

The recruitment of participants was a labour-intensive endeavour involving several setbacks which may explain the low response rate. Detailed lengthy site-specific ethics approval forms were required for each hospital at the NSW Department of Health. The department’s internet technology for ethics approval changed several times, involving retraining each time. Approvals were required individually from each area health service, hospital general manager, chief executive officer, departmental head and administrative staff member. Many difficulties were encountered in distributing the survey to staff via the internet, due to stringent security and lack of computer access by staff on wards.

In consideration of these limitations, analyses had proceeded with caution.

7.3.6 Future research.

The current global healthcare crisis has made future research in the public hospital domain increasingly important. Model validation of the engagement scale (Hinkin’s 1998 Step 6) is necessary before using the scale (Byrne, 2010; Kline, 2012). Further research is required to clarify how nurses and doctors are similar and different in work engagement and whether a single scale or separate scales are appropriate for these groups. That is, further psychometric analyses with larger samples are needed to assess whether the factor structure of engagement items vary across these groups. Future studies could profit from developing engagement items within medical contexts that specifically represent medical engagement (Albrecht, 2011; George, 2011). The items strongly endorsed in these studies could be used as a basis for item generation through testing in medical focus groups. Further research is required to understand what
makes doctors and nurses optimally engaged in their work because engagement is known to protect against burnout, which has been linked with suboptimal patient care outcomes, staff turnover and thus diminished business results.

Model validation should be conducted before using the engagement path model to assess how the model generalises to an independent data set, and to limit problems such as overfitting (Byrne, 2010; Kline). If the model can be validated with other nurse samples, it may be relevant to future studies in nursing due to consistent findings of the importance of psychological empowerment and climate in predicting job satisfaction and engagement in nursing. The nursing literature has only recently focused on the specific relationship between empowerment and engagement, to which this study contributes (Laschinger et al., 2009d). Future studies may benefit from the evidence found here for the need to consider the direct and indirect effects of psychological climate and empowerment on engagement in medical contexts. Research could explore whether empowerment continues to partially mediate the relationship between climate and engagement when adding intrinsic motivation to the model, given the strong positive relationship between intrinsic motivation and engagement found in this study and the literature (Laschinger et al., 2011; Li et al., 2008; Wang et al., 2011).

The qualitative data on empowerment can inform further research into this significant predictor of engagement in nursing (Laschinger et al., 2009d). While the empowerment of doctors has not been important in the literature thus far, the increasing pressures faced by medical staff may make the empowerment of doctors more relevant to future research, which may profit from this qualitative data (Levin & Kissane, 2006; Prins et al., 2010).

Presumably the engagement scale and findings of its relationships with the other job constructs would generalise to other individualistic Western cultures. Future
research could investigate whether the findings generalise to collectivist cultures. The lack of a performance measure may have influenced the outcomes, and future research could consider this important contextual issue. That is, because self-report data produces a potential problem of common method variance, it is advisable to correlate this data with hard or archival data (Langford, 2009; Podsakoff & Organ, 1986). Composite archival performance data from multiple measures are advised: performance indicators for business units, manager reports of turnover, absenteeism, productivity, health and safety, goal attainment, financial performance, innovation and customer satisfaction (Kraut, 2006; Langford, 2009, 2010). This information was not available due to restrictions within the New South Wales Health Department.

Discussions with hospital executives and medical staff at the design stage of this research revealed many considered too much engagement led to burnout. Some medical respondents to the surveys also contended this (see Studies 2 and 3). Findings in support of this relationship between engagement and burnout have since appeared in the literature and future research would benefit from exploring the specific nature of the relationship further (Bakker, 2011; George, 2011).

7.3.7 Conclusions.

The engagement measure presented in this Study 3 advances research on engagement in medical contexts with items having been tested in business and medical domains. The theoretical framework of the measure as a higher order construct including job satisfaction, dedication and focused time use developed theoretically and empirically from research commenced in 2004 is consistent with the views later contended by Macey and Schneider (2008). The path model for engagement provides a parsimonious structure for assessing variables of interest in the literature not found in other models for engagement at the time. Further evidence of differences in the way
engagement operates in business and medical contexts was demonstrated within the model. The addition of intrinsic motivation and burnout (represented by emotional exhaustion) to the model consolidates findings and was conducted in the interest of moving the literature forward. Relationships were as expected, other than the finding intrinsic motivation did not protect from the emotional exhaustion aspect of burnout.

The next chapter provides a general discussion of the thesis.
Chapter 8: General Discussion and Conclusions

This thesis challenged the belief widely held in the mid-2000s that employee engagement operates similarly in business and medical contexts. There has since been a growing recognition that engagement may operate differently in medical contexts and that context should be considered in studies on engagement, particularly in uncertain contexts such as medicine (Albrecht, 2010; Bakker, 2011; George, 2011; Parker & Griffin, 2011). In 2004, there had been little research on engagement in the medical domain compared with a large body of research in the business domain. By 2012 engagement was regarded the central issue for 21st century health professionals and particularly nurses, a business initiative and a complex valued trait in hospital contexts (Bargagliotti, 2012; Gray, 2012; Vestal, 2012). Findings consistently demonstrate the benefits of improved engagement on patient outcomes, staff retention and hospital performance (Hayne et al., 2009; Laschinger & Finegan, 2005; Sanfilippo et al., 2008).

The contemporary healthcare industry is undergoing major unprecedented challenges and crises. Hospital contexts are becoming increasingly uncertain and there is a need for ongoing research on clinician engagement to deal with these issues (Bargagliotti, 2012; McCrae, 2014; Snell, 2011). The work of professionals has long been acknowledged as different to that of other workers and the values of health professionals are increasingly at odds with the business imperatives of hospital administrators (Hegland, 2008; Morrow & Goetz, 1988; Snizek, 1972). In business contexts, the aim is to achieve high levels of engagement to improve performance and other business outcomes, whereas health professional work has been found to be more emotionally draining with a higher risk of detrimental overengagement (George, 2010; Gruman & Saks, 2011a; Sonnentag, 2011). By 2004, existing measures for engagement had been developed and used across these contexts without regard for contextual
differences. Relationships between engagement and other related work constructs, namely psychological climate, empowerment, intrinsic motivation and burnout, had been found to be important in medical contexts. However these constructs were not found in models for engagement. Findings had shown the relationships between these constructs in the medical domain may differ from those in the business domain (Finegan & Laschinger, 2001; Laschinger, 2008; Leiter et al., 2011).

8.1 Overview of Results

A series of studies commenced in early 2004 following the methodology of Hinkin (1998) and using an inductive approach. In Study 1 (Chapter 4) scales and items said to measure employee engagement were sourced from the literature and developed into an instrument that included items measuring burnout. The study found engagement to be an individual rather than group measure. Consistent with some contemporary and recent findings, job satisfaction was found to be a facet of engagement (Hallberg & Schaufeli, 2006; Harter et al., 2002; Macey & Schneider, 2008; Newman & Harrison, 2008). Engagement and burnout were found to be different constructs (Schaufeli et al., 2002b). Engagement was found to be a complex construct requiring further research into potential contextual differences. Contextual differences had been overlooked by previous researchers, possibly because of the bottom-up and diverse theoretical manner in which engagement had developed, through practice rather than research (Kahn, 2010; Macey & Schneider, 2008).

Evidence of differences between business and medical contexts was found in Study 2 (Chapter 5) demonstrating engagement may be perceived and defined fundamentally differently in each context. Differences between the occupational contexts remained greater than differences between hospital contexts and between doctors and nurses, indicating a measure for engagement should be developed for the
medical context. The results support recent findings in the literature of such differences, and the need to consider contextual influence in studies on engagement, particularly in uncertain contexts such as medicine (Albrecht, 2011; George, 2011; Griffin et al., 2007; Meltzer et al., 2009). Following Hinkin (1998) Step 3, the 51 items were reduced to 40 in preparation for the development of a scale for medical engagement. Factor analyses demonstrated the factor structure of engagement scales may differ between the contexts.

Study 3 commenced with an extensive survey of doctors and nurses working in all public hospitals in New South Wales that had not participated in the previous Study 2. In Study 3a, two sets of analyses—the first theoretically guided and the second empirically guided—investigated scales for engagement following the rigorous processes recommended by researchers (Anderson & Gerbing, 1988; Byrne, 2010; Hinkin, 1998; Kline, 2011). Job satisfaction was found to be an aspect of engagement in each set of analyses. An empirically derived measure of nurse engagement was developed, a higher order construct, representing job satisfaction, dedication and focused time use, consistent with the later theoretical views of Macey & Schneider, (2008). The measure consisted of 13 items. Later, in Study 3b (see overview below) structural equivalence was found when fitting the theoretically and empirically derived engagement measures into the engagement path model, providing support for the empirical measure developed. The engagement measure (Study 3a) advances research on engagement in medical contexts.

In Study 3b, the relationships between engagement and other work-related constructs were explored in a path model and were found to be significant and positive, supporting previous findings (Butts et al., 2009; Janssen et al., 1999; Laschinger et al., 2009c). Structural equivalence of the model was not found for the doctor data. However, the result may have been influenced by the lack of data ($n = 154$), with a
minimum sample size of 300 required in factor analyses and 200 in structural equation modelling (Kline, 2005; Tabachnick & Fidell, 2007).

Before considering the influence of intrinsic motivation, nurse engagement was most strongly predicted by empowerment, followed by climate, as found by other researchers (Laschinger et al., 2011; Mone et al., 2011). The model indicated climate may be more predictive of doctor engagement than empowerment, the opposite of results for nurse engagement. The relationships between constructs in the path model differed from those in previous studies conducted with business employees. Only partial mediation was found for the effect of empowerment on the relationship between climate and engagement, in contrast to full mediation found by Carless (2004) in business contexts. The finding provided further evidence engagement may operate differently in medical and business contexts (Finegan & Laschinger, 2001; Laschinger, 2008; Leiter et al., 2011).

Engagement and burnout (represented by emotional exhaustion) were moderately negatively related and different strengths were found for their predictors, consistent with previous findings (Demerouti et al., 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002b). Engagement was predicted more by the personal resource of empowerment whereas emotional exhaustion was predicted more by the environmental factor climate, consistent with previous findings (Bakker & Demerouti, 2008; Bakker, 2011; Schaufeli & Bakker, 2004). However, intrinsic motivation became the strongest influence on both emotional exhaustion and engagement when included in the analyses.

Before acknowledging the limitations of these studies the implications will be discussed.
8.1.1 Theoretical implications.

A first major contribution of the studies is the finding theories of engagement may be viewed fundamentally differently by business and healthcare employees. The finding contributes to a growing recognition of the problems associated with the use of engagement measures in these different contexts and the need for context to be considered in studies on engagement, particularly in uncertain contexts such as medicine (Albrecht, 2010; Bakker, 2011; George, 2011; Parker & Griffin, 2011). The finding provides a basis for proposing a measure for engagement in medical contexts should be developed.

The measure developed in the current studies, while imperfect, appears to be the first of such measures developed and is a second major theoretical contribution of the studies. The measure concurs with the theoretical framework provided by Macey and Schneider (2008), of a higher order construct including job satisfaction, dedication and focused time use. Thus these theories were demonstrated to be components of engagement and relevant in the medical context, as also supported by the theoretically guided analyses. The findings support the views of other theorists that job satisfaction is a facet of engagement (Hallberg & Schaufeli, 2006; Harter et al., 2002; Macey & Schneider, 2008; Newman & Harrison, 2008).

The path model of engagement is a third major contribution of the studies, conducted in the interest of moving the literature forward as the variables climate and empowerment have been of interest in the literature but not included in models of engagement. The evidence of significant positive relationships between the variables supports previous findings (Butts et al., 2009; Janssen et al., 1999; Laschinger et al., 2009c). Consistent with other findings in the literature, before considering the influence of intrinsic motivation, nurse engagement was most strongly predicted by
empowerment, followed by climate (Laschinger et al., 2011; Mone et al., 2011). The model indicated climate may be more predictive of doctor engagement than empowerment, the opposite of results for nurse engagement. The weak relationship between doctor engagement and empowerment is consistent with a lack of research on the relationship for doctors in the literature in the mid-2000s.

The finding of partial mediation in the model, in contrast to full mediation found by Carless (2004) with business samples, provides further evidence of contextual differences for engagement. The finding supports other evidence of the direct effects of climate on engagement in medical contexts (Finegan & Laschinger, 2001; Laschinger, 2008; Leiter et al., 2011).

The inclusion of intrinsic motivation and burnout (represented by emotional exhaustion) extends the engagement model. The findings from the model contribute to theories that while engagement and burnout are distinct variables, there is an overlap between the two and differences in their predictors (Demerouti et al., 2001; Schaufeli & Bakker, 2004; Schaufeli et al., 2002b). Engagement was predicted more by the personal resource of empowerment whereas emotional exhaustion was predicted more by the environmental factor climate, consistent with previous findings (Schaufeli & Bakker, 2004; Bakker & Demerouti, 2008; Bakker, 2011).

The finding that intrinsic motivation was the strongest influence on both emotional exhaustion and engagement supports some theories but not all. Support is provided for theories of a strong positive relationship between intrinsic motivation and engagement (Bakker et al., 2000; Janssen et al., 1999; McNeese-Smith, 1999). The result demonstrates intrinsic motivation may not protect clinicians from the danger of this aspect of burnout, contrary to previous findings (Janssen et al., 1999; McNeese-Smith, 1999; Rubino et al., 2009). The result supports consistent findings of the specific
climate found in medical contexts characterised by emotional demands and stress
reactions (Freudenberger, 1974; Laschinger, 2010; Maslach, 1976; Siu et al., 2008).

The theory contended by Bakker and Demerouti (2008) that engaged workers
proactively change their work environment in order to stay engaged is supported by the
reverse model demonstrating nurse engagement predicts climate. Other theorists
contend workers can only change their work environments to stay engaged if there are
no constraints inhibiting innovative behaviours (Parker & Griffin, 2011). Since nursing
has been found to be an increasingly uncertain context in which innovation and
initiative is required, the finding engagement may predict climate in the current studies
may support these theories (Bakker and Demerouti, 2008; Griffin et al., 2007).

8.1.2 Practical implications.

These studies provide evidence engagement may operate differently in medical
and business contexts and different measures and models should be used in each context
(Albrecht, 2010; Leiter et al., 2011; Parker & Griffin, 2011).

A measure that can be used to assess nurse engagement is provided. The
development of the measure from a wide and representative sample contributes to its
potential relevance in nursing contexts. Since engagement positively affects
productivity and job performance, the engagement scale can be used in performance
assessment, management and retention (Bakker & Demerouti, 2008; Kahn, 1990, 1992;
Macey & Schneider, 2008). The items provide information that can benefit in
intervention strategies, training and development programs to understand and maintain
optimum nurse engagement. For instance, nurse engagement was found to be measured
by ‘opportunities to pursue professional development’. Thus engagement may be
enhanced by making work more interactive with other professionals, students, research
and community health promotion, as found in the literature (Kushnir & Cohen, 2006).
The path model provides evidence the measure for engagement interacts with other work variables in nursing contexts in the ways asserted in the medical literature, indicating the scale and path model can be used with some confidence. The model demonstrates empowerment and intrinsic motivation influence levels of nurse engagement. Hence recruitment selection processes may profit by assessing attributes of empowerment and intrinsic motivation. Training and performance management processes aiming to increase these attributes may foster engagement and hence productivity and retention. The current studies support other evidence that health professionals invest high intrinsic motivation in their jobs which may be required to manage less positive feelings when engaged than other workers (Bakker et al., 2000; George, 2011; Janssen et al., 1999). The finding that intrinsic motivation may not protect nurses from the danger of the emotional exhaustion aspect of burnout may benefit nurse training and performance management as clinicians are at a higher risk of burnout than workers in other occupations (Maslach & Jackson, 18981).

Engagement predictors have been found to become more salient and motivating in contexts of high job demands, including emotionally demanding work, typical of the medical context (Bakker & Demerouti, 2008; Maslach & Jackson, 1981). Engaged workers are more productive, more open to new information and more willing to make extra effort and even proactively change their work environment in order to stay engaged (Bakker & Demerouti, 2008). The engagement measure was shown, in the reverse path model, to contribute to psychological climate, indicating the measure and model may be used to improve nursing climates. The model can be used to conceptualise and demonstrate the phenomenon of emergent, flexible roles to managers (Griffin et al., 2007). Supervisors can be trained to manage these new behaviours, which may also be used in performance evaluation. The measure contributes to the
understanding of how to measure engagement and may be used to improve nurse performance, retention and psychological climates.

The qualitative data provided on empowerment may inform intervention and training programs to empower staff and benefit workplace design processes. The results provide specific evidence that can be used in initiatives.

While burnout is reportedly endemic in postgraduate nurse and medical training contexts, little research is available to guide interventions and existing programs reportedly lack the necessary assessment to ensure their efficacy (Brazeau, 2010; Galbraith & Brown, 2011). Many researchers advocate more research into how to support the emotional, professional and personal development of doctors and nurses as well as training programs on how to prevent burnout (Satterfield & Becerra, 2010). Psychological climate was demonstrated to be a main predictor of burnout, supporting previous findings, and thus needs to be managed in hospitals to help control burnout over and above personal factors (Schaufeli & Bakker, 2004).

Hospitals are undergoing major transitions and challenges including an increasing conflict between the values of professional staff and business administrators. Traditional approaches and mechanisms for fostering an alignment between the two had included professional staff involvement in governing boards, but these approaches had not been effective (Shortell et al., 2001). Findings show the need for contemporary approaches recognising clinicians’ professional career needs within hospital settings. The measure and model for medical engagement may contribute to such approaches because, being developed within the public hospital context, they could be expected to reflect the current needs and interests of medical professions. The qualitative findings may help administrators to understand in more detail the increasing demands on clinician time to meet patient care needs and practice administration requirements
(Hegland, 2008). They may be used to narrow the gulf between hospitals and professionals and in efforts advocated by researchers to create collective values between the two groups, to improve patient care, business outcomes, practice and public relations (Misra-Herbert et al., 2004; Van Bogaert, 2011).

8.1.3 Limitations.

The aim of these studies was to clarify the concept of engagement when there was no agreement on a theory in the literature. The method of using the existing items and generating other items from the existing theories, and testing items inductively, may now seem unusual, given the weight of publications on engagement since 2004. The method may present a fundamental limitation in drawing together six constructs of engagement, limiting the way data could be analysed for scale development. As a result of the research design, the definition of engagement provided to participants in the judgement task was vague and may have led them to think they should respond personally about their own jobs. It may be considered that the current studies simply show how existing engagement scales load onto a higher order engagement factor in the medical context, rather than develop a new scale for medical engagement. However, as engagement was the topic of intense debate involving conflicting theories in 2004, it was not considered justifiable to develop or select items to survey as this would have been based on assumptions of how to measure engagement in business and medical contexts.

As Hinkin (1998) says, there are disadvantages to the inductive method which relies heavily on post hoc factor analytical techniques. In Study 2, a possible limitation of the study was the reduction of items by ranking the means of items and determining a cut-off point. The method would now be considered unorthodox by some contemporary researchers who might argue for the use of the results of the factor analyses and further
psychometric analyses. However, the factor structure of the data reported was considered virtually meaningless, as outlined in the limitations section of Study 2. Alternatively, this information about factor structure and item covariance could have been used at this stage of scale construction. Analyses could have included expanding out from the available survey items to see what was missing, rather than what was available. The psychometric limitations of this study were respected by substantially and rigorously re-analysing and re-interpreting the data, using a more current approach in Study 3 (Anderson & Gerbing, 1988; Byrne, 2010; Kline, 2011, 2012; Tabachnick & Fidell, 2001, 2007). The scale produced in Study 3 was therefore imperfect (Kline, 2011). Due to the different theoretical sources for the items, the scale may be regarded theoretically incoherent.

Due to the different theoretical sources for the items, a scale with which to compare doctor and nurse groups was unlikely to be developed. The path model did not fit the doctor sample, which meant the model and scale could not be used for direct comparisons of these groups, nor as a general measure for medical engagement. However, this may have been due to the lack of doctor data.

The data were based on self-report scales which produces a potential problem of common method variance (Podsakoff & Organ, 1986). In hindsight, the research would have been made more rigorous by following Stanton et al. (2002) when reducing the number of items in self-report scales, and/or Scarpello and Campbell (1983) in producing an overall measure for engagement.

At the time of investigation (2004), the distinction between antecedents of engagement and the construct of engagement was not apparent in the literature (Macey & Schneider, 2008). The Kahn (1990, 1992) and Gallup (1998a) or psychological ownership (McCashland, 2000; Rucci et al., 1998) items are now regarded as the former
and this may detract from the usefulness of the measure (Macey & Schneider, 2008). The oversight of having only one item to represent each of Kahn’s (1990, 1992) constructs as well as only one item for each dimension of the burnout scale (Maslach & Jackson, 1981) in Studies 1 and 2 is noted. It may have been better to amend business-derived items to generic versions, however the same results were found for other items and hence the pattern of results holds. The authors of these items emphasised their items are regarded similarly by workers in different contexts, including nurses in healthcare (Buckingham & Coffman, 1999). Poorly worded items and those of the group engagement measure should perhaps have been amended or deleted at the beginning of Study 1, as recommended by Scarpello and Campbell (1983) and Stanton et al. (2002).

In Study 3, the job satisfaction measure became the most represented of all subscales, with four items appearing in the scale. However this may have been due to the disproportionate number of items. There were originally 19 items for job satisfaction, the most for any scale used. The next largest scale used was the Utrecht Work Engagement Scale, with 17 items.

The difference in findings of partial mediation for the nurse sample versus full mediation found in Carless’s (2004) business sample may have been due to the different outcomes being predicted, rather than differences between the populations. However, some of the literature had shown job satisfaction and engagement are either synonymous or overlap, with job satisfaction most likely subsumed by engagement (Harter et al., 2002; Macey & Schneider, 2008; Newman & Harrison, 2008). The job satisfaction items had been highly endorsed as good measures of engagement in Studies 1 and 2 and a high correlation had been found between these subscales in Study 3 (Chapter 6). Hence, it is more likely these differences in mediation were due to differences between the populations rather than due to differences in the concepts of job
satisfaction and engagement. Thus, the Carless (2004) model may have been an adequate choice for these studies.

In some ways, the job demands–resources model of engagement, currently the most published model, would now be regarded a safer choice, given the weight of publications behind this model. However, most of these publications did not exist when the current research was designed in 2004, nor was the model fully developed for use with engagement (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Bakker, 2004). The model was originally developed to predict stress/burnout, viewing engagement as the positive antithesis of burnout. Engagement conceptualised as the opposite to burnout was only one of the theories on the construct in the literature in the mid-2000s. The model developed by May et al. (2004) was accidentally overlooked when the current research project was designed, which is a limitation of these studies.

In hindsight, it would have been better to use measures for the independent variables that had better psychometric qualities. The climate, empowerment and engagement measures showed psychometric problems involving poor internal consistency in the original scales, causing difficulties in modelling these variables. The potential overlap of the empowerment and engagement items was particularly problematic. Further, items for the job satisfaction scale in the current study were drawn from Hackman and Oldham (1975) and Smith et al. (1987) as were some of Spreitzer’s (1995a) items. In hindsight, it would have been beneficial to include a measure of positive affectivity as recent findings show engagement can be increased through affect regulation when combining assessment of both positive and negative affectivity (Bledow et al., 2011).
8.1.4 Future research.

The deepening global healthcare crisis, causing increasing pressures on administrators, infrastructures, and health professionals makes future research in the public hospital domain increasingly important.

The current research indicates engagement may operate differently in business and medical contexts and different measures and models may be appropriate in each context. Longitudinal studies could replicate the research design of Studies 2 and 3 with larger diverse populations to confirm the findings of differences between contexts and investigate the psychometric properties of the engagement items further. The differences in the factor structure of items for these groups found in Study 2, while not used in the current studies, may be used in future studies as an indicator of the nature of such differences between the contexts. Research specifically comparing business and medical contexts could be conducted to investigate whether support can be found for the current studies using other existing models, such as the job demands–resources model (Bakker & Demerouti, 2007, 2008) or the engagement models by May et al. (2004) and Rich et al. (2010). While the Utrecht Work Engagement Scale (Schaufeli et al., 2002b) is a recognised measure, its psychometric properties have been found to vary across non-business populations (Mauno et al., 2005, 2007; Seppala et al., 2009). Indications of this invariance were demonstrated in the current studies, and further research investigating this scale in medical contexts to clarify these findings is suggested.

Model validation of the engagement scale is required with a new nurse data set, Step 6 of Hinkin’s (1998) methodology, before using the scale (Byrne, 2010; Kline, 2012). Research is required to assess whether the measure generalises to other individualist and collectivist cultures, where values differ. Future studies could profit from developing engagement items within medical contexts that specifically represent
medical engagement (Albrecht, 2011; George, 2011). The items found relevant to health professionals in the current studies could be used as a basis for item generation and testing in medical context focus groups.

Research may profit from testing the model with a reasonable data set of doctors ($n = 300$) to investigate whether the measure generalises to this group (Tabachnick & Fidell, 2007). While Study 2 found no significant difference between doctor and nurse groups, further research with larger samples is required to assess the factor structure of items across these groups to determine whether a single scale can be developed or separate scales are required. Research would profit from the development of a scale generalising across the groups enabling direct comparisons of the groups, and a general measure for medical engagement.

Model validation is required of the path model before use to ensure the model generalises to an independent data set and to limit problems such as overfitting (Byrne, 2010; Kline, 2012). If the model generalises to other nurse samples it may be of use in future research on the relationships between engagement, climate and empowerment. Future research may be able to reassess the additional variables intrinsic motivation and burnout to confirm the current findings.

Importantly, further research is required to investigate whether there is an optimum level of medical engagement, and how this can be assessed and managed (George, 2011; Kahn, 2010). Researchers have tended to assert high engagement is a positive phenomenon, while recent findings show a negative effect for healthcare workers (Bakker et al., 2011a; George, 2010, 2011). Researchers highlight the cost of high work engagement, or overengagement, requires further attention (Bakker, Albrecht & Leiter, 2011a; Schaufeli & Salanova, 2011; Sonnentag, 2011). It is possible the
engagement measures operated differently in the medical context in the current studies due to the risk of overengagement in this context.

The lack of consensus on the definitions of engagement presents further research questions. For example, Bakker et al. (2011a) asserted engagement may be an enduring state that hardly changes over time, or one that fluctuates daily. Sonnentag (2011) added it is important to consider hourly changes in engagement to capture dynamic and temporal aspects. Research may profit from investigation into fluctuations in engagement and why these occur. While researchers in organisational psychology struggle to find consensus for the concept of engagement, distinct and widely disparate streams of literature on engagement have emerged in fields of social psychology, sociology, management, human resource development, human resource management and healthcare (Shuck, 2011). Future research could investigate how engagement operates across these domains in comparison to medical contexts. For instance a new engagement measure has been developed in education (Durksen, 2013).

Future research is suggested to investigate how to improve hospital environments to cater for the specific requirements of health professionals who must act from a set of virtues that demand professional engagement, while remaining personally distant from their patients, resulting in ethical conflict (George, 2010; Koch & Jones, 2010). Professionalism is not a recognised concept in the organisational psychology literature. Future research may benefit from including professionalism as a contextual factor, in light of assertions for the need to consider context in studies of engagement, particularly in uncertain contexts such as those of health professionals (Albrecht, 2010; Parker & Griffin, 2011). Findings suggest improvements in work environments that enhance professional status, interactions and practices reduce turnover and improve engagement (Morrow & Goetz, 1988; Seligman, 2002).
8.2 Conclusions

The engagement of health professionals has become an important aspect of contemporary research due to a deepening global healthcare crisis. Findings increasingly demonstrate the need for research on the specific nature of engagement in medical contexts to improve outcomes for staff, patients and hospitals. Engagement is now considered crucial by some researchers in addressing the crisis (Bargagliotti, 2012; Gray, 2012; McCrae, 2014). A recent review of the literature in the health industry identified ‘there are still too few studies that include the … context within which patients and health providers exist (Jones & Watson, 2012, p. 429). The thesis contributes some clarity to the complex domain of engagement, from possibly the first studies of contextual differences and how engagement operates in the medical context, commenced in 2004. Empirical support is provided for a growing recognition that engagement operates fundamentally differently in business and medical contexts and the problems associated with using measures in medical contexts (George, 2010; Mauno et al., 2007; Parker & Griffin, 2011). The first known measure of engagement developed in medical contexts is presented, advancing research, with items having been tested in business and medical domains. The theoretical framework of the measure is consistent with a consensus found later in the literature of a higher order construct including job satisfaction, dedication, and focused time use (Macey & Schneider, 2008). The path model for engagement provides a parsimonious structure for assessing variables of interest in the literature. The variables were not found in other models for engagement at the time of the studies. The model provides further evidence of differences in the way engagement operates in business and medical contexts. The additional assessment of
intrinsic motivation and burnout (represented by emotional exhaustion) consolidates findings and advances the research on engagement and other constructs in the medical context.
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Appendices

Appendix A: Study 1—Engagement Measures

The use of Hinkin’s (1998) methodology and an inductive approach.

Hinkin (1998) asserted it is important the sample of items adequately represents the construct and that this can be by deductive or inductive process. An inductive approach was used in these studies to test for potential contextual differences in engagement. That is, theoretically, it was suspected measures for engagement available during the mid-2000s might be less relevant in medical contexts. Many of the measures were developed and used across business and medical contexts.

Qualitative results of students from the Master of Organisational Psychology degree.

The participants of the focus group (students from the Master of Organisational Psychology degree) were unanimous in their criticism of the use of engagement measures in general to assess employees’ performance. Specifically, they said social desirability bias would be impossible to avoid as employees are naturally protective about how they are perceived by management when being assessed. They felt the use of these measures was also unfair on employees because it would give management too much power and would disenfranchise employees from management. Some participants thought engagement was about ‘loving one’s work’. Others thought that engagement was a combination of personality factors including conscientiousness. Many asserted extrinsic rewards would increase engagement and cited studies of companies such as Virgin Airlines (which provided staff relaxation rooms and reduced flight fees) that they said displayed this relationship. Several participants considered that ‘psychological ownership’ and ‘meaning’ were critical to measures of engagement.
The group unanimously agreed there was a need for research to investigate whether engagement was perceived differently by business and medical employees. The recorded comments were helpful in designing the next studies and were as follows:

- ‘not sure that reporting from an observer perspective captures engagement’
- ‘my understanding and belief is that employee engagement is a combination of job satisfaction, organisational commitment and intention to stay’
- ‘seems like the answers would depend heavily on personality style, type of work, etc.’
- ‘disconnect between questions and the concept of engagement’
- ‘to be engaged, you really need to be motivated, passionate, knowledgeable and confident in what you do’
- ‘it would be interesting to see people’s motivation (intrinsic and extrinsic) levels and employee engagement’.
Appendix B: Study 2—Engagement Items in Medical and Business Contexts

Participants.

The following information describes the hospitals involved in Study 2, as mentioned in the participants section. The first of these hospitals is one of the largest general hospitals in Australia, located in the lower north shore, 10 minutes from the central business district, with 736 beds (in 2012). It is the referral hospital for the Northern Sydney and Central Coast Area Health, servicing 5.7% of the Australian population or 17% of NSW, and is a leading research and trauma centre (University of Sydney, 2012). The hospital appeared well funded and the atmosphere was formal and rigid. Paper and electronic versions of the survey were distributed to this hospital.

The second hospital is a major public teaching hospital in the central business district of Sydney. This is the largest hospital in Sydney, with over 700 beds (in 2005) (NSW Government, 2012). The atmosphere was similar to the first hospital. Only electronic versions of the survey were permitted to be distributed to this hospital.

The third hospital is a smaller metropolitan teaching hospital, in an upper north shore suburb, one hour from the central business district. It had 270 beds (in 2012), and serviced the local suburbs. The hospital staff reported suffering stress due to major renovations occurring at the hospital. Senior medical staff said the physical infrastructure of the hospital were not compatible with contemporary healthcare (University of Sydney, 2012). Administrative staff said this hospital was less well funded and resourced than the previous hospitals. Paper, rather than online, surveys were appropriate due to the lack of computer access by staff on wards. The atmosphere of this hospital was relaxed and less rigid than the previous hospitals, indicating different profiles.
The fourth hospital had 156 beds (in 2009), and serviced the northern beaches district of
(University of Sydney, 2012). Paper surveys were used due to the lack of computer
access by staff. The hospital had a relaxed atmosphere similar to that of the third
hospital.

**Independent t-tests of the doctor and nurse groups.**

Independent t-tests were conducted to investigate differences in the responses
between the doctor and nurse groups, Table B.1. As explained in Chapter 5, the effect
size was measured using Cohen’s (1992) formula and is indicated by $d$, with a moderate
(.5) or large (.8) $d$ indicating a moderate of large effect size for the t-score or difference
between business and medical samples.
Table B.1

*T-test Results Comparing the Doctor and Nurse Groups for All Engagement, Job Satisfaction and Burnout Items*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
<th>Nurse</th>
<th>Doctor</th>
<th>Nurse</th>
<th>Doctor</th>
<th>Total</th>
<th>d</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>UWES Vigour</td>
<td>2.56</td>
<td>2.65</td>
<td>.88</td>
<td>.86</td>
<td>.87</td>
<td>.10</td>
<td><em>t</em>(193) = .71</td>
</tr>
<tr>
<td>At my work, I feel like bursting with energy</td>
<td>UWES Vigour</td>
<td>2.33</td>
<td>2.12</td>
<td>.77</td>
<td>.82</td>
<td>.80</td>
<td>.26</td>
<td><em>t</em>(195) = 1.84</td>
</tr>
<tr>
<td>At my work, I always persevere, even when things do not go well</td>
<td>UWES Vigour</td>
<td>3.07</td>
<td>3.08</td>
<td>.70</td>
<td>.80</td>
<td>.75</td>
<td>.01</td>
<td><em>t</em>(195) = .08</td>
</tr>
<tr>
<td>I can continue working for very long periods at a time</td>
<td>UWES Vigour</td>
<td>2.72</td>
<td>2.81</td>
<td>.95</td>
<td>1.01</td>
<td>.98</td>
<td>.09</td>
<td><em>t</em>(195) = .61</td>
</tr>
<tr>
<td>At my job, I am very resilient mentally</td>
<td>UWES Vigour</td>
<td>2.88</td>
<td>2.71</td>
<td>.70</td>
<td>.87</td>
<td>.79</td>
<td>.22</td>
<td><em>t</em>(176) = 1.55</td>
</tr>
<tr>
<td>At my job, I feel strong and vigorous</td>
<td>UWES Vigour</td>
<td>2.56</td>
<td>2.45</td>
<td>.74</td>
<td>.80</td>
<td>.77</td>
<td>.14</td>
<td><em>t</em>(195) = .97</td>
</tr>
<tr>
<td>To me, my job is challenging</td>
<td>UWES Dedication</td>
<td>3.05</td>
<td>2.96</td>
<td>.76</td>
<td>.77</td>
<td>.76</td>
<td>.12</td>
<td><em>t</em>(194) = .840</td>
</tr>
<tr>
<td>My job inspires me</td>
<td>UWES Dedication</td>
<td>2.77</td>
<td>2.90</td>
<td>.78</td>
<td>.89</td>
<td>.83</td>
<td>.16</td>
<td><em>t</em>(195) = 1.13</td>
</tr>
<tr>
<td>I am enthusiastic about my job</td>
<td>UWES Dedication</td>
<td>2.97</td>
<td>3.00</td>
<td>.78</td>
<td>.81</td>
<td>.79</td>
<td>.04</td>
<td><em>t</em>(195) = .26</td>
</tr>
<tr>
<td>I am proud of the work that I do</td>
<td>UWES Dedication</td>
<td>3.51</td>
<td>3.22</td>
<td>.59</td>
<td>.76</td>
<td>.69</td>
<td>.42</td>
<td><em>t</em>(195) = 3.04**</td>
</tr>
<tr>
<td>I find the work that I do full of meaning and purpose</td>
<td>UWES Dedication</td>
<td>3.12</td>
<td>3.11</td>
<td>.74</td>
<td>.81</td>
<td>.77</td>
<td>.01</td>
<td><em>t</em>(195) = .07</td>
</tr>
<tr>
<td>When I am working, I forget everything around me</td>
<td>UWES Absorption</td>
<td>2.38</td>
<td>2.32</td>
<td>.95</td>
<td>.87</td>
<td>.91</td>
<td>.07</td>
<td><em>t</em>(195) = .48</td>
</tr>
<tr>
<td>Time flies when I am working</td>
<td>UWES Absorption</td>
<td>2.94</td>
<td>2.73</td>
<td>.88</td>
<td>.78</td>
<td>.84</td>
<td>.25</td>
<td><em>t</em>(195) = 1.78</td>
</tr>
<tr>
<td>I get carried away when I am working</td>
<td>UWES Absorption</td>
<td>2.35</td>
<td>2.44</td>
<td>.90</td>
<td>.90</td>
<td>.90</td>
<td>.10</td>
<td><em>t</em>(195) = .74</td>
</tr>
<tr>
<td>It is difficult to detach myself from my job</td>
<td>UWES Absorption</td>
<td>1.92</td>
<td>2.32</td>
<td>.97</td>
<td>.93</td>
<td>.97</td>
<td>.41</td>
<td><em>t</em>(195) = 2.93**</td>
</tr>
<tr>
<td>I am immersed in my work</td>
<td>UWES Absorption</td>
<td>2.54</td>
<td>2.64</td>
<td>.79</td>
<td>.78</td>
<td>.78</td>
<td>.13</td>
<td><em>t</em>(195) = .76</td>
</tr>
<tr>
<td>I am happy when I am working intensely</td>
<td>UWES Absorption</td>
<td>2.72</td>
<td>2.67</td>
<td>.77</td>
<td>.83</td>
<td>.80</td>
<td>.06</td>
<td><em>t</em>(195) = .48</td>
</tr>
<tr>
<td>I am proud to work here</td>
<td>Psychological ownership</td>
<td>2.92</td>
<td>2.82</td>
<td>.83</td>
<td>.83</td>
<td>.83</td>
<td>.12</td>
<td><em>t</em>(195) = .89</td>
</tr>
<tr>
<td>I plan to be working here five years from now</td>
<td>Psychological ownership</td>
<td>2.43</td>
<td>2.53</td>
<td>1.12</td>
<td>1.08</td>
<td>1.10</td>
<td>.09</td>
<td><em>t</em>(194) = .46</td>
</tr>
<tr>
<td>I would recommend the products and services of this organisation to people I care about</td>
<td>Psychological ownership</td>
<td>2.92</td>
<td>2.63</td>
<td>.84</td>
<td>.93</td>
<td>.89</td>
<td>.32</td>
<td><em>t</em>(185) = 2.27*</td>
</tr>
<tr>
<td>I would recommend this organisation as a great place to work</td>
<td>Psychological ownership</td>
<td>2.70</td>
<td>2.56</td>
<td>.93</td>
<td>1.01</td>
<td>.97</td>
<td>.15</td>
<td><em>t</em>(194) = 1.01</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>$M$</td>
<td>$SD$</td>
<td>$d$</td>
<td>$t$</td>
<td>$t(194)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>-----------</td>
<td>--------</td>
<td>-------</td>
<td>-------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 I would recommend the purchase of this organisation’s products and services to people I care about</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.40 = 2.76*</td>
<td></td>
</tr>
<tr>
<td>23 There is opportunity for me to pursue my job and career interests here</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.03 = .189</td>
<td></td>
</tr>
<tr>
<td>24 I feel good about the future of the organisation</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.09 = .64</td>
<td></td>
</tr>
<tr>
<td>25 The organisation is making the changes necessary to compete effectively</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.22 = 1.51</td>
<td></td>
</tr>
<tr>
<td>26 I understand our business strategy</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.19 = 1.29</td>
<td></td>
</tr>
<tr>
<td>27 I see a connection between the work I do and the organisation’s strategic objectives</td>
<td>Psychological ownership</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.27 = 1.91</td>
<td></td>
</tr>
<tr>
<td>28 At work, I am physically and/or mentally present and focused on the goals of the organisation</td>
<td>Time</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.24 = 1.67</td>
<td></td>
</tr>
<tr>
<td>29 At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.39 = 2.76*</td>
<td></td>
</tr>
<tr>
<td>30 I feel worthwhile, valued, valuable, feel able to give and receive from work and others in courses of work</td>
<td>Meaningfulness</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.03 = .28</td>
<td></td>
</tr>
<tr>
<td>31 I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Safety</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.04 = .28</td>
<td></td>
</tr>
<tr>
<td>32 I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>Availability</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.00 = .08</td>
<td></td>
</tr>
<tr>
<td>33 My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.06 = .48</td>
<td></td>
</tr>
<tr>
<td>34 Variety of tasks required by your job</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.39 = 2.78*</td>
<td></td>
</tr>
<tr>
<td>35 Opportunity to follow through your job to completion</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.18 = 1.27</td>
<td></td>
</tr>
<tr>
<td>36 The significance of your job to the organisation</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.15 = 1.11</td>
<td></td>
</tr>
<tr>
<td>37 The level of independence in your job</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.24 = 1.74</td>
<td></td>
</tr>
<tr>
<td>38 The level of feedback you receive</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.08 = .57</td>
<td></td>
</tr>
<tr>
<td>39 Opportunities to set your own goals</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.21 = 1.46</td>
<td></td>
</tr>
<tr>
<td>40 Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.07 = .51</td>
<td></td>
</tr>
<tr>
<td>41 Your pay and conditions</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.12 = .78</td>
<td></td>
</tr>
<tr>
<td>42 Relations with work colleagues/team members</td>
<td>Job satisfaction</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$.22 = 1.53</td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Nurse</td>
<td>Doctor</td>
<td>Total</td>
<td>$d$</td>
<td>$t$</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------------------------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>Opportunities for promotion</td>
<td>Job satisfaction</td>
<td>2.43</td>
<td>2.48</td>
<td>.90</td>
<td>.89</td>
<td>.90</td>
<td>.06</td>
<td>$t(195) = .40$</td>
</tr>
<tr>
<td>Opportunities for professional development</td>
<td>Job satisfaction</td>
<td>2.89</td>
<td>2.77</td>
<td>.90</td>
<td>.89</td>
<td>.89</td>
<td>.13</td>
<td>$t(195) = .94$</td>
</tr>
<tr>
<td>Level of job security</td>
<td>Job satisfaction</td>
<td>3.11</td>
<td>2.73</td>
<td>.85</td>
<td>.92</td>
<td>.90</td>
<td>.42</td>
<td>$t(187) = 2.96^{**}$</td>
</tr>
<tr>
<td>Quality and timeliness of communication</td>
<td>Job satisfaction</td>
<td>2.63</td>
<td>2.66</td>
<td>.96</td>
<td>.89</td>
<td>.92</td>
<td>.03</td>
<td>$t(195) = .16$</td>
</tr>
<tr>
<td>Sense of fair play in your organisation</td>
<td>Job satisfaction</td>
<td>2.54</td>
<td>2.67</td>
<td>1.02</td>
<td>1.13</td>
<td>1.07</td>
<td>.12</td>
<td>$t(195) = .84$</td>
</tr>
<tr>
<td>The extent to which your skills are fully used</td>
<td>Job satisfaction</td>
<td>2.78</td>
<td>2.85</td>
<td>.82</td>
<td>.91</td>
<td>.86</td>
<td>.08</td>
<td>$t(195) = .57$</td>
</tr>
<tr>
<td>The quality of supervision you receive</td>
<td>Job satisfaction</td>
<td>2.62</td>
<td>2.62</td>
<td>.93</td>
<td>.97</td>
<td>.94</td>
<td>0</td>
<td>$t(195) = .06$</td>
</tr>
<tr>
<td>Your status within the organisation</td>
<td>Job satisfaction</td>
<td>2.62</td>
<td>2.42</td>
<td>.74</td>
<td>.86</td>
<td>.81</td>
<td>.27</td>
<td>$t(195) = 1.71$</td>
</tr>
<tr>
<td>Your job overall</td>
<td>Job satisfaction</td>
<td>2.88</td>
<td>2.86</td>
<td>.75</td>
<td>.82</td>
<td>.78</td>
<td>.03</td>
<td>$t(195) = .22$</td>
</tr>
<tr>
<td>The organisation overall</td>
<td>Job satisfaction</td>
<td>2.56</td>
<td>2.39</td>
<td>.88</td>
<td>.90</td>
<td>.89</td>
<td>.19</td>
<td>$t(195) = 1.35$</td>
</tr>
<tr>
<td>I feel used up at the end of the work day</td>
<td>Burnout</td>
<td>2.46</td>
<td>2.24</td>
<td>1.09</td>
<td>1.07</td>
<td>1.08</td>
<td>.20</td>
<td>$t(195) = 1.46$</td>
</tr>
<tr>
<td>I have become less enthusiastic about my work</td>
<td>Burnout</td>
<td>1.85</td>
<td>1.99</td>
<td>.96</td>
<td>1.06</td>
<td>1.01</td>
<td>.14</td>
<td>$t(195) = .99$</td>
</tr>
<tr>
<td>I have less professional efficacy than I used to have</td>
<td>Burnout</td>
<td>1.70</td>
<td>1.58</td>
<td>.88</td>
<td>.89</td>
<td>.88</td>
<td>1.4</td>
<td>$t(195) = .96$</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
Note: Cohen’s effect size is represented by $d$ and the t-test score by $t$. Significance at < .05 is indicated by *, at < .01 by ** and at < .001 by ***.
Factor structure of items for business and medical samples.

In the next analyses, the underlying factor structure of the items for the business and medical samples was investigated, and the relationships between items, to assess whether respondents in the different contexts defined the word engagement differently. As outlined in Study 3a, Chapter 6, an examination of outliers, normality, multicollinearity, common method bias, as well as the participation profile of the survey respondents was conducted. Factor analysis assumptions were checked (Tabachnick & Fidell, 2007). The data were considered suitable for factor analyses.

Exploratory factor analysis was conducted for each sample using principal components analysis which ‘is intended to simply summarize many variables into fewer components, and the latent constructs (i.e., factors) are not the focus of the analysis’ (Henson & Roberts, 2006, p. 398). Several tests were conducted to confirm the solutions, as recommended (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999). First, Kaiser’s criterion of eigenvalues of greater than 1 was applied. Second, Cattell’s scree test was applied. Third, parallel analysis confirmed the solutions.

The business sample.

A ten-factor solution was obtained for the business sample using the criterion of eigenvalues greater than 1. Thirteen of the 52 items were deleted at the < .5 criterion and cross loading > .2. Factor one comprised 36 items, seven from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b), seven of the psychological ownership items, the two time items, the three Kahn (1990, 1992) items, the instrumental item and 16 job satisfaction items. Factor two comprised one item and hence was omitted (Table 5.1).
Table B.2

Exploratory factor Analysis of Engagement Items for the Business Sample (n = 221)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>UWES</td>
<td>.622</td>
<td>.221</td>
<td>-.271</td>
<td>-.096</td>
<td>-.163</td>
<td>-.033</td>
<td>-.116</td>
<td>-.108</td>
<td>.048</td>
<td>.111</td>
</tr>
<tr>
<td>At my work, I feel bursting with energy</td>
<td>UWES</td>
<td>.614</td>
<td>.294</td>
<td>-.156</td>
<td>-.073</td>
<td>-.211</td>
<td>-.023</td>
<td>.003</td>
<td>-.074</td>
<td>.094</td>
<td>.052</td>
</tr>
<tr>
<td>At my work I always persevere, even when things do not go well</td>
<td>UWES</td>
<td>.482</td>
<td>.376</td>
<td>.049</td>
<td>.122</td>
<td>-.198</td>
<td>-.122</td>
<td>.012</td>
<td>.132</td>
<td>-.057</td>
<td>.106</td>
</tr>
<tr>
<td>I can continue working for very long periods at a time</td>
<td>UWES</td>
<td>.201</td>
<td>.568</td>
<td>.299</td>
<td>.242</td>
<td>-.186</td>
<td>-.030</td>
<td>.182</td>
<td>-.017</td>
<td>-.091</td>
<td>.072</td>
</tr>
<tr>
<td>At my job, I am very resilient mentally</td>
<td>UWES</td>
<td>.406</td>
<td>.464</td>
<td>.174</td>
<td>.088</td>
<td>-.384</td>
<td>-.092</td>
<td>.059</td>
<td>-.092</td>
<td>.168</td>
<td>.058</td>
</tr>
<tr>
<td>At my job I feel strong and vigorous</td>
<td>UWES</td>
<td>.675</td>
<td>.504</td>
<td>.049</td>
<td>.059</td>
<td>-.339</td>
<td>-.055</td>
<td>.178</td>
<td>-.100</td>
<td>.129</td>
<td>.052</td>
</tr>
<tr>
<td>To me, my job is challenging</td>
<td>UWES</td>
<td>.610</td>
<td>.205</td>
<td>-.240</td>
<td>-.171</td>
<td>-.149</td>
<td>-.105</td>
<td>-.193</td>
<td>-.128</td>
<td>.218</td>
<td>-.195</td>
</tr>
<tr>
<td>My job inspires me</td>
<td>UWES</td>
<td>.668</td>
<td>.255</td>
<td>-.425</td>
<td>-.144</td>
<td>-.095</td>
<td>-.127</td>
<td>-.161</td>
<td>-.136</td>
<td>.051</td>
<td>-.138</td>
</tr>
<tr>
<td>I am enthusiastic about my job</td>
<td>UWES</td>
<td>.733</td>
<td>.216</td>
<td>-.243</td>
<td>-.111</td>
<td>-.072</td>
<td>-.139</td>
<td>-.169</td>
<td>-.041</td>
<td>-.213</td>
<td>.067</td>
</tr>
<tr>
<td>I am proud of the work that I do</td>
<td>UWES</td>
<td>.604</td>
<td>.254</td>
<td>-.115</td>
<td>-.060</td>
<td>.016</td>
<td>-.128</td>
<td>-.201</td>
<td>.072</td>
<td>-.155</td>
<td>.139</td>
</tr>
<tr>
<td>I find the work I do full of meaning and purpose</td>
<td>UWES</td>
<td>.653</td>
<td>.258</td>
<td>-.247</td>
<td>-.159</td>
<td>.052</td>
<td>-.027</td>
<td>-.065</td>
<td>.032</td>
<td>-.060</td>
<td>.011</td>
</tr>
<tr>
<td>When I am working, I forget everything around me</td>
<td>UWES</td>
<td>.595</td>
<td>.584</td>
<td>.148</td>
<td>-.068</td>
<td>.295</td>
<td>.122</td>
<td>.080</td>
<td>.116</td>
<td>.149</td>
<td>-.069</td>
</tr>
<tr>
<td>Time flies when I am working</td>
<td>UWES</td>
<td>.533</td>
<td>.566</td>
<td>.099</td>
<td>-.084</td>
<td>.146</td>
<td>-.002</td>
<td>.089</td>
<td>.135</td>
<td>.135</td>
<td>.059</td>
</tr>
<tr>
<td>I get carried away when I am working</td>
<td>UWES</td>
<td>.452</td>
<td>.555</td>
<td>.127</td>
<td>-.117</td>
<td>.316</td>
<td>.025</td>
<td>.135</td>
<td>.261</td>
<td>.084</td>
<td>.029</td>
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<tr>
<td>It is difficult to detach myself from my job</td>
<td>UWES</td>
<td>.307</td>
<td>.396</td>
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<td>.341</td>
<td>.312</td>
<td>-.029</td>
<td>-.248</td>
<td>-.073</td>
<td>-.038</td>
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<tr>
<td>I am immersed in my work</td>
<td>UWES</td>
<td>.469</td>
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<td>.056</td>
<td>-.022</td>
<td>.196</td>
<td>.185</td>
<td>.009</td>
<td>-.130</td>
<td>-.152</td>
<td>-.092</td>
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<tr>
<td>I feel happy when I am working intensely</td>
<td>UWES</td>
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<td>.202</td>
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<td>.045</td>
<td>.023</td>
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<tr>
<td>I am proud to work here</td>
<td>Psych ownership</td>
<td>.712</td>
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</tr>
<tr>
<td>I plan to be working here five years from now</td>
<td>Psych ownership</td>
<td>.572</td>
<td></td>
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<tr>
<td>I would recommend the products and services of this organisation to the</td>
<td>Psych ownership</td>
<td>.657</td>
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<tr>
<td>I would recommend this organisation as a great place to work</td>
<td>Psych ownership</td>
<td>.710</td>
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</tr>
<tr>
<td>I would recommend the purchase of this organisation’s products and</td>
<td>Psych ownership</td>
<td>.668</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>There is opportunity for me to pursue my job and career interests here</td>
<td>Psych ownership</td>
<td>.668</td>
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<td></td>
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</tr>
<tr>
<td>I feel good about the future of the organisation</td>
<td>Psych ownership</td>
<td>.650</td>
<td></td>
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<td></td>
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<tr>
<td>The organisation is making the changes necessary to compete effectively</td>
<td>Psych ownership</td>
<td>.642</td>
<td></td>
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<tr>
<td>I understand our business strategy</td>
<td>Psych ownership</td>
<td>.641</td>
<td></td>
<td></td>
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<tr>
<td>I see a connection between the work I do and the organisation’s</td>
<td>Psych ownership</td>
<td>.661</td>
<td></td>
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<tr>
<td>At work, I am physically and or mentally present and focused on the</td>
<td>Time</td>
<td>.686</td>
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<tr>
<td>At work, I am physically focused on a task, issue or problem relating</td>
<td>Time</td>
<td>.557</td>
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<tr>
<td>I feel worthwhile, valued, valuable, feel able to give and receive</td>
<td>Meaningfulness</td>
<td>.695</td>
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<tr>
<td>I feel situations are trustworthy, secure, predictable and clear in</td>
<td>Safety</td>
<td>.686</td>
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<tr>
<td>I feel capable of driving physical, intellectual and emotional energies</td>
<td>Availability</td>
<td>.704</td>
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<tr>
<td>My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>.603</td>
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<tr>
<td>Variety of tasks required by your job</td>
<td>Job satisfaction</td>
<td>.431</td>
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<tr>
<td>Opportunity to follow through your job to completion</td>
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### Variable | Scale | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
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<tbody>
<tr>
<td>The significance of your job</td>
<td>Job satisfaction</td>
<td>.645</td>
<td>-.199</td>
<td>.271</td>
<td>.088</td>
<td>-.030</td>
<td>.060</td>
<td>-.210</td>
<td>.017</td>
<td>-.134</td>
<td>-.038</td>
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<tr>
<td>The level of independence in your job</td>
<td>Job satisfaction</td>
<td>.649</td>
<td>-.092</td>
<td>.424</td>
<td>-.083</td>
<td>-.093</td>
<td>.074</td>
<td>-.192</td>
<td>.055</td>
<td>.054</td>
<td>-.041</td>
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<tr>
<td>The level of feedback you receive</td>
<td>Job satisfaction</td>
<td>.621</td>
<td>-.296</td>
<td>-.123</td>
<td>-.183</td>
<td>-.072</td>
<td>-.018</td>
<td>-.034</td>
<td>.097</td>
<td>.023</td>
<td>-.134</td>
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<tr>
<td>Opportunities to set your own goals</td>
<td>Job satisfaction</td>
<td>.706</td>
<td>-.174</td>
<td>.063</td>
<td>-.167</td>
<td>.005</td>
<td>.109</td>
<td>-.006</td>
<td>.080</td>
<td>.082</td>
<td>-.097</td>
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<tr>
<td>Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>.535</td>
<td>-.143</td>
<td>.279</td>
<td>-.212</td>
<td>-.009</td>
<td>-.065</td>
<td>-.087</td>
<td>.176</td>
<td>.176</td>
<td>.093</td>
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<tr>
<td>Your pay and conditions</td>
<td>Job satisfaction</td>
<td>.547</td>
<td>-.160</td>
<td>.129</td>
<td>-.134</td>
<td>.064</td>
<td>-.002</td>
<td>-.004</td>
<td>.093</td>
<td>.063</td>
<td>.264</td>
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<tr>
<td>Relations with colleagues/team members</td>
<td>Job satisfaction</td>
<td>.514</td>
<td>-.190</td>
<td>.141</td>
<td>-.234</td>
<td>-.007</td>
<td>-.099</td>
<td>-.014</td>
<td>.149</td>
<td>-.148</td>
<td>.110</td>
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<tr>
<td>Opportunities for promotion</td>
<td>Job satisfaction</td>
<td>.576</td>
<td>-.247</td>
<td>-.036</td>
<td>-.221</td>
<td>-.226</td>
<td>.028</td>
<td>.125</td>
<td>-.075</td>
<td>.101</td>
<td>.125</td>
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<tr>
<td>Opportunities for professional development</td>
<td>Job satisfaction</td>
<td>.653</td>
<td>-.367</td>
<td>-.068</td>
<td>-.120</td>
<td>.109</td>
<td>-.044</td>
<td>-.195</td>
<td>.001</td>
<td>.049</td>
<td>-.049</td>
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<tr>
<td>Level of job security</td>
<td>Job satisfaction</td>
<td>.578</td>
<td>-.151</td>
<td>.145</td>
<td>-.034</td>
<td>-.013</td>
<td>.015</td>
<td>.046</td>
<td>.138</td>
<td>-.010</td>
<td>-.023</td>
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<tr>
<td>Quality and timeliness of communication</td>
<td>Job satisfaction</td>
<td>.700</td>
<td>-.324</td>
<td>-.068</td>
<td>-.123</td>
<td>-.007</td>
<td>-.034</td>
<td>.303</td>
<td>-.007</td>
<td>.047</td>
<td>.055</td>
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<tr>
<td>Sense of fair play in your organisation</td>
<td>Job satisfaction</td>
<td>.718</td>
<td>-.309</td>
<td>-.083</td>
<td>-.163</td>
<td>-.093</td>
<td>-.025</td>
<td>.252</td>
<td>-.007</td>
<td>-.001</td>
<td>.119</td>
</tr>
<tr>
<td>The extent to which your skills are fully utilised</td>
<td>Job satisfaction</td>
<td>.743</td>
<td>-.190</td>
<td>-.022</td>
<td>-.249</td>
<td>-.003</td>
<td>.021</td>
<td>.114</td>
<td>-.181</td>
<td>-.022</td>
<td>-.119</td>
</tr>
<tr>
<td>The quality of supervision you receive</td>
<td>Job satisfaction</td>
<td>.579</td>
<td>-.096</td>
<td>.134</td>
<td>-.130</td>
<td>.020</td>
<td>-.160</td>
<td>.280</td>
<td>-.113</td>
<td>.109</td>
<td>-.083</td>
</tr>
<tr>
<td>Your status within the organisation</td>
<td>Job satisfaction</td>
<td>.554</td>
<td>-.114</td>
<td>-.502</td>
<td>-.080</td>
<td>.022</td>
<td>.114</td>
<td>-.091</td>
<td>-.324</td>
<td>-.039</td>
<td>-.009</td>
</tr>
<tr>
<td>Your job overall</td>
<td>Job satisfaction</td>
<td>.683</td>
<td>-.180</td>
<td>.260</td>
<td>-.164</td>
<td>-.027</td>
<td>.159</td>
<td>-.065</td>
<td>-.159</td>
<td>-.064</td>
<td>.181</td>
</tr>
<tr>
<td>The organisation overall</td>
<td>Job satisfaction</td>
<td>.615</td>
<td>-.319</td>
<td>.248</td>
<td>.006</td>
<td>-.029</td>
<td>.176</td>
<td>-.052</td>
<td>-.192</td>
<td>-.003</td>
<td>.189</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b), psych ownership = psychological ownership (Gallup Organization, 1998a; McCashland, 2000; Rucci et al., 1998).
**The medical sample.**

A ten-factor solution was again obtained using the criterion of eigenvalues greater than 1. Twelve of the 52 items were deleted at the < .5 criterion and cross loading > .2. Factor one comprised 17 job satisfaction items. Factor two comprised six items from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b). Factor three comprised four psychological ownership items and the two time items. Factor four comprised five items from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b). Factor five comprised only two psychological ownership items and hence was omitted. Factor six comprised three items from the Utrecht Work Engagement Scale (Schaufeli et al., 2002b). Factor seven comprised only one job satisfaction item and hence was omitted (Table 5.2).
Table B.3

Exploratory factor Analysis of Engagement Items for the Medical Sample (n = 192)

<table>
<thead>
<tr>
<th>Questionnaire items</th>
<th>Scale</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UWES</td>
<td></td>
</tr>
<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>.171</td>
<td>.678 .245 -.073 .070 .203 -.218 -.056 .029 -.143</td>
</tr>
<tr>
<td>At my work, I feel bursting with energy</td>
<td>.168</td>
<td>.489 .222 .080 .126 .242 -.122 -.086 .042 -.294</td>
</tr>
<tr>
<td>At my work I always persevere, even when things do not go well</td>
<td>.085</td>
<td>.252 .047 .212 .088 .563 .080 -.039 -.162 .203</td>
</tr>
<tr>
<td>I can continue working for very long periods at a time</td>
<td>-.049</td>
<td>.084 -.005 .316 -.009 .702 .080 .096 .035 .012</td>
</tr>
<tr>
<td>At my job, I am very resilient mentally</td>
<td>.032</td>
<td>.188 .047 .145 -.033 .740 .074 -.065 .099 -.036</td>
</tr>
<tr>
<td>At my job I feel strong and vigorous</td>
<td>.053</td>
<td>.460 .111 .172 .059 .552 -.054 .022 .049 -.239</td>
</tr>
<tr>
<td>To me, my job is challenging</td>
<td>.085</td>
<td>.562 -.054 .208 .042 .228 .260 .128 .026 .022</td>
</tr>
<tr>
<td>My job inspires me</td>
<td>.087</td>
<td>.708 .115 .130 .051 .020 -.013 .228 -.011 -.078</td>
</tr>
<tr>
<td>I am enthusiastic about my job</td>
<td>.169</td>
<td>.787 .113 .149 .135 .096 -.066 .073 -.021 .060</td>
</tr>
<tr>
<td>I am proud of the work that I do</td>
<td>.074</td>
<td>.612 .099 .147 .239 .198 .213 -.181 -.039 -.089</td>
</tr>
<tr>
<td>I find the work that I do full of meaning and purpose</td>
<td>.162</td>
<td>.650 .160 .193 .211 .097 .079 -.140 .137 .192</td>
</tr>
<tr>
<td>When I am working, I forget everything around me</td>
<td>.046</td>
<td>.164 .028 .682 .105 .190 .121 -.142 .218 -.011</td>
</tr>
<tr>
<td>Time flies when I am working</td>
<td>-.016</td>
<td>.304 .085 .548 .252 .102 .225 -.076 .126 -.046</td>
</tr>
<tr>
<td>I get carried away when I am working</td>
<td>.022</td>
<td>.208 .067 .728 .077 .093 .062 -.034 .241 -.050</td>
</tr>
<tr>
<td>It is difficult to detach myself from my job</td>
<td>-.047</td>
<td>-.089 -.077 .614 .031 .149 .009 .145 -.165 .109</td>
</tr>
<tr>
<td>I am immersed in my work</td>
<td>.011</td>
<td>.121 .000 .750 .042 .099 .048 .063 -.266 .037</td>
</tr>
<tr>
<td>I feel happy when I am working intensely</td>
<td>.016</td>
<td>.224 .110 .524 .041 .266 .022 .033 -.027 -.088</td>
</tr>
<tr>
<td>I am proud to work here</td>
<td>.164</td>
<td>.460 .342 .168 .504 -.035 .026 -.054 -.101 .138</td>
</tr>
<tr>
<td>I plan to be working here five years from now</td>
<td>.098</td>
<td>.446 .181 .171 .845 .073 -.029 .022 -.097 .024</td>
</tr>
<tr>
<td>I would recommend the products and services of this organisation to people I care about</td>
<td>.221</td>
<td>.236 .363 .159 .719 .047 .040 .037 .110 -.013</td>
</tr>
<tr>
<td>I would recommend this organisation as a great place to work</td>
<td>.363</td>
<td>.221 .459 .040 .509 -.111 -.173 .095 -.002 -.017</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>Factor loadings</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>I would recommend the purchase of this organisation’s products and services to people I care about</td>
<td>Psych ownership</td>
<td>.280 .126 .391 .131 .664 .050 .069 .033 .108 -.053</td>
</tr>
<tr>
<td>There is opportunity for me to pursue my job and career interests here</td>
<td>Psych ownership</td>
<td>.404 .378 .299 .026 .344 -.066 -.029 .383 .053 .077</td>
</tr>
<tr>
<td>I feel good about the future of the organisation</td>
<td>Psych ownership</td>
<td>.384 .192 .650 .008 .316 -.025 -.169 .130 .090 -.012</td>
</tr>
<tr>
<td>The organisation is making changes necessary to compete effectively</td>
<td>Psych ownership</td>
<td>.356 .114 .697 .023 .247 .026 -.071 .125 .106 -.024</td>
</tr>
<tr>
<td>I understand our business strategy</td>
<td>Psych ownership</td>
<td>.289 .049 .779 -.036 .048 .014 -.014 .013 .114 -.051</td>
</tr>
<tr>
<td>I see a connection in the work I do and the organisation’s strategic objectives</td>
<td>Psych ownership</td>
<td>.347 .180 .770 -.040 .103 -.006 .039 .072 .055 .008</td>
</tr>
<tr>
<td>At work, I am physically and or mentally present and focused on the goals of the organisation</td>
<td>Time</td>
<td>.111 .265 .679 .073 .187 .035 .152 -.063 -.132 .042</td>
</tr>
<tr>
<td>At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
<td>.093 .138 .642 .144 .203 .179 .169 -.131 -.154 -.005</td>
</tr>
<tr>
<td>I feel worthwhile, valued, valuable, feel able to give and receive from work and others in the courses of work</td>
<td>Meaningfulness</td>
<td>.413 .454 .367 .006 .234 -.035 -.185 .079 .057 .235</td>
</tr>
<tr>
<td>I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Safety</td>
<td>.390 .153 .505 .001 .263 .127 -.221 .001 .008 .204</td>
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<tr>
<td>I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>Availability</td>
<td>.357 .440 .324 .120 .154 .134 -.046 .024 .089 .338</td>
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<tr>
<td>My work tasks are instrumental to the attainment of my future goals</td>
<td>Instrumentality</td>
<td>.343 .314 .173 .205 .168 .139 .105 .322 .052 .081</td>
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<td>Variety of tasks required by your job</td>
<td>Job satisfaction</td>
<td>.177 -.049 -.001 .227 -.032 .108 .590 .011 .002 -.025</td>
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<tr>
<td>Opportunity to follow through your job to completion</td>
<td>Job satisfaction</td>
<td>.566 .108 .144 .061 .019 .159 .317 .074 .131 .051</td>
</tr>
<tr>
<td>The significance of your job to the organisation</td>
<td>Job satisfaction</td>
<td>.523 .199 .220 .215 -.018 .029 .286 -.184 .078 .180</td>
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<tr>
<td>The level of independence in your job</td>
<td>Job satisfaction</td>
<td>.437 .033 .008 .147 .066 .298 .375 -.009 .322 .166</td>
</tr>
<tr>
<td>The level of feedback you receive</td>
<td>Job satisfaction</td>
<td>.671 .036 .178 -.103 .102 .043 -.154 .172 .048 .031</td>
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<td>Opportunities to set your own goals</td>
<td>Job satisfaction</td>
<td>.628 .183 .054 -.067 .173 .240 .115 .164 .368 -.052</td>
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<td>Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
<td>.645 .086 .119 .025 .085 .092 .051 .037 .406 .028</td>
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<tr>
<td>Your pay and conditions</td>
<td>Job satisfaction</td>
<td>.653 -.037 .235 -.071 -.006 -.010 -.154 -.184 .063 .077</td>
</tr>
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<td>Relations with work colleagues</td>
<td>Job satisfaction</td>
<td>.572 .025 .115 .065 .122 .086 .129 -.151 -.056 .026</td>
</tr>
<tr>
<td>Opportunities for promotion</td>
<td>Job satisfaction</td>
<td>.639 .121 .046 .134 .072 -.040 .027 .358 .011 -.047</td>
</tr>
<tr>
<td>Variable</td>
<td>Scale</td>
<td>1</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------</td>
<td>------</td>
</tr>
<tr>
<td>Opportunities for professional development</td>
<td>Job satisfaction</td>
<td>.748</td>
</tr>
<tr>
<td>Level of job security</td>
<td>Job satisfaction</td>
<td>.515</td>
</tr>
<tr>
<td>Quality and timelines of communication</td>
<td>Job satisfaction</td>
<td>.786</td>
</tr>
<tr>
<td>Sense of fair play in your organisation</td>
<td>Job satisfaction</td>
<td>.759</td>
</tr>
<tr>
<td>The extent to which your skills are fully utilised</td>
<td>Job satisfaction</td>
<td>.710</td>
</tr>
<tr>
<td>The quality of supervision you receive</td>
<td>Job satisfaction</td>
<td>.722</td>
</tr>
<tr>
<td>Your status within the organisation</td>
<td>Job satisfaction</td>
<td>.631</td>
</tr>
<tr>
<td>Your job overall</td>
<td>Job satisfaction</td>
<td>.712</td>
</tr>
<tr>
<td>The organisation overall</td>
<td>Job satisfaction</td>
<td>.638</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b), psych ownership = psychological ownership (Gallup Organization, 1998a; McCashland, 2000; Rucci et al., 1998).
As outlined in Chapter 5, the different groupings of items may indicate respondents in the different contexts defined the word engagement differently.

**The 40 items reduced from 55 to measure medical engagement.**

The 55 items were reduced by logical methodology to the highest ranked 40 items by calculating the mean by standard deviation of each item. The rank ordering of items is provided in Table B.4.

Table B.4

*Highest Ranked 40 Items Reduced from 55 Items to Measure Engagement by the Calculated Mean by Standard Deviation Score*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Variable</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am proud of the work that I do</td>
<td>UWES Dedication</td>
</tr>
<tr>
<td>2</td>
<td>I have good relations with work colleagues/team members</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>3</td>
<td>I find the work that I do full of meaning and purpose</td>
<td>UWES Dedication</td>
</tr>
<tr>
<td>4</td>
<td>At my work I always persevere, even when things do not go well</td>
<td>UWES Vigour</td>
</tr>
<tr>
<td>5</td>
<td>To me, my job is challenging</td>
<td>UWES Dedication</td>
</tr>
<tr>
<td>6</td>
<td>I am enthusiastic about my job</td>
<td>UWES Dedication</td>
</tr>
<tr>
<td>7</td>
<td>I have a good level of job security</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>8</td>
<td>Your job overall</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>9</td>
<td>I am proud to work here</td>
<td>Psychological ownership</td>
</tr>
<tr>
<td>10</td>
<td>The significance of your job to the organisation</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>11</td>
<td>Time flies when I am working</td>
<td>UWES Absorption</td>
</tr>
<tr>
<td>12</td>
<td>My job inspires me</td>
<td>UWES Dedication</td>
</tr>
<tr>
<td>13</td>
<td>Opportunities for professional development</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>14</td>
<td>The level of independence in your job</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>15</td>
<td>The extent to which your skills are fully used</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>16</td>
<td>I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>Availability</td>
</tr>
<tr>
<td>17</td>
<td>At my job, I am very resilient mentally</td>
<td>UWES Vigour</td>
</tr>
<tr>
<td>18</td>
<td>There is opportunity for me to pursue my work and career ambitions here</td>
<td>Psychological ownership</td>
</tr>
<tr>
<td>19</td>
<td>I would recommend the products and services of this organisation to people I care about</td>
<td>Psychological ownership</td>
</tr>
<tr>
<td>20</td>
<td>I can continue working for very long periods at a time</td>
<td>UWES Vigour</td>
</tr>
<tr>
<td>21</td>
<td>Opportunity to follow through your job to completion</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>22</td>
<td>I feel worthwhile, valued, valuable, and able to give and receive from work and others in the course of work</td>
<td>Meaningfulness</td>
</tr>
<tr>
<td>23</td>
<td>Opportunities to set your own goals</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>24</td>
<td>I feel happy when I am working intensely</td>
<td>UWES Absorption</td>
</tr>
<tr>
<td>25</td>
<td>Variety of tasks required by your job</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>26</td>
<td>The quality and timeliness of communication</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>Rank</td>
<td>Variable</td>
<td>Scale</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>27</td>
<td>I would recommend the purchase of this organisation’s products and services to people I care about</td>
<td>Psychological ownership</td>
</tr>
<tr>
<td>28</td>
<td>I would recommend this organisation as a great place to work</td>
<td>Psychological ownership</td>
</tr>
<tr>
<td>29</td>
<td>The quality and timeliness of supervision you receive</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>30</td>
<td>Amount of flexibility your job allows</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>31</td>
<td>The sense of fair play in your organisation</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>32</td>
<td>When I get up in the morning, I feel like going to work</td>
<td>UWES Vigour</td>
</tr>
<tr>
<td>33</td>
<td>At work, I am physically focused on a task, issue or problem relating to the organisation</td>
<td>Time</td>
</tr>
<tr>
<td>34</td>
<td>I am immersed in my work</td>
<td>UWES Absorption</td>
</tr>
<tr>
<td>35</td>
<td>I receive a good level of feedback</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>36</td>
<td>I have a good status within the organisation</td>
<td>Job satisfaction</td>
</tr>
<tr>
<td>37</td>
<td>At my job, I feel strong and vigorous</td>
<td>UWES Vigour</td>
</tr>
<tr>
<td>38</td>
<td>At work, I am physically and/or mentally present and focused on the goals of the organisation</td>
<td>Time</td>
</tr>
<tr>
<td>39</td>
<td>I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences</td>
<td>Safety</td>
</tr>
<tr>
<td>40</td>
<td>In my role, my time is spent focused on tasks and goals of the organisation</td>
<td>Time</td>
</tr>
</tbody>
</table>

Note: UWES = Utrecht Work Engagement Scale (Schaufeli et al., 2002b).
Appendix C: Study 3a—A Scale for Engagement in Medical Contexts

Survey and covering letter.

A copy of the survey and covering letter used in Study 3 follows.
What makes you love your work?

Clinical Engagement
Nurse and Medical Staff
Information Form and Survey

You are invited to participate in this survey about work and how it can be measured in hospital settings.

The survey is being conducted by Amanda Ferguson as part of a PhD degree at Macquarie University. The research is being supervised by Professor Julie Fitness and Dr Peter Langford (Macquarie University). Please address any inquiries to either Amanda (02-9960 0116), Julie (02-9850 8053) or Peter (02-8875 2800).

Your participation is voluntary and you are free to withdraw at any stage. The survey should take approximately 15 minutes to complete. No questions are asked that will identify you and your individual answers will remain anonymous and confidential. All results will be presented in a combined form so that it will be impossible to identify anyone.

Ethics Approval and Complaints

This study has been approved by the Ethics Review Committee (RPAH Zone) of the Sydney South West Area Health Service. Any person with concerns or complaints about the conduct of this study should contact the Executive Officer on (02) 9515 6766 and quote protocol number X08-0139.

Please read the introductory sections of the questionnaire and then answer all questions by clicking the button next to the appropriate response or by inserting your answer in the space provided. If you need to close the survey before finishing and then open it again on the same computer it will resume from where you were up to.

Thank you for your participation in this survey.

Version 10, 20 April 2010

The following statements are about your feelings about the work you do. Please read each statement carefully and decide how relevant it is to your role currently.

<table>
<thead>
<tr>
<th>Statement</th>
<th>No, this is very unlike me</th>
<th>No, this is not much like me</th>
<th>Not sure</th>
<th>Yes, this is somewhat like me</th>
<th>Yes, this is very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am proud of the work that I do</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have good relations with work colleagues/team members</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I find the work that I do full of meaning and purpose</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>At my work I always persevere, even when things do not go well</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>To me my job is challenging</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am enthusiastic about my job</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have a good level of job security</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My job is satisfying overall</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Please continue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am proud to work here</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My job is significant to the organisation</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Time flies when I am working</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My job inspires me</td>
<td>No, this is very unlike me</td>
<td>No, this is not much like me</td>
<td>Not sure</td>
<td>Yes, this is somewhat like me</td>
<td>Yes, this is very like me</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
<td>---------</td>
<td>----------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I have opportunities for professional development</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I have a high level of independence in my job</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>My skills are fully utilised to a great extent</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I feel capable of driving physical, intellectual and emotional energies into my role performance</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>At my job, I am very resilient mentally</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>There is opportunity for me to pursue my job and career interests here</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I would recommend the products and services of this organisation to people I care about</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I can continue working for very long periods at a time</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>There is opportunity for me to follow through my job to completion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Please continue

<table>
<thead>
<tr>
<th>I feel worthwhile, valued, feel able to give and receive from work and others in courses of work</th>
<th>No, this is very unlike me</th>
<th>No, this is not much like me</th>
<th>Not sure</th>
<th>Yes, this is somewhat like me</th>
<th>Yes, this is very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I have opportunities to set my own goals</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I feel happy when I am working intensely</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>There is a variety of tasks required by my job</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>There is a good level of quality and timeliness of communication in my job</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I would recommend the purchase of this organisation's products and services to people I care about</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I would recommend this organisation as a great place to work</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I receive a good quality of supervision</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>My job allows a good amount of flexibility</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Please continue

<table>
<thead>
<tr>
<th>There is a sense of fair play in my organisation</th>
<th>No, this is very unlike me</th>
<th>No, this is not much like me</th>
<th>Not sure</th>
<th>Yes, this is somewhat like me</th>
<th>Yes, this is very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
At work I am physically focused on a task, issue or problem relating to the organisation
I am immersed in my work
I receive a good level of feedback
My work tasks are instrumental to the attainment of my future goals
I have a good status within the organisation
At my job I feel strong and vigorous
At work I am physically and or mentally present and focused on the goals of the organisation
I feel that situations are trustworthy, secure, predictable and clear in terms of behavioural consequences
In my role, my time is spent focused on tasks and goals of the organisation

The following statements are also about job-related feelings. Please read each statement carefully and decide if you ever feel this way about your current job

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>A few times a year or less</th>
<th>Once a Month or less</th>
<th>A few times a Month</th>
<th>Once a Week</th>
<th>A few times a Week</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel emotionally drained from my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel used up at the end of the workday.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel fatigued when I get up in the morning and have to face another day on the job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with people all day is really a strain for me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel burned out from my work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel frustrated by my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I'm working too hard on my job.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working with people directly puts too much stress on me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel like I'm at the end of my rope.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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For each of the following statements, which option best shows how you or unlike you the statement is.

<table>
<thead>
<tr>
<th></th>
<th>No, this is very unlike me</th>
<th>No, this is not much like me</th>
<th>Not sure</th>
<th>Yes, this is somewhat like me</th>
<th>Yes, this is very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can tolerate frustration better than most</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It takes a lot to make me angry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are not many things that annoy me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am known as hot blooded and quick tempered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No, this is very unlike me</td>
<td>No, this is not much like me</td>
<td>Not sure</td>
<td>Yes, this is somewhat like me</td>
<td>Yes, this is very like me</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------------</td>
<td>------------------------------</td>
<td>----------</td>
<td>-------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>I am some what emotional</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have trouble controlling my impulses</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I frequently get upset</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am almost always calm - nothing ever bothers me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

How strongly do you agree or disagree with the following statements in your role currently?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Totally disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Totally agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel a sense of personal satisfaction when I do my job well</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My opinion of myself goes down when I do this job badly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I take pride in doing my job as well as I can</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel unhappy when my work is not up to my usual standard</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I like to look back on the day’s work with a sense of a job well done</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I try to think of ways of doing my job effectively</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

To what extent do you agree or disagree with the following statements in your role currently?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The work I do is very important to me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My job activities are personally meaningful to me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The work I do is meaningful to me</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am confident about my abilities to do my job</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am self-assured about my capabilities to perform my work activities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have mastered the skills necessary for my job</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have significant autonomy in determining how I do my job</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I can decide on my own how to go about doing my work</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have considerable opportunity for independence and freedom in how I do my job</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My impact on what happens in my department is large</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have a great deal of control over what happens in my department</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have significant influence over what happens in my department</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel empowered in my role</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I do not feel empowered in my role</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
What makes you feel empowered in your current role?

What makes you feel frustrated or dis-empowered in your current role?

Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently involved in your work

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Not much</th>
<th>A little</th>
<th>Moderately</th>
<th>Well</th>
<th>Very well</th>
<th>Exactly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I derive much pleasure from learning new things</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the satisfaction I experience from taking on interesting challenges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For the satisfaction I experience when I am successful at doing difficult tasks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To what extent do you agree or disagree with the following statements about your work?

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Tend to agree</th>
<th>Mixed feelings/neutral</th>
<th>Tend to disagree</th>
<th>Strongly disagree</th>
<th>Don't know/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am aware of the values of this organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This organisation has a strong focus on achieving positive results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe in the values of this organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This organisation is ethical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand how my job contributes to the overall success of this organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is equal opportunity for all staff in this organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have easy access to all the information I need to do my job well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our policies and procedures are efficient and well-designed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>This organisation makes good use of technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keeping high levels of health and safety is a priority of this organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please continue

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Tend to agree</th>
<th>Mixed feelings/neutral</th>
<th>Tend to disagree</th>
<th>Strongly disagree</th>
<th>Don't know/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>The buildings, grounds and facilities I use are in good condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior management are good role models for staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managers in this organisation know the benefits of employing the right people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge and information are shared throughout this organisation</td>
<td>Strongly agree</td>
<td>Tend to agree</td>
<td>Mixed feelings/neutral</td>
<td>Tend to disagree</td>
<td>Strongly disagree</td>
<td>Don't know/Not applicable</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------------</td>
<td>--------------</td>
<td>-----------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>There is commitment to ongoing training and development of staff</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am consulted before decisions that affect me are made</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The rewards and recognition I receive from this job are fair</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The way my performance is evaluated provides me with clear guidelines for improvement</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I have confidence in the ability of my manager</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Please continue

<table>
<thead>
<tr>
<th>I am given opportunities to develop skills needed for career progression</th>
<th>Strongly agree</th>
<th>Tend to agree</th>
<th>Mixed feelings/neutral</th>
<th>Tend to disagree</th>
<th>Strongly disagree</th>
<th>Don't know/Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>My co-workers put in extra effort whenever necessary</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My co-workers are productive in their jobs</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My co-workers give me help and support</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel emotionally well at work</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am able to stay involved in non-work interests and activities</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The future of this organisation is positive</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This organisation is good at learning from its mistakes and successes</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>This organisation understands the needs of its customers</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

The following section asks some general demographic questions

Are you male or female?
○ Male
○ Female

What is your work position?
○ Nurse
○ Nurse Manager
○ Senior Doctor
○ Visiting Medical Officer
○ Registrar
○ Resident
○ Intern

mhtml:file://C:\Users\Amanda\Documents\AMANDA\Survey Qualtrics Survey Softw... 15/12/2013
What is your current area of work or specialty - ie General, Emergency, Cardiology, Oncology?

What hospital is your main place of work?

What is your age range?
○ Under 20
○ 20-30
○ 30-40
○ 40-50
○ 50-60
○ Above 60

What is your level of income?
○ Less than $20,000
○ $20-39,999
○ $40,000-$69,999
○ $70,000-$99,999
○ $100,000-$250,000
○ Above $250,000

How many full-time years have you worked with your current employer?
○ Less than 1 year
○ 1-2 years
○ 2-3 years
○ 3-4 years
○ 4-5 years
○ 5-10 years
○ Over 10 years

On average, how many hours do you work per week?
○ Less than 10
○ 10-20
○ 20-30
○ 30-40
○ 40-50
○ 50-60
○ Over 60
On average, how many hours of overtime do you work per week?

- Under 5
- 5-10
- 10-20
- Over 20

What is your marital status?

- Married or in a de facto relationship
- Not married and not in a de facto relationship

How many children do you have?

- 0
- 1
- 2
- 3
- 4
- 5 or more

Do you belong to an employee union or a professional association?

- Yes
- No

What is your level of education?

- High school
- Vocational training at TAFE or another similar institution
- Associate Diploma
- Undergraduate diploma
- Bachelor Degree (3 or 4 years full-time at university)
- Advanced Degree (5 or more years full-time at university)
- PhD

How would you describe your employment status?

- Casual / on call
- Temporary/ fixed term contract
- Permanent

Which of the following best describes your way of working?

- Job share (part time work sharing a position with another employee)
- Regular part time
- Full time

How much of your work is conducted in public hospitals?
Do you expect to be with this organisation in five years from now?

- Yes
- No

Would you be willing to be interviewed to provide further information for this research project? If so please provide contact details below.

Any comments or suggestions?

If you would like a summary of the outcome of this survey, or to enter the draw to win 5 free family movie tickets, please indicate below and add your email address:

Please click on the arrow at the bottom right to submit this survey.

Thank you for your participation in this survey.

Version 10, 20 April 2010
Participants.

Extensive attempts were made to determine the precise numbers of NSW state-wide male and female nursing, medical, junior and senior staff. Exhaustive approaches were made to individual hospitals, area health services, the Australian Medical Association, Nursing Union, Australian Bureau of Statistics and NSW Department of Health, all of which were unsuccessful. The NSW Department of Health documents used to assess the response representativeness for Study 3 were contradictory making these analyses problematic. There were continuous reports in the media for several years leading up to and during the study the NSW and other state Department of Health records and data technology were in disarray. A review of the Australian health systems conducted in 2009 reported data were not available to measure three of the nine national healthcare benchmarks (Martin, 2010). Martin (2010) reported having to rely on data from 2003 from the Australian Bureau of Statistics, and said NSW hospitals’ data were routinely one year too late.

The recruitment of participants was a labour-intensive endeavour involving several setbacks. First, the ethics approvals involved submission and approval on paper and then online applications, using detailed and lengthy site-specific approvals for each hospital at the NSW Department of Health. This technology changed twice during the studies, involving retraining to be able to use the system. Approvals were then required individually from each area health service, and each individual hospital general manager, chief executive officer, departmental heads, and their administrative staff. Each hospital and member had to be contacted individually and most of these personnel were very difficult to contact and were uncooperative due to lack of time, resources and priority.
• Difficulties were encountered in distributing the survey to staff via the internet due to different internet systems used by different hospitals
• high security protocols not allowing the delivery of the survey to hospitals, despite approval being attained
• restricted access to the internet and hospital intranet to only staff who required its use for their job
• in some country areas, a lack of staff email addresses and internet access by staff, both at home and at the hospital.

Some hospitals reported even their most senior staff, whose email addresses were on the hospital databases, had problems accessing the hospital’s internet site because the security was so tight emails were rejected. Some hospitals agreed to send the survey to other (approved) hospitals in the same area health service as the only way possible to deliver the survey. Many individual complaints were received directly from staff who had heard about the survey from colleagues and were eager to participate, but were frustrated because they could not access it. Thus, while reasonable sample sizes were obtained, they may not have reflected the number of employees willing to participate in the study.

**Treatment of missing data.**

The following information explains how missing data were managed in this study. Missing data occurred in the early stages of data collection when the online survey had not yet been set to force participants to answer all questions. The climate items were reverse-coded. Of the 28 items, 63 nurse cases had missing values (.57%, \( n = 392 \)) and 22 doctor cases had missing values (.51%, \( n = 154 \)).

A common way of dealing with missing data in the past involved case deletion, but this is now discouraged in this rapidly changing field, and Schafer and Graham
(2002) outlined situations in which the technique of single imputation is a reasonable and better solution. Imputation (also known as full information maximum likelihood estimation, see Arbuckle, 1996) is the substitution of some value for missing data values. This allows analyses to proceed in the same way as for complete datasets. There is a greater degree of uncertainty with imputed data than if the imputed values had actually been observed, but the risk of uncertainty can be reasonably assessed. Schafer and Graham (2002) presented an example of a dataset with 25 variables in which 3% of the data values was missing. They asserted if missing values are spread uniformly across the data matrix, case deletion discards more than half of the participants \((1 - .97^{25} = .53)\). In contrast, they pointed out that ‘imputing once from a conditional distribution permits the use of all participants with only a minor negative impact on estimates and uncertainty measures’ (Schafer & Graham, 2002, p. 161). A satisfactory method for handling missing data is the expectation maximisation algorithm. The expectation maximisation method is an iterative process in which all other variables relevant to the construct of interest are used in a regression analysis to predict the values of the missing variables (Schafer & Graham, 2002).

The calculations conducted to estimate whether imputation was reasonable for the engagement and climate data for the nurse group were as follows. The engagement variables for the nurse dataset \((n = 392)\) contained 14 cases, each with one value missing from the 40 items. Thus, .09% of the data was affected (14 missing cases / 392 responses x 40 items). The climate items were reverse-coded. Sixty-three values were missing, or .57%. For the doctor group, the climate data resulted in 22 missing values, or .51%. Less than the 3% recommended by Schafer and Graham (2002) were missing, thus warranting imputation. The expectation maximisation algorithm in SPSS 21.0 (IBM Corporation, 2012) was used to impute the data at the item level (Kline, 2011).
Frequencies.

Tables C.1 and C.2 provide the frequencies of data gathered for Study 3. Table C.1 shows the comprehensive range of hospitals across New South Wales that participated in the study.

**Table C.1**

*Demographic Question: Which Hospital is Your Main Place of Work? (N = 546)*

<table>
<thead>
<tr>
<th>Area</th>
<th>Frequency</th>
<th>% Valid</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armidale</td>
<td>2</td>
<td>.4</td>
<td>.4</td>
</tr>
<tr>
<td>Armidale Rural Referral</td>
<td>2</td>
<td>.4</td>
<td>.7</td>
</tr>
<tr>
<td>Ballina</td>
<td>1</td>
<td>.2</td>
<td>.2</td>
</tr>
<tr>
<td>Balmain</td>
<td>7</td>
<td>1.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Bankstown</td>
<td>20</td>
<td>3.7</td>
<td>6.2</td>
</tr>
<tr>
<td>Bathurst</td>
<td>4</td>
<td>.7</td>
<td>7.0</td>
</tr>
<tr>
<td>Bega</td>
<td>1</td>
<td>.2</td>
<td>7.1</td>
</tr>
<tr>
<td>Bellingen</td>
<td>1</td>
<td>.2</td>
<td>7.3</td>
</tr>
<tr>
<td>Belmont</td>
<td>2</td>
<td>.4</td>
<td>7.7</td>
</tr>
<tr>
<td>Blacktown</td>
<td>3</td>
<td>.5</td>
<td>8.2</td>
</tr>
<tr>
<td>Blacktown/Mt Druitt</td>
<td>1</td>
<td>.2</td>
<td>8.4</td>
</tr>
<tr>
<td>Blacktown/Westmead</td>
<td>1</td>
<td>.2</td>
<td>8.6</td>
</tr>
<tr>
<td>Bourke Street Health Service</td>
<td>2</td>
<td>.4</td>
<td>9.0</td>
</tr>
<tr>
<td>Bowral</td>
<td>6</td>
<td>1.1</td>
<td>10.1</td>
</tr>
<tr>
<td>Bowral and District</td>
<td>2</td>
<td>.4</td>
<td>10.4</td>
</tr>
<tr>
<td>Braeside</td>
<td>5</td>
<td>.9</td>
<td>11.4</td>
</tr>
<tr>
<td>Bulli District</td>
<td>1</td>
<td>.2</td>
<td>11.5</td>
</tr>
<tr>
<td>Calvary Mater Newcastle</td>
<td>14</td>
<td>2.6</td>
<td>14.1</td>
</tr>
<tr>
<td>Camden</td>
<td>1</td>
<td>.2</td>
<td>14.3</td>
</tr>
<tr>
<td>Camden/Campbelltown</td>
<td>1</td>
<td>.2</td>
<td>14.5</td>
</tr>
<tr>
<td>Campbelltown</td>
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Table C.2 shows the comprehensive range of work area or specialty that participants engaged in study.

Table C.2

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</table>
Response representativeness.

Tables C.3 and C.4 provide the analyses to assess the representativeness of the data.

Table C.3

Representativeness of the Data (n = 391) for the NSW Nurse Population in 2009 (N = 44,034), Assessed by Sex

<table>
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<tr>
<th></th>
<th>Female nurses</th>
<th>Male nurses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed numbers (O)</td>
<td>87.5%</td>
<td>12.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Expected numbers (E)</td>
<td>90.43%</td>
<td>9.75%</td>
<td>100%</td>
</tr>
<tr>
<td>O-E</td>
<td>-2.93</td>
<td>2.75</td>
<td>0*2</td>
</tr>
<tr>
<td>(O-E)^2</td>
<td>8.58</td>
<td>7.56</td>
<td></td>
</tr>
<tr>
<td>(O-E)^2/E</td>
<td>.09</td>
<td>.78</td>
<td>.87 = X^2</td>
</tr>
</tbody>
</table>
Table C.4

**Representativeness of the Data (n = 154) for the NSW Doctor Population in 2009 (N = 33,659), Assessed by Gender**

<table>
<thead>
<tr>
<th></th>
<th>Female doctors</th>
<th>Male doctors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed numbers (O)</td>
<td>52.6</td>
<td>47.4</td>
<td>100%</td>
</tr>
<tr>
<td>Expected numbers (E)</td>
<td>37.48</td>
<td>62.51</td>
<td>100%</td>
</tr>
<tr>
<td>O-E</td>
<td>15.12</td>
<td>15.11</td>
<td>0*²</td>
</tr>
<tr>
<td>O-E²</td>
<td>228.61</td>
<td>228.31</td>
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<tr>
<td>O-E²/E</td>
<td>6.10</td>
<td>3.65</td>
<td>9.75 = X²</td>
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</table>

**Histograms of the 40 engagement items.**

Histograms of the 40 engagement items are presented next, assessing the normality of distribution.
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

'UD I find the work that I do full of meaning and purpose'

Mean = 4.30
Std Dev = 0.25
N = 201

'UD At my work I always persevere, even when things do not go well'

Mean = 4.54
Std Dev = 0.39
N = 201

'UD To me my job is challenging'

Mean = 4.32
Std Dev = 0.12
N = 201
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

**'JDS My skills are fully utilised to a great extent'**

- Mean: 3.07
- SD: 1.33
- N: 351

**'K I feel capable of driving physical, intellectual and emotional energies into my role performance'**

- Mean: 4.15
- SD: 1.30
- N: 351

**'UV At my job, I am very resilient mentally'**

- Mean: 4.1
- SD: 1.30
- N: 351
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

1. 'PO There is opportunity for me to pursue my job and career interests here'
   - Mean = 3.7
   - Std. Dev. = 1.131
   - N = 391

2. 'PO I would recommend the products and services of this organisation to people I care about'
   - Mean = 3.85
   - Std. Dev. = 1.064
   - N = 391

3. 'UV I can continue working for very long periods at a time'
   - Mean = 4.04
   - Std. Dev. = 1.079
   - N = 391
'JDS There is opportunity for me to follow through my job to completion'

Mean = 3.92
SD = 0.79
N = 281

'K I feel worthwhile, valued, valuable, feel able to give and receive from work and others in courses of work'

Mean = 3.91
SD = 1.35
N = 281

'JDS I have opportunities to set my own goals'

Mean = 3.9
SD = 1.05
N = 281
'PO I would recommend the purchase of this organisation's products and services to people I care about'

- Mean = 3.61
- Std. Dev. = 1.095
- N = 301

'PO I would recommend this organisation as a great place to work'

- Mean = 3.89
- Std. Dev. = 1.118
- N = 301

'JDS I receive a good quality of supervision'

- Mean = 3.3
- Std. Dev. = 1.235
- N = 301
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

TI At work I am physically focused on a task, issue or problem relating to the organisation

Mean = 4.15
Std. Dev. = .605
N = 201

UA I am immersed in my work

Mean = 4.03
Std. Dev. = .564
N = 201

JDS I receive a good level of feedback

Mean = 3.26
Std. Dev. = .605
N = 201
"JDS I have a good status within the organisation"

Mean = 3.95
Std. Dev. = 0.72
N = 301

"UD At my job I feel strong and vigorous"

Mean = 3.83
Std. Dev. = 0.72
N = 301

"TI At work I am physically and or mentally present and focused on the goals of the organisation"

Mean = 4.08
Std. Dev. = 0.67
N = 301
Figure C.1 Histograms of the 40 engagement items.
Exploratory factor analysis of the split data for engagement.

Tabachnick and Fidell (2007) say at least 300 cases are needed for factor analysis however an investigation was conducted splitting the 392 data. The data were randomly split into two equal groups \( (n = 196) \) as the data had not originally been entered randomly. The Bartlett Test of Sphericity demonstrated the significance of the correlation matrix \( (p = .000; \text{approximate chi-square } 5240.15, df = 780) \). Inter-item correlations were lower than for the full data set \( (n = 392) \) with more correlations being less than .30 which made the data less suitable for factor analysis (Tabachnick & Fidell, 2007). The Kaiser-Meyer-Olkin measure was greater than .60 at .93 establishing the data were suitable for factor analyses in that regard (Tabachnick & Fidell, 1996, 2007).

The exploratory factor analysis was conducted using principal axis factoring and varimax rotation, as was later conducted for the full data set (Study 3a, Chapter 6). An eight factor solution was obtained in comparison to the seven factor solution later obtained for the full data set. Items loading above .50 and with cross-loading of less than .20 were retained. One factor containing 33 items resulted by comparison to the three factors containing 20 items obtained later for the full data (Table C.5).

Table C.5

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
<th>Factor 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am proud of the work that I do</td>
<td>.472</td>
<td>.312</td>
<td>.159</td>
<td>-.129</td>
<td>.187</td>
<td>.259</td>
<td>-.031</td>
<td>.136</td>
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<tr>
<td>I have good relations with work colleagues</td>
<td>.445</td>
<td>.102</td>
<td>.156</td>
<td>.075</td>
<td>.062</td>
<td>.067</td>
<td>.346</td>
<td>.051</td>
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<tr>
<td>I find the work that I do full of meaning and purpose</td>
<td>.651</td>
<td>.118</td>
<td>.054</td>
<td>-.002</td>
<td>-.365</td>
<td>.176</td>
<td>.121</td>
<td>-.054</td>
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<tr>
<td>At my work I always persevere, even when things do not go well</td>
<td>.385</td>
<td>.301</td>
<td>.028</td>
<td>.472</td>
<td>.056</td>
<td>.100</td>
<td>.025</td>
<td>-.129</td>
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<tr>
<td>To me my job is challenging</td>
<td>.381</td>
<td>.490</td>
<td>.128</td>
<td>.415</td>
<td>.029</td>
<td>-.129</td>
<td>-.208</td>
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<tr>
<td>I am enthusiastic about my job</td>
<td>.679</td>
<td>.417</td>
<td>-.049</td>
<td>-.053</td>
<td>-.276</td>
<td>.060</td>
<td>-.062</td>
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<tr>
<td>I have a good level of job security</td>
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<td>My job is satisfying overall</td>
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<td>I am proud to work here</td>
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<td>My job is significant to the organisation</td>
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<td>Time flies when I am working</td>
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<td>My job inspires me</td>
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<td>I have opportunities for professional development</td>
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<td>I have a high level of independence in my job</td>
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<td>My skills are fully utilised to a great extent</td>
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<td>I feel capable of driving physical, intellectual and emotional</td>
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<td></td>
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<tr>
<td>At my job, I am very resilient mentally</td>
<td>.553</td>
<td></td>
<td></td>
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<tr>
<td>There is opportunity for me to pursue my job and career interests</td>
<td>.747</td>
<td></td>
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<tr>
<td>I would recommend the products and services of this organisation</td>
<td>.681</td>
<td></td>
<td></td>
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<tr>
<td>to people I care about</td>
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<tr>
<td>I can continue working for very long periods at a time</td>
<td>.542</td>
<td></td>
<td></td>
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<tr>
<td>There is opportunity for me to follow through my job to completion</td>
<td>.668</td>
<td></td>
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<tr>
<td>I feel worthwhile, valued, valuable, feel able to give and receive</td>
<td>.750</td>
<td></td>
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<td>from work and others in courses of work</td>
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<tr>
<td>I have opportunities to set my own goals</td>
<td>.780</td>
<td></td>
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<tr>
<td>I feel happy when I am working intensely</td>
<td>.579</td>
<td></td>
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<tr>
<td>There is a variety of tasks required by my job</td>
<td>.408</td>
<td></td>
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<tr>
<td>There is a good level of quality and timeliness of communication</td>
<td>.631</td>
<td></td>
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<tr>
<td>in my job</td>
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<tr>
<td>I would recommend the purchase of this organisations products and</td>
<td>.644</td>
<td></td>
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<tr>
<td>services to people I care about</td>
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<tr>
<td>I would recommend this organisation as a great place to work</td>
<td>.753</td>
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<tr>
<td>I receive a good quality of supervision</td>
<td>.611</td>
<td></td>
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<tr>
<td>My job allows a good amount of flexibility</td>
<td>.538</td>
<td></td>
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<tr>
<td>There is a sense of fair play in my organisation</td>
<td>.725</td>
<td></td>
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<tr>
<td>When I get up in the morning, I feel like going to work</td>
<td>.733</td>
<td></td>
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</table>
Internal consistency of engagement in a validation set

A confirmatory factor analysis was conducted and inter-item reliability with a cut off of .7 was used to determine the utility of the factors. A single factor was conducted in which the factor was represented by a latent variable with its 33 items forming indicator variables. Twenty-four items loaded at less than .7 and were deleted. Two further items then loaded at less than .7 and were deleted, leaving six items loading at greater than .7 (Figure C.1).
The scale was tested for internal consistency with the second half of the data and was found to be internally consistent (Figure C.2).

The single factor solution developed from the split data \((n = 196)\) was considered to contain less theoretical information about the items than the three factor solution developed later with the full data set \((n = 392)\) and to not satisfy the recommendations for factor analysis and structural equation modelling (Tabachnick & Fidell, 2007; Kline, 2005). Hence analyses proceeded using the full data set \((n = 392)\).
Appendix D: Study 3b—Relationships between Engagement and Related Constructs

Alternative, equivalent and reciprocal models.

As mentioned in Study 3b, alternative models are recommended in structural equation modelling (Byrne, 2010; Kline, 2011; Vandenberg & Grelle, 2009). Alternative models are tested in situations where more than one a priori model is available, or conflicting theories occur (Jöreskog, 1993; Jöreskog & Sörbom, 1996; Kline, 2011). The alternative model should be specified before model fitting, and is used to pit the theoretical argument against an alternative structure to strengthen claims of measurement validity (Vandenberg & Grelle, 2009). Salanova et al. (2005) presented findings in which engagement predicted service climate for employees in hospitality. Engagement was measured using the Utrecht Work Engagement Scale (Schaufeli et al., 2000b), as used in the current study. Service climate refers to employees’ shared perceptions of the practices and behaviours in customer service expected by the organisation, and is related to psychological climate, as used in the current study (Manning, Shacklock, Bell & Manning, 2012; Schneider et al., 1998). Hence, an alternative model was proposed in which the paths between engagement and climate were reversed, proposing engagement predicted psychological climate.

The above alternative model was also considered an equivalent model. Models that may be empirically equivalent to the hypothesised model should be considered before making any claims (MacCallum, Wegener, Uchino & Fabrigar, 1993). Equivalent models assess the opposite direction of causal hypotheses. They have an identical fit to the hypothesised model, despite different implications (Vandenberg & Grelle, 2009). Ignoring equivalent models is a form of confirmation bias (Kline, 2011). The direction of causal hypotheses cannot be determined empirically using cross-
sectional data, but is based on theoretical foundations, experimental control or longitudinal studies (MacCallum et al., 1993; Williams, Bozdogan & Aiman-Smith, 1996). In the current study, the hypothesis was based on theory.

Salanova et al. (2005) also found evidence for a reciprocal relationship between engagement and empowerment. International consulting firm Melcrum (2012) asserted engagement leads to the empowerment of employees. Hence, a reciprocal model was proposed in the current study, that not only does empowerment lead to engagement, but engagement also leads to empowerment.

**Normality, linearity and homoscedasticity for climate, empowerment, negative affectivity, intrinsic motivation and emotional exhaustion.**

The data for empowerment were generally negatively skewed and positively kurtotic. The skewness and kurtosis were in the same direction as the engagement data, as recommended by Tabachnick and Fidell (2007). The data for nine of the 12 items were greater than one in skewness, with 2.27 being the highest value. Each of these nine items was too peaked, with 7.10 being the highest kurtotic value. The data for climate were generally reasonably normally distributed. Six of the 28 items were slightly positively skewed and negatively kurtotic. One item was too peaked and positively skewed (kurtosis = 1.82, skewness = 1.10) (‘I understand how my job contributes to the overall success of this organisation’). The data for negative affectivity were generally reasonably normally distributed. Four items were slightly positively skewed. The data for intrinsic motivation were all slightly positively skewed and predominantly negatively kurtotic. One item was too peaked and positively skewed (kurtosis = 1.22, skewness = 3.23), for the satisfaction item, ‘I experience when I am successful at doing difficult tasks’. The data for emotional exhaustion were reasonably normally distributed, with most values close to zero. Three items were slightly positively skewed and
negatively kurtotic. One item was too peaked and positively skewed (kurtosis = 1.63, skewness = 1.49) (‘Working with people puts too much stress on me’). The non-normal data was not considered a deterrent to further analysis.

**Climate variable development.**

**General problem of heterogeneity of most latent variables.**

The problem of heterogeneity in the climate variable highlights a general problem of heterogeneity of most variables in this study, producing considerable overlap between the indicators for many of the latent variables.

**Investigation of previous studies using the climate scale.**

An investigation of Langford’s (2007) original findings for the climate scale showed the full-length Voice Climate Survey (VCS) and the shorter Voice Pulse Survey (VPS) resulting from it had been developed using the same dataset. Langford (2007) acknowledged that it was not ideal to use the same dataset because of the following limitations:

- eccentricities from the original dataset would transfer to the VPS
- the VPS was a subset of the VCS and thus not an independent set of items
- the different context and ordering of items in the VCS and VPS may have influenced the way they were interpreted by participants.

Langford (2007) advised that the VPS should thus be regarded as preliminary and needed confirmation in future studies.

A further investigation of the VCS and VPS scales showed inconsistent intra-class correlations between two groups of data (Langford, 2009). Items in the participate subscale showed differences between exploratory and confirmatory factor analyses. Some items appeared to represent a different dimension of participate than other items. These inconsistencies may have accounted for the unique way the participate subscale
operationalised in the current studies. A general investigation of the literature failed to find other studies that had used the VPS.
Appendix E: Study 3—Qualitative Data

Qualitative data were gathered to enrich the study and in case further information was needed with which to analyse the results. The aim was to obtain a deeper understanding of what made medical employees empowered and disempowered, Table E.1.

Results regarding empowerment.

In summary, similar numbers of employees in each role (nurse, nurse manager, junior and senior doctor) said they did not feel empowered. For example, in response to the question, ‘What makes you empowered?’ one nurse said ‘Very little. There are a few times when you feel you can really connect with the women I am caring for, and it affects their outcome for a more positive one. This makes me feel more empowered’. One senior doctor commented, ‘Nothing. Hospitals do not want “empowered” doctors, they want robots’.

The most common theme for empowerment involved how staff were perceived by colleagues and upper management. That is, being given autonomy and responsibility; being trusted to make decisions; and being respected for one’s role, expertise, leadership and work. The next most common theme was doing a good job and making a difference. The most common theme for disempowerment across the groups was dissatisfaction with bureaucracy, administration, politics, mismanagement, poor communication and negativity, as well as micromanagement and intimidation by non-medical higher management who did not listen to medical advice or understand the legal and professional requirements of clinicians. Another common theme was overwhelming demands and a lack of resources, such as a lack of finances, infrastructure and staff.

The finding that a lack of resources and demands of the job were some of the most disempowering aspects of work supported findings in the literature that these
factors in turn influence engagement and burnout (Bakker & Demerouti, 2008). Other demands were seen in the psychological climate of bullying and negativity and the divide between medical staff and administration, as found in the literature (Buerhaus et al., 2003; Laschinger & Shamian, 1994; Milton, 2005). Senior doctors claimed to be as disempowered as each of the other groups, which supported the quantitative results in Study 3 that status does not relate to engagement; thus, senior clinicians may have status, but may not feel empowered. The data supported findings of the dehumanisation of medical staff and problems of being detracted from providing good patient care, and risking professionalism (Cole & Carlin, 2009).

Several common themes were found across these groups for empowerment and disempowerment, with different emphases expressed by each group, as follows.

**What makes you empowered?**

**Perceptions.**

The most common theme for empowerment involved how staff were perceived by colleagues and upper management—that is, being given autonomy and responsibility; being trusted to make decisions; and being respected for one’s role, expertise, leadership and work. These were emphasised more by nurse managers and senior doctors who reported being able to lead, direct and have an influence. A nurse manager said ‘my position enables this’. Senior doctors reported professional status and being valued: ‘work in a good team where we all contribute—I know my contribution is valued and the patients value my work’. Junior doctors reported being listened to and deferred to. A registrar doctor reported feeling empowered, ‘if people listen’.

**Doing a good job/making a difference.**

The next most common theme was doing a good job and making a difference. Specifically, nurses reported the necessity of their work and feeling needed. Junior
doctors reported successful patient outcomes. Nurse Managers reported establishing and maintaining good systems. Senior doctors reported their knowledge, having the clinical skills to help people, and achieving the outcomes they aimed to achieve. A registrar doctor stated, ‘if I work to the best of my ability, achieve a good outcome for a patient and their family and I receive good feedback’. A nurse reported, ‘when I walk away from the ward and feel I have achieved something’.

*Psychological climate.*

Another common theme was the psychological climate—that is, support from colleagues and upper management, a sense of team-ship, being encouraged, and positive feedback. Nurses reported positive collegial relationships nurse managers reported staff following procedures and support from management. Junior doctors reported positive feedback from nurses and patients. Senior doctors reported having good resources, such as a good team, and support from upper management. A nurse reported, ‘teaching others and watching them grow into competent nurses’.

*What makes you disempowered?*

*Bureaucracy.*

The most common theme for disempowerment across the groups was dissatisfaction with bureaucracy, administration, politics, mismanagement, poor communication and negativity. Another common complaint was micromanagement by non-medical higher management who did not listen to medical advice or understand the legal and professional requirements of clinicians. Specifically, nurse managers reported overbearing and intimidating executive managers, paperwork, and being blamed by executives who were divorced from the medical realities. One nurse manager reported having requested an extra nurse for four years and being repeatedly told to keep submitting reasons for the request. Junior and senior doctors reported increasing
paperwork to satisfy legal and insurance requirements. A nurse reported, ‘waiting for approval for essential equipment and waiting to fill vacancies’. A senior doctor highlighted, ‘the legal system which allows ridiculous immoral decisions to be made against the hospital staff’.

*Demands and resources.*

Another common theme was a lack of resources and overwhelming demands, such as a lack of finances, infrastructure, staff and other resources. Nurses reported financial constraints and being overworked: ‘too many patients, too little time’. Nurse managers reported a lack of staff, and not being able to do anything about it. Senior doctors reported a lack of services and infrastructure, unrealistic work expectations, uncontrollable demands, overload, and little control over external priorities that detracted from providing good patient care. An intern doctor reported, ‘the endless complaining, yelling at interns and lack of time to get things done’.

*Psychological climate.*

The psychological climate was again a common theme, such as staff bullying, negativity and cynicism (even reported by senior doctors), lack of support, team-ship, communication, direction, feedback and autonomy. One nurse manager said that bullying was so endemic that it was rewarded. Others reported being caught between negative, overworked staff and upper management who blocked resources and continued to ‘dump’ work demands onto nurses, and being blamed by both. Junior doctors’ reports were summarised by one participant: ‘lack of support and communication, negative interactions between teams in the hospital, too busy to do my work to the highest standard, lack of understanding by more senior staff about the pressures faced by juniors, unrealistic expectations’. Senior doctors reported negativity
and miscommunication from upper management that placed their work and professionalism at risk.

**Qualitative data responses.**

The following tables present the qualitative data that were collected in the survey for Study 3 about what doctors and nurses reported made them feel empowered (Table E.1) and disempowered (Table E.2). The coding for participants’ job positions is as follows:

- 1 = nurse
- 2 = nurse manager
- 3 = senior doctor
- 4 = visiting medical officer doctor
- 5 = registrar doctor
- 6 = resident doctor
- 7 = intern doctor.

Table E.1

<table>
<thead>
<tr>
<th>What makes you empowered?</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being my own boss</td>
<td>1</td>
</tr>
<tr>
<td>Work satisfaction and looking at ways to do it better. Opportunities to review and be part of developing the service in new directions</td>
<td>2</td>
</tr>
<tr>
<td>Ability to make changes within the department</td>
<td>2</td>
</tr>
<tr>
<td>Experience, corporate history, longevity, good reputation as hard worker, reliable worker, multi-skilled, respect</td>
<td>2</td>
</tr>
<tr>
<td>Results and other people’s faith in my ability</td>
<td>2</td>
</tr>
<tr>
<td>I have a degree of autonomy clinically</td>
<td>1</td>
</tr>
<tr>
<td>Completion of projects, significant change to practice</td>
<td>1</td>
</tr>
<tr>
<td>My colleagues and my drive for a challenge</td>
<td>2</td>
</tr>
<tr>
<td>The ability to make a positive contribution towards the clinical understanding and practice of students and staff members. Empowering others and inspiring enthusiasm within other staff members’ job roles</td>
<td>1</td>
</tr>
<tr>
<td>When a change in practice is instituted and becomes part of the culture</td>
<td>1</td>
</tr>
<tr>
<td>Teaching others and watching them grow into competent nurses</td>
<td>1</td>
</tr>
<tr>
<td>Having autonomy to make the best decisions for my patients/clients</td>
<td>1</td>
</tr>
<tr>
<td>The ability to make change and collaborate with others to do so, have my ideas heard</td>
<td>1</td>
</tr>
</tbody>
</table>
When participants complete the program having successfully made lifestyle changes and improved their emotional recovery from their cardiac event
When I walk away from the ward and feel I have achieved something. When a student/staff member appreciate your assistance in their day
Autonomy, respect, accountability
Being able to liaise with all our units and provide help, plus being there for the patients I deal with
Having my opinions taken seriously
The difference one makes on others
The opportunity to change practice and offer patients a gold standard approach to their care
Having senior management trust my decisions
Autonomy of the role
Autonomy and others seeking my help/support
Nothing—organisational restraints are limiting any improvement
When I have a sense of direction about what I am doing
Autonomy, responsibility,
Seeing staff change behaviour and follow policy
Supporting staff
When I fulfil my role and help meet the goals/objectives and expectations of the organisation. When changes initiated have helped achieved the organisation’s objectives
When extra responsibilities are given to me
Due to my abilities to make safe and appropriate decisions. Good with time management.
Excellent critical thinking skills. Able to think outside the square
Being able to make changes for the better, especially for the patients and nursing staff
The need for the work that I do, and the ability that I have to do this work
Positive feedback form patients and staff, especially higher above in management
When there is a happy ending for a patient and their family
Making decisions related to my projects that effect their success
I am seen as the ‘boss’, even by medical staff. I have the capacity to make a difference and to make others make a difference. I make decisions about who and who will not be seen in the department
I don’t particularly empowered and recognise there is always someone above me to order me to do something when the situation arises
My ability to make a change
Success in change management and day-to-day management outcomes
I am the manager and feel my decisions are respected
The broad scope, the people I work with and the ability to work across the area
Autonomous work and decision making, a sense of responsibility and respect for my decisions
Autonomy, as well as helpful colleagues (the best of both worlds)
Experience and increased knowledge and skills to do my work well
Teaching, patient assessment, mentoring, changing practice
The ability to manage and change patient care for the good of the patient
Previous experience and expertise
Ability to strategically plan for the direction the unit goes in
Level of trust and respect from my management
Smiles on the patients’ families
On a one-to-one level with clients, having a positive influence on their experience. I do not seek power on a management/unit level
Not sure
I feel that my managers have enough faith in me to be allowed to do my job, and are always there for advice
Working to achieve KPIs [key performance indicators]
Autonomy, new challenges, driving a research project
Being able to implement change and improve the service that we provide
My knowledge and experience is valued by colleagues
Being able to make a positive change, be it for a patient, family member or for other staff
When I am able to achieve things in my department and when I am consulted on services
I am the manager of my department
I have sole responsibility in some aspects of care at my work—i.e. if I don’t do certain things then it will not get done
Nothing
My ability
Autonomy, feedback
I have a role that requires me to direct staff and also to coordinate the delivery of a high standard of care to my patients
Enablers
When the team works well together and when you feel like a valued member of the team
Autonomy, resolving difficult situations, being listened to
Trusted to work independently, making a difference to patients
I have special knowledge that others don’t possess and I can give/forward this knowledge to the inexperienced
Left to manage staff and patients
Independence in my work
Skills and knowledge
Being able to support and educate parents about child health
Being heard/listened to
Using my abilities and skills to the best of my ability
I have a strong influence on the hospital staff when instigating research
Autonomy within my workplace
Autonomy
Respect from colleagues, seeing the team grow in skills, knowing I get feedback that I do a good job
Job autonomy
Working with families. Making a difference in their lives by improving knowledge and outcomes for families
The belief that I make a positive difference in the lives of my patients
My experience, leadership skills, critical feedback
Independence, feedback, support from nursing
Nothing
That knowing that what I do makes a difference to people in the community
Working as CNC with a project. I feel empowered to achieve success with each unit in the process of this project. Work as an individual and part of a team
Autonomy, positive feedback, ability to influence change
Satisfaction of doing what’s best for your patient … being patient’s advocate
Not sure
Feedback from patients or colleagues
Ability to lead my team in my own personal style
Ability to help my patients reach realistic goals and get home
Meeting the clear directions and goals of the department
Positive feedback from manager, staff I work with, and from women and families
When things work out well
I am the manager
Ability to make a positive change
Respect for my knowledge and expertise in my particular field of nursing
Autonomy, respect from colleagues and medical team, recognition of knowledge and skills
Experienced, skilful. Support and appreciation from NUM
My skills
My own confidence and the flexibility of my managers
My abilities to do my role and my knowledge of the speciality. This empowers me to enact change or at least suggest
Experience and appreciation from clients and their family
Making a positive difference in a patient’s inpatient experience
Success, meeting targets, providing a healthy balance between work and family for my staff, staff accountability, change
Seeing my proposals translated into actual practice
My position enables this
My level of experience and education
Making a difference to a patient or staff member
Acknowledgement of achievements, support from managements, opportunities to become involved in education
Caring for women in a midwifery role
Very little—there are a few times when you feel you can really connect with the women I am caring for and it affects their outcome for a more positive one—this makes me feel more empowered
Respect and appreciation from peers re work performance
My ability to carry out that role professionally
I have a great deal of influence on how staff below me approach their work
Management support and knowing I am confident and knowledgeable in my position
Sometimes able to make decisions about patient care
Ability to make decisions
Seeing it have a positive influence on a patients’ outcome
Autonomy. Respect from colleagues and patients
When I have the skills to a good job or task
Autonomy of my role
That I understand how to give my patient a safe and positive outcome
Respect for my position
When workmates support me in my decisions
Autonomy, good teamwork, friendly colleagues
Knowing you have given the best you can
My ability to manage the staff I am responsible for well
I am the manager and I work with a team of people who communicate well
I am the only one here and I know I do my job well, by the feedback I receive from patients
Dealing with clients face-to-face and maintaining my clinical experience makes me feel worthwhile and this is why I am here
Good patient care
The ability to perform my role well and this has been recognised
Good clinical knowledge, supportive manager, effective team
Autonomy to practice
When my opinion is sought. Positive feedback from peers
Relationship with staff I manage
Expertise in area and the ability to address issues
Assisting clinicians with challenging clients. Having time to connect with my staff professionally
My interpersonal skills
Ability to prioritise and receive feedback from those receiving treatment
Knowledge, capability and authority to make day-to-day decisions, and decisions about the direction of the service
I work independently so therefore if I don’t do my job, it isn’t done
The ability to make a difference
Staff have faith in me when the department is beyond control to bring it back together
My direct manager
Having people respect my opinion (those above), to have control over budget
My knowledge base
Being able to work in all areas of the hospital and identifying areas to make change or improve
My bosses listen to my suggestions. I can work pretty independently
Good clinical knowledge and experience
Autonomy, teamwork, results
When after a day full of complications and unexpected events, everything is completed in a satisfactory manner for all participants, staff and patients
The support of my colleagues and my abilities to use evidence to inform my practice and my team’s strategic direction
Positive feedback
I don’t feel empowered in this current role
I run the service with coworker
Support and encouragement for my direct managers—they are great leaders
Experience, knowledge, tolerance and understanding of others
Autonomy and opportunity to plan most of my work activities
When you can complete a task or see results from your work
Compliance from staff
I make a lot of decisions on the treatment of my patients with usually an affirmative from
the doctor. I am the only one in my hospital that has the experience in the area that I work
in and that allows me autonomy and empowerment
Ability to work autonomously
When I can be heard, when I make a difference for the staff, when I see improvements
because I was part of it
Ability to start new projects with organisational support and work independently with
clients
Working autonomously in outreach settings away from the main service
Support from management
Support from management and colleagues
Being able to change the service
Knowing that I am competent
Not much
Level of interaction with staff
I coordinate the training and development of staff and feel the ideas I have are supported
and implemented
Previous to the current relieving team manager commencing, I felt that my clinical
expertise was valued and trusted by management
Independent practice with families
Autonomy, setting goals
Good outcomes for patients
A great team and good communication
Knowing that I have helped my clients and that I am an advocate for their wishes
Having a leadership role
Support of NUM and continuing professional development
Minimal supervision, trust by my manager
Making a difference for my staff
Autonomy to do my job
Sorting out staffing shortfalls and ensuring that staff work to best practice
I work independently and can organise my own work schedule
Trust of managers
The ability to make my own clinical decisions in treating my patients
The chance to make a difference
The ability to influence decisions in patient care and individual clinical pathways
I am clinically confident and I’m able to influence some decisions
The ability to do what I want in my own time
Autonomy
Capability to be flexible. Knowledge of role. Support of people I work with
I am trusted and am consulted if anything is to change in the department
Support of all staff
As a clinical nurse specialist, I am able to represent our team and also to empower them to
improve
Seeing clients reach their potential and to see my team happy in their work most of the
time
Knowledge others are learning from me
Ability to implement change for the better of service provision
Trust from management and colleagues to fill current role and work independently
Brought about clinical improvement in area and more clinically supportive to staff
The independence and what I do makes a difference to my patient
My patients’ satisfaction
My clinical role and the direct clinical services that I provide, as well as the autonomy to
work collaboratively with a range of service providers, clients and their families
I am given the opportunity to work with a range of professional people and make decisions with the team around implementation of changes. I am allowed to work unsupervised within the boundaries of my role
Feeling needed, getting asked questions on how things are done
Very little. We are controlled and regulated in most everything we do
Level of autonomy, working as an enrolled nurse while undertaking Bachelor of Nursing (currently in second year), able to consolidate my skills
Trusted by management; longevity and familiarity with role; access to information systems
I am a solo worker doing everything from birth to death and everything in between. My clients make me feel empowered
When I can contribute without feeling criticised
Confidence and wellbeing
Being able to get on and complete an activity
Making a positive contribution to a family
Decision making and being able to change people’s attitude
Years of experience and knowledge
Positive outcomes, problems permanently resolved, changes implemented, happy staff
It’s a new position and
I am a sole practitioner, so can manage my own work. Complements from clients who have success in e.g. breastfeeding
My training and experience
Support from management
Seeing a case from beginning to end and empowering the woman and partner in their experience of birthing and parenthood
Good patient outcomes
Level of responsibility
When things get finished or a positive goal is met
When I can make a decision that is supported by the manager and feel recognised and valued by the line manager
Autonomy to make decisions
Nurse-initiated roles in recognition of my skill and knowledge base
Respect from staff
I can make a difference with a patient and their family by just giving of myself in my job
That I have been able to make positive changes in the workplace, people come to me to get advice and feedback
Respect of fellow workers, acknowledgement from clients, satisfaction of goals achieved
Support of colleagues
That I can be involved in projects or develop plans independently. Also that I am respected in my approaches to projects and management of patients
The ability to do the job well, be organised, see things work out the way they have been planned
When coworkers respect your opinions
Knowledge of where the organisation is heading in the future
The fact that I can influence the outcomes of a client’s care
Respect by peers; feedback from women
Autonomy in determining how I provide the service to the community
I work autonomously
Ability to set direction and goals for the organisation
Positive feedback from hospital executive and team members
Able to help others
Level of responsibility and respect
Trusted to comply with policy to action my work
Autonomy, held in high regard from peers
Manager of ward, able to discuss and advocate on behalf of patients and carers
Clinical decision based on own expertise
Ability to change course or workshop’s content
The ability to make the best decisions for my patients and their treatments
The work is completed by the dates required. I can gain cooperation from other staff to complete my work
Autonomy
Management listen to my ideas and opinions with decisions being made on my advice
I have the flexibility to identify issues of concern, develop strategies through research and implement proposed strategies
Given authority to do things
When I am asked something and I can give an answer
Autonomy
Responsibility and autonomy
Support and trust from my manager
Not much
Autonomy, colleagues
Ensuring good outcomes for older people in the public hospital system
The ability to make changes and improvements to other people’s work environment
Ability to make change—even though it may only be small changes, it all improves. I have support of and confidence in my upper management team
My manager supports me
I am used as a mentor by all staff and am recognised as a senior member of the team and respected
Autonomy, decision making, positive feedback from staff/patients
The degree of autonomy and trust by management to deliver the service
My knowledge base is frequently consulted
The autonomy of my job
Getting a job completed
The ability to assist other colleagues with clinical care that benefits patients directly
Nothing
When staff take on new things without complaint
Ability to help patients on the way to recovery
Senior people and peers respect my view
Acknowledgement, encouragement, education, fairness
Making decisions that impact in a positive way on others
The team I work with
Knowledge
I do not feel empowered in my role
When I feel I have done a good job and when I complete necessary tasks
The great staff that I work with
Performing a task to a high standard and with knowledge and confidence
The autonomy to plan what is best for my patient and following through
Support from colleagues
Influence and knowledge
I believe I am respected for my integrity and my abilities
Interactions with others and when something that I do has a positive influence on others
Support I receive from other staff
Experience, respect, seniority,
Being trusted and able to make decisions. Positive feedback. Being listened to
Being able to do my work independently
Making sure all the patients receive the appropriate care
Not empowered, micromanagement rules here
I am the manager
Knowing I have the effect of empowering my staff to do a job they feel satisfied with at the end of the day. managing the resources to support this
Ability to deliver a service to clients in a consistent ethical fashion
Seeing results
Told many times by staff how important I am in my role for them
Staff satisfaction and quality patient care delivery
Confidence in my ability to perform my duties
Support from a great manager
My ability to educate so many health professionals 1
Clinical outcomes of my patients 1
Skills experience 1
Knowledge and education—teaching/mentoring 1
Staff/manager support 1
Achieving goals set, respect from staff, loyalty 2
Ability to make change 1
Ability to make decisions 2
I have a lot of independence and freedom to work as I please 1
Helping patients through difficult times in their lives 1
I am a sole clinician in a rural area with my team an hour away. My team leader has faith in my skills and ability to execute my role well 1
My role as a leader 2
Decision making devolved to my level 1
Feedback from my clients, colleagues, supervisors and satisfaction of seeing positive results 1
Advanced clinical skills 1
Being encouraged for doing a good job. Being acknowledged for my level of experience 1
My own commitment and the commitment of the multidisciplinary team I work with 2
I am left to get on with my role in a way I choose—my manager is supportive, but lets me get on with my job 1
Support from people within the organisation who have more power for change 1
Autonomy working within guidelines and answerable to manager. The job is bigger than I will ever be able to do, but everything makes a difference 1
Knowledge and respect from others; gratitude from patients and appreciation 1
Being trusted to do my own job 1
The ability to use my own ‘common sense’ to resolve problems and to help both staff and clients 2
The ability to change things, the level of autonomy I have, the ability to get the job done 2
Getting positive results 2
Status of being NUM 1
Overcoming issues as they arise 2
Being respected for the decisions I make 1
Ability to make snap decisions based on information available 2
Staff and client respect for knowledge and skills 2
Not a lot 2
Support of ward team 2
Able to do my role without too much interference from my director 2
The ability to work autonomously is a big factor in this 1
Ability to practice at an advanced level at times 2
I have the authority to initiate and implement policy/procedure in my unit 2
The status that I hold 2
Autonomy to practice and lead 1
Support, encouragement and respect from peers 1
Positive outcomes from personal actions 1
Support from staff and management 2
Good relations with fellow workmates, good feedback 2
The support of peers, colleagues and staff 2
Being involved in decision making 1
Required to be team leader and acting nurse unit manager 1
I am given reasonable autonomy by my manager 1
My staff 2
Everything falling into place during my shift 2
Using my clinical skills to help participants take control of their chronic disease and improve the quality of life 1
Working in a team as the leader 2
My knowledge and experience is recognised 1
To be able to empower my staff and facilitate their work 2
Knowledge and corporate history
That I work autonomously and that I make a difference in patients’ and relatives’ lives
Ability to make positive change to patient outcomes
Affirmation of my job
Something I have studied to do
When I get to teach students or new graduates, as they still listen and haven’t been tainted by idiots who haven’t changed jobs for 20 years
Autonomy in my role
Independence
Team effort in working towards a common goal
My level of skills and experience
Not much … I guess, if anything, my experience
My knowledge of my discipline and the trust and confidence of those I work with in my skills
Positive feedback
Autonomy, independence, meaningful effective relationship with staff and patients, making a difference, seeing people change and have positive outcomes—whether it be life or death
Clear guidelines and policy
I am currently just going to the motions
Being able to provide holistic care
Satisfaction of knowing I do the best that I can
The knowledge and experience I have
I do not feel empowered
I do not feel empowered in my role
Autonomy, clinical skills, management skills
Having the autonomy to follow through with all aspects of my job
Seeing good patient outcomes
Making changes/new ideas
Multi-tasking, different opportunities to do different roles
Easing people’s pain both physically and emotionally as a palliative nurse
Experience has given me confidence to express my opinion for consideration
Advocating for patients and focusing on their needs
Good feedback from supervisors, autonomy in the role
Decision making
Knowledge and clinical skills
My sincerity
When the system works
Good support, challenging work, feel I can make a difference
Ability to make decisions independently
I am autonomous and responsible for overall care of patients
Ability to perform well and continue learning how to do my job better
My clients’ satisfaction
Doing a good job and getting good feedback/being thanked, teaching patients about their disease and seeing ‘light bulb’ moments and compliance
More participation in departmental meetings
Making important decisions; people in positions of authority listening to me
Making decisions in directing patient care; positive interactions with other staff and with patients
I’m able to do my job well
Fairness, good management, opportunity to express freely in a safe environment
Ability to work efficiently while still maintaining a good level of patient contact and communication
Senior registrar—responsible for organisational tasks and supervision of junior staff
I have a middle management role
Not sure what empowered really means
Supportive senior supervision
Implementing change
Changing the system
Good relationship with work colleagues and discuss issues rapidly as they arise. Good boss who listens
Independence
Successful outcome for patient
Little empowerment felt at present
Nothing
Doing the job well
Ability to make clinical decisions and carry them through
Ability to directly influence people’s lives, ability to seek out my own training
Not sure
Autonomy in clinical decisions, ability to supervise junior staff, having experienced and learnt from a wide range of situation
Being asked by seniors about how I would address an issue or progress forward
Maternity and gynaecology health care medical practitioner—vital role in helping complications in women’s health
My professional position in the organisation
Saving lives or having beneficial impact on lives
Patient appreciating my work
Long-term job security, strong support from work collaborators, career paths and the time to acquire the skills which I feel I need to improve for my professional development
Opportunity to teach
Being a senior doctor and getting approval from my consultant
Making correct decisions that make an difference in improving patient outcome
I feel I have control over my own destiny and abilities to do my job
Opportunities for continuing education. Gaining more confidence and independence
Good staff and good GM who allows me to get on with my work
Autonomy
I have a significant amount of discretion and control in the day-to-day practicalities of my role
When I can help seriously ill patients who present to the ED and staff look to my leadership
Autonomy and facilitation of professional development
Able to do my work well
Successfully treating patients
Appreciation for your work
Not sure
It’s a great team I have in place
People deferring to me and asking for my advice/skills/knowledge
Independence, job satisfaction, enjoyment
Can influence the future of the department in which I work
Good communication with staff, teamwork
Day-to-day autonomy
Support from direct supervisors and other members of the team
The responsibilities that I have
Back up from superiors and some understanding from people in other parts of the hospital
Autonomy from the executive (when I get it—not often)
The opportunities
My role in the team
High level of autonomy, trust, level of skills required, opportunities to change practices
Autonomy in decision making, coupled with the responsibility
Support and recognition
Positive feedback from other staff
A degree of flexibility and autonomy
Variety
Nothing—hospitals do not want ‘empowered’ doctors, they want robots
Being part of a team
The ability to make decisions regarding optimal patient management
Leading a team of health care workers
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

Gaining skills 5
Being able to help those in need 3
Doing the best I can do 6
Achieving the outcomes we’ve aimed to achieve 3
I have the skills and authority 3
I have an elected position of authority within my department 5
I am respected by my peers, people who report to me and to whom I report, and I am the clinical director both of a hospital department and clinically overall at the hospital
The situations and patients are grateful for our involvement and feeling of doing something helpful and meaningful 5
Positive feedback from patients and families 5
Professional status 3
I make decisions that impact on people’s lives 5
Being able to care for my patients 7
I don’t know 6
My role as a doctor—primary decision maker when on duty, positive feedback from patients and nursing colleagues 6
My position and the regard of patients 4
Having the skills and opportunity to relieve distress and assist people in having a better quality of life 3
Autonomy and the degree of independence I am allowed 5
When I make requests and they are granted. When I have concerns and they are listened too 5
Leading the team most of the time 5
Autonomy 5
Ability to influence or to change for the better 3
Position, reputation 4
I don’t 3
Good working relationships with staff and other departments. Very approachable medical admin 3
Nothing 5
Clinical supervision of undergraduates and new graduates 3
Sense of autonomy 5
Autonomy 3
My professional role with patients 3
Ability to see the achievements I drive 3
Having one’s skills and experience valued 3
If I don’t sign it, doesn’t happen 5
Decision making and being supported by consultants 5
Level of skill and influence built on professional relationships 3
Being listened to 5
Autonomy, support from hierarchy of the objectives of my service 3
Work in a good team where we all contribute, I know my contribution is valued and the patients value my work 3
Director of a service, team involvement, patient-driven focus 3
When knowledge and experience useful to others 3
Making decisions on my own and running them by more senior colleagues. Seeing a difference for patients 6
Nothing 6
Ability to help patients 6
Ability/opportunity to communicate with all stakeholders 3
Autonomy, doing a useful job, research opportunity 6
A degree of autonomy 5
Capacity to influence the development of junior doctors 3
When my comments/recommendations are taken seriously 3
Being listened to by my bosses; having flexibility in how I complete my job 6
Seeing patient on daily basis 7
Leadership role

The difference I can make to the individual patients with whom I come into contact

Completing all my tasks early to allow time for observing/teaching/taking on extra responsibilities

Independence after hours with backup from senior staff on call

If I work to the best of my ability, achieve a good outcome for a patient and their family and I receive good feedback. If people listen. Effective teamwork and communication

Positive feedback from boss and colleagues

Good support from peers and senior clinical staff

Senior position

Flexible work hours, responsive department head

Determining how I do my work

I do not feel empowered in my current role

Independence in the way I practice. Positive comments by peers, managers and supervisors

Achieving objectives despite red tape and lack of resources

Respect of colleagues, the way our department works together and collaboratively, everyone has a voice

Given opportunities to develop new programs and services

Good feedback from patients and support from senior colleagues

I have huge responsibilities both in work and outside work-related organisations. Usually have good support of peers

Support of bosses; clinical successes; teaching e.g. medical students, registrars; readiness of colleagues to work collaboratively; supervision/peer review opportunities; time to think

Positive feedback from patients and other staff

Direct work with patients, teaching, learning

Making contributions, giving and receiving feedback, seeing the results of my work

Clinical decision-making skills

Opportunities to make decisions and work independently

Overtime shifts, when there is some leeway to make our own clinical decisions, no matter how small they may be
Table E.2

**Qualitative Data of what Disempowers Doctors and Nurses**

<table>
<thead>
<tr>
<th>What makes you disempowered?</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many chiefs</td>
<td>1</td>
</tr>
<tr>
<td>Waiting for approval for essential equipment and wait to fill vacancies</td>
<td>2</td>
</tr>
<tr>
<td>Micromanagement from the executive</td>
<td>2</td>
</tr>
<tr>
<td>Others not sharing the same philosophy and passion for nursing, being inefficient with time management, lack of respect by medical staff on occasion, lack of office time</td>
<td>2</td>
</tr>
<tr>
<td>Poor communication affecting outcomes</td>
<td>2</td>
</tr>
<tr>
<td>I have no control over the governance of my role</td>
<td>1</td>
</tr>
<tr>
<td>Lack of support by colleagues to evoke change</td>
<td>1</td>
</tr>
<tr>
<td>Higher management not understanding ward’s workload and legal requirements</td>
<td>2</td>
</tr>
<tr>
<td>The tedious and repetitive amount of meaningless paperwork, as this doesn’t truly represent or reflect the full extent of my job role</td>
<td>1</td>
</tr>
<tr>
<td>When my opinion is overlooked or devalued</td>
<td>1</td>
</tr>
<tr>
<td>Management decision that effect my ability to fully utilise my role</td>
<td>1</td>
</tr>
<tr>
<td>Nil</td>
<td>1</td>
</tr>
<tr>
<td>Lack of support or that no matter what things will stay the same due to system processes or people’s influences</td>
<td>1</td>
</tr>
<tr>
<td>Non-clinical management getting involved in how care is provided and asked to generate meaningless statistics for area/DOH chronic care, which completely disregards what we need to improve our capture rates = more staff!!</td>
<td>1</td>
</tr>
<tr>
<td>The inadequate support from the acting manager, we don’t work collaboratively. The quick fix is dump on the educator, when some sort of solution could be achieved with discussions or meetings with the appropriate people</td>
<td>1</td>
</tr>
<tr>
<td>Too many patients, too little time</td>
<td>1</td>
</tr>
<tr>
<td>Being given more data to collect that is outside my job description and also having no clerical support so spending time doing clerical duties such as booking appointments, doing letters, arranging beds, interpreters etc</td>
<td>1</td>
</tr>
<tr>
<td>When any concerns I have about patient care or safety is ignored</td>
<td>1</td>
</tr>
<tr>
<td>Lack of resources</td>
<td>1</td>
</tr>
<tr>
<td>Overbearing senior managers and current financial situations</td>
<td>2</td>
</tr>
<tr>
<td>Having senior management not listen to advice from staff</td>
<td>1</td>
</tr>
<tr>
<td>Lack of resources. Lack of support from Area Health Service–based superiors</td>
<td>2</td>
</tr>
<tr>
<td>The red tape of the system</td>
<td>2</td>
</tr>
<tr>
<td>Organisational restraints, lack of resources to do my job sooo much better</td>
<td>1</td>
</tr>
<tr>
<td>Lack of feedback and communication from senior roles, and when others do not fulfil the requirements of their job and that impacts on what I am doing or trying to accomplish</td>
<td>1</td>
</tr>
<tr>
<td>Financial constraints</td>
<td>1</td>
</tr>
<tr>
<td>When managers don’t include or value education/educators</td>
<td>1</td>
</tr>
<tr>
<td>Nursing staff continually being ‘dumped’ on with more work/less staff/ higher patient acuity</td>
<td>2</td>
</tr>
<tr>
<td>When there are no available resources to meet the demands of the service to the clients</td>
<td>2</td>
</tr>
<tr>
<td>Lack of resources to do my job to level I wish to, ultimately working myself to the ground to maintain a certain standard of care</td>
<td>1</td>
</tr>
<tr>
<td>Poor communication with doctors. People not doing their job or saying, ‘that’s not my job’. So it is left to the nurse to do it</td>
<td>1</td>
</tr>
<tr>
<td>When I don’t get feedback about how I am going in the role, and not being to get professional development</td>
<td>2</td>
</tr>
<tr>
<td>When decisions are taken without consulting this role—when the decisions are intrinsic to the role, and the expertise of the role is not taken into consideration</td>
<td>1</td>
</tr>
<tr>
<td>When things go wrong, or lack of cooperation from staff, such as being undermined</td>
<td>2</td>
</tr>
<tr>
<td>Budget constraints, government rules not in line with what actually happens, junior staff who would rather be going out, people who do not care properly for their patients</td>
<td>1</td>
</tr>
<tr>
<td>Lack of engagement of others with my recommendations</td>
<td>2</td>
</tr>
<tr>
<td>Lack of communication from management. Lack of staff. Lack of recognition for the work I do</td>
<td>2</td>
</tr>
</tbody>
</table>
EMPLOYEE ENGAGEMENT IN MEDICAL CONTEXTS

The lack of time to complete all that I expect to do
Lack of control over a department I’m managing, then being blamed when things go wrong
Dissent and restriction in innovation possibility
When the next level of management puts unnecessary demands on my role
Very little, the change to the area health service may disrupt some big projects we have in place
Overworked, understaffed, poor skill mix in staff, other staff who are not coping with these situations in a calm manner
Sometimes it is quite hard to get hold of my manager
Frustrating, selfish and demanding staff who just think about their own welfare and do not care about others in the organisation
Restriction to courses for junior staff, lack of time, organisational mismanagement, conflicting priorities
Remote management, budget overruns, trying to provide a complex human service with not enough money, politics, resources, adequate staffing
Legislation changes
People’s reluctance to participate in what needs to be done
Dealing with difficult families and the power of upper levels
If unit policies have a negative impact on the person I am caring for
Not sure
Decisions are occasionally made at a higher level, that impact adversely on how I perform my duties
Not being able to manage staffing at departmental level
Lack of remuneration for qualifications obtained over past 10 years
Frustration when higher management make decisions without consulting with people doing the work
The lack of involvement or responsibility by staff for their own professional development
The restrictions on nursing staff bought about through upper management. For example, currently all formal education for nursing staff has been cancelled due to budget
When I am unable to change things
Bureaucracy of the system
My own physical limitations, and red tape
Other’s lack of faith in my clinical judgement
Lack of direction
Unreasonable workloads, fluctuating workloads
The interference of managers in the day-to-day running of the unit, especially those that have no knowledge or background in the specialty that I work in
Barriers
Being deployed to other wards, and treated like a number, not a person
When others don’t communicate what they want of me effectively and I get frustrated by competing demands
Poor pay, no career path, lack of funding for patient essentials/facilities, dirty substandard work/care environment
Lack of trusted autonomy
Micromanaging
Lack of feedback and support
Some directives that are passed down
Staff shortages, too many patients, too many rules and regulations and benchmarks to prove there are not too many patients, people fudging figures
When managers say I am reaching too high
Poor management decisions, management not open to suggestions, waste of money in service delivery
Communication issues and staff not contributing to research
Allocation of money for staffing
Management blocking decisions
Changes to department policy—not knowing where NSW Health will go next
Patient backlog, poor patient flow
Unequal access

When hierarchy comes into play and you do not feel trusted enough to accomplish tasks and follow up yourself

Management imposing on clinicians, not given the autonomy I want, I have a PhD and I have to wear a uniform like a factory worker

Other staff undervaluing what is done in the department

The lack of respect that the service has for myself and my colleagues

Probably the incompliance of treatment plans from those whom I manage

When I have to change my schedule and take on a ward role as RN due to staff shortages.

Sometimes feel that management do not try to get staff and they find it easier to get the CNE or CNC to work on the ward

Systems breakdown, referral processes

Lack of empathy or consideration when you are doing your best with a heavy workload

Micromanagement by the boss

Supervisor not supportive

Decisions beyond my control that affect my team

Lack of communication with administration, staff freeze and lack of allied health staff, which means I have to take on the role of social worker and occupational therapist, as well as my own

Lack of goals and directions and being usurped by high performers

No feedback, hearing negative things about myself behind my back (from others), trying to get things done for the manager and staff not cooperating (maybe I’m going about it the wrong way?)

Hierarchy

Lack of res

Restrictions due to ‘politics’

Interpersonal conflict between other members of my team, constant change of decisions, questionable ethics with regards to various clinical decisions

Loss of the above mention

Admin, SNUM not helping with patient flow from OT to ward

The attitudes of the community I work within, not patients, but visitors

Not much

My manager has no knowledge of the speciality but does not consult with me and also keeps information from me. There is also the issue about reporting to the manager and even though I am in a senior position, the manager feels the need to micromanage me

Lack of communication from others, nurses having to do clerical work before nursing work, working with nurses who do not know the area, so I am the only one to maintain area in one day a week

Lack of equipment supplies, lack of support from some colleagues and some management, lack of appreciation from some members of the public for what nurses do

Lack of forward thinking of my department, ideas and opinions not always valued

The amount of work and the restrictions placed on me regarding working extra-time

Limited by my line manager

Lack of support in some areas

Staff and patients that are not assertive, that are not motivated

Being a junior staff member with unsupportive senior staff/management

Poor communication, lack of trust from other midwives

The institutional mentality, the expectation to toe the line even though it goes against your own rationale and the disinterest by other staff and the department to question and place value on individuals’ input

The organisation is too big

Putting up with inappropriate management decisions, particularly made from non-nursing backgrounds

Some challenges are difficult to resolve in patient care

Staff management and staff not doing their job properly

Patients over-treated

Communication/staff

Lack of a team approach, when people are just looking out for themselves and not the team or patient
Organisational limitations. Differing patient management opinions or an inability to help patients to my satisfaction
When I feel my education or knowledge may fall short of what is expected
Decisions made above our department based on cost and not good care
No job security. Conflicting messages from management regarding clinical care
Colleagues who are not consistent
Finding correct information to do the job right
Being known as junior or just a part-timer
Management, lack of staff, lack of escalation of ideas
Lack of confidence in my managers
When staff are obstructive or refuse reasonable requests
Not enough feedback from my boss
Senior management directives with ‘lip service’ consultation. As a NUM, I feel a sense of powerlessness, unable to challenge directives
Bad management which neither engages staff nor acknowledges any effort. A ‘good morning’ would be a start!!!!
The lack of resources to the team, which leads to frustrations
Higher levels of management removed from clinical work
Condescending doctors and managers
Not being able to realise ideas or plans for the service
Undertaking an increase in non-clinical tasks that could be undertaken by admin-type role (and were before amalgamation)
Staff attitudes who really do not want to achieve or work within the system. Just here for the money
Role has become very complex—less time to spend with clinicians and more time spent doing administration tasks
The attitudes of health workers
Lack of support from the managers and senior staff
Many
Lack of communication is an ongoing problem
When told I can’t do that because I am not a doctor
Not trusted to do the job
Uncertainty of future directions
When people are quick to judge you poorly in a situation without asking you about it. When my opinion is not listened to or is ignored. When people talk over you at meetings. When I have poor staff numbers and can’t do anything about it
Not being able to make and follow through some clinical decisions
The amount of paperwork, recording and having team members all working towards the same goal; mixed priorities; patient care versus education
Way too much paperwork and bureaucracy
Lack of opportunities for professional development directly related to inadequate funding by SESIAHS [South Eastern Sydney and Illawarra Area Health Service]
Having to rely on others for information and results
Staff shortages and demands of staff
When managers of other units do not display the same desire to improve standards of patient care and staff support
No feedback or constant criticism—the expectation that good work is not good enough
Poor management support and unclear direction from the organisation
Unrealistic expectations from administration
Inability to progress solutions to issues/problems
Lack of support, upper management, lack of resources
Area health executives don’t often practice what they preach in terms of values and how people are treated
Support from the executive
When staff ignore educational opportunities and are resistant to education
Usually, patients that I work with, they either don’t listen to instructions or don’t do what has been asked of them. They don’t realise the severity of the treatment they go on. There are things I need to do to ensure their safety on treatment.

Pressure of work related to amount of time available

Uncertainty about my current job scope, no consultation, micromanagement, being told what I must do with no say

Lack of organisational support for ongoing education, training and career development.

Onerous registration requirements that lead to feelings of distrust in my skills by the organisation

Bullying from director and lack of consultation in decision making related to my work/role

Other staff not doing their job adequately and having to always “pick up the pieces” after them

Lack of funding for mental health

Too much work sometimes

Issues at NSW Health and AHS level that impact on the ability of the organisation to make decisions and improve performance

Management and policies

Micromanagement

When staff are not keen to learn and move on, adopt new ways of working or are just plain slack

A tendency for the current team leader to micromanage and use an intimidating approach to team members and a distrust and lack of knowledge regarding the requirements of my role

Management deciding what needs to be done without consultation

Lack of resources

Not having the resources to do what needs to be done. Especially stores and time

Very little

Not having a solution for my clients or not being able to provide them with what they want

Endless policies/rules and regulations

Occasional inability of treating team to acknowledge nursing perceptions of treatment of patients

Poor finance systems in place, poor bill paying necessitating lots of follow up that waste my time, constant change, hard to keep up

Upper management’s poor person-centred care attitude

Lack of involvement in future planning

Lack of resources; lack of staff, equipment and beds to admit patients to when ED is code red

Too much work (especially paperwork) to do within a timeframe. The more paperwork, the less clinical work can be achieved

Negative feedback in the absence of no positive feedback

I am totally over the unnecessary bureaucracy and incompetent managers and disgraceful waste of tax payers’ money

The area trying to micromanage when things get tough … which is every day

Doctors overruling me in clinical decisions. More experienced staff pushing their own views/agendas

Lack of supportive leadership/vision by upper management

People telling me what to do

Poor management decisions

Lack of resources. Lack of support to engage people

The lack of money

Timeframes for reports

The financial restraints of management, therefore r

Having absolutely no support when issues of difficulty arise, especially around staff performance. Having decisions made for my team without proper consultation. These are issues that make my working life totally frustrating

Lack of role clarity

Budgetary constraints

Have not experienced any situation that I haven’t been able to negotiate a favourable outcome for myself and facility

Site managers not having autonomy to make decisions, rural health services seen as second rate
Nothing really
Petty authority that micromanage
Management and the limitations or barriers to providing clinical services. There is a greater focus on ‘paperwork’
Unrealistic timeframes which have not sought ‘but in’ from frontline staff in rural and remote facilities where the team is small and not always multidisciplinary
When I feel no is listening, and I feel I have something important requires attention
No autonomy, feel as if “bottom of ladder”, controlled, belittled
Organisational stasis
Continual change to processes and information systems; lack of control over activity; lack of feedback
MANAGEMENT. It would be nice to hear occasionally, ‘job well done’ or even ‘THANKS’
Hasty decisions made without consideration
At times lack of communication
Decisions made at higher levels that are unsuitable/unworkable for this level
When the ‘system’ seems to fail
When I have been questioned about a decision that seems very straightforward to me
No clear contracts for patients with behavioural problems, they tend to have the power
Confusion, evasion, dishonesty, avoidance, lack of courage to do the job
Nothing
Lack of direction within the organisation re the role of Community Health, and the large focus on chronic and complex, with little direction
Extremely confused and dysfunctional management
Frequent changes
Some irrational policies that need updating that I have to work to. Some senior staff that I deal with
Area policy directives and the time it takes to gain approval from area
Politics and policies
Not being able to get appropriate help or assistance when needed
Being dismissed, devalued and excluded form decisions that impact on the role and on my job
Having to get all orders etc signed off by others
Lack of staffing, poor quality locum doctors leading to long waiting times and substandard treatment
Not enough staff to work safely
When you are doing your best but a family is still dissatisfied because they can’t see through their anger and grief
Lack of time for what others higher in the executive in various fields feel that their request should be my number one priority and want me to deal with their issues first
Management not valuing or understanding the role and undermining it
High and intrusive level of corporate style management/supervision (in public health system)
Lack of leadership or involvement of more nursing staff in decisions and implementation of new directions is very frustrating. Being a CNC as a role can be disempowering, as you are reliant on managers to support your ideas or suggestions
Lack of inter-professional collegiality and respect
Not being able to have any autonomy
Lack of administrative support leads to large amounts of my time being [wasted]
When hierarchy try to tell me how to run my department
Organisational bureaucracy
The paperwork and red tape that I have to go thought to be able to provide the service required
Poor staffing/skill mix
Too much bureaucracy
Micromanagement from the top!
Nil
Being left out of important conversations necessary to me
Delayed questioning by Department of Health or area staff who have little knowledge of workplace
When clinical risks are identified and you are ignored, or told that it will be fixed and it isn’t
Lack of decision making of some medical staff
Having to ask manager for administrative tasks
Any changes to portfolio as a nurse educator
Lack of dedicated workspaces
Tight timeframes for responses
Personality conflicts
Area management dictate how many things are to be run in my department and doctors have a lot of power to influence change
Lack of acknowledgement of my specialist skills in developing specialist services for the organisation in which I work in my area of speciality
Management
When there is nothing more I can do to improve the situation
Increasing workload, especially clerical stuff
Inflexibility by the organisation, lack of resources/staffing, high workload
Staff not following through on learning opportunities, staff not having the motivation to attend in-service, training and courses
Don’t have proper equipment to do the job
Hospital system, some doctors
Lack of understanding of the role or the benefit to the organisation. Lack of interest in the population group I work with
The length of time some things take to change and the resistance to change that can sometimes be encountered
Sometimes the workload is a form of frustration; other times other staff members’ negativity and lack of inconsistency in work practice
Attitudes of some senior staff members
Time/work load issues, skill mix issues
Organisational red tape, reactionary management
Not much
Lack of recognition of my capabilities
Lack of communication with executive team
Not being able to determine the job priorities and being allowed to then work on those
Communication between teams and things being missed that are so simple
Other people’s poor attitudes. Lack of senior management support
The way upper management push their authority onto staff, lack of communication from them
Not able to use own common sense anymore to initiate treatment or solve problems
When second-guessed by my director
Bullying, harassment, being ‘put down’ by senior staff in front of staff and patients, inconsistent rostering
The mind-numbing, frustrating, pointless, paper-worshipping bureaucracy, the dumping-down of nursing and the destroying language of ‘health speak’
Nothing
Lack of time with patients
The workload is enormous and lately I feel overwhelmed at what is expected of me, even though I am experienced and good at what I do
When I am not working to my own expectations
Lack of response on major bed block issues, mental health issues and staffing skill mix issues
Slander, older staff putting down anyone new, critical of anyone who challenges their own behaviours
The lack of support
Lack of staff on the floor!
Constant fatigue related to workplace issues
Working within an organisation full of injustices and hidden personal agendas pursued by narcissists
When I know what needs to be done, but cannot get the time, resources or personnel to achieve
Policies of some departments in the face of common sense
Favouritism, bullying of junior staff by some who have created a power role
Being overloaded in a part-time position
<table>
<thead>
<tr>
<th>Topic</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bureaucratic red tape and inaction</td>
<td>1</td>
</tr>
<tr>
<td>Bureaucracy and it’s getting worse</td>
<td>2</td>
</tr>
<tr>
<td>Micromanagement</td>
<td>2</td>
</tr>
<tr>
<td>I have two difficult personalities that have anger issues and bad teamwork and poor attitude</td>
<td>2</td>
</tr>
<tr>
<td>No financial control. Interference in my role as a manager</td>
<td>2</td>
</tr>
<tr>
<td>Contradictory, petty policies. Interdisciplinary disrespect. Lack of direction and clinical leadership</td>
<td>1</td>
</tr>
<tr>
<td>Lack of money to proceed ideas or make improvements</td>
<td>2</td>
</tr>
<tr>
<td>Poor communication. Requested work to do by end of day. Change that doesn’t go smoothly as full of problems</td>
<td>2</td>
</tr>
<tr>
<td>Complaints and errors</td>
<td>2</td>
</tr>
<tr>
<td>Financial constraints</td>
<td>2</td>
</tr>
<tr>
<td>When the boundaries change</td>
<td>2</td>
</tr>
<tr>
<td>Difficult personalities</td>
<td>1</td>
</tr>
<tr>
<td>Organisational trivia</td>
<td>1</td>
</tr>
<tr>
<td>Others’ lack of skills and care</td>
<td>1</td>
</tr>
<tr>
<td>Management—no leadership, horizontal violence, lack of communication</td>
<td>1</td>
</tr>
<tr>
<td>Being undermined by staff members</td>
<td>1</td>
</tr>
<tr>
<td>Negativity, undermining, ‘white-anting’</td>
<td>2</td>
</tr>
<tr>
<td>When people do not respect or listen to me</td>
<td>1</td>
</tr>
<tr>
<td>Restructure talks and budget issues</td>
<td>2</td>
</tr>
<tr>
<td>Being unrecognised for the work that I do</td>
<td>1</td>
</tr>
<tr>
<td>Unequal treatment of staff, autocratic dictator as immediate supervisor—their way or the highway</td>
<td>1</td>
</tr>
<tr>
<td>When my manager is inconsistent and unfair. She can be harsh in her approach to staff. She does not utilise my skills within the organisation. She does not appreciate my efforts</td>
<td>1</td>
</tr>
<tr>
<td>The role of my manager</td>
<td>2</td>
</tr>
<tr>
<td>Unclear relationships and task allocation in teams</td>
<td>1</td>
</tr>
<tr>
<td>Lack of communication, feedback and support, especially with my supervisor</td>
<td>1</td>
</tr>
<tr>
<td>Micromanagement of my role</td>
<td>1</td>
</tr>
<tr>
<td>Powerful</td>
<td>1</td>
</tr>
<tr>
<td>Bullying behaviour is condoned and even rewarded</td>
<td>2</td>
</tr>
<tr>
<td>Colleagues who try to undermine your position for their own hidden agenda, too many tasks to complete and not enough time, when long-term patients present with new primary cancers after successfully beating the first one!</td>
<td>1</td>
</tr>
<tr>
<td>Lack of support from people within the organisation who have more power for change</td>
<td>1</td>
</tr>
<tr>
<td>Frustration occurs when colleagues put up barriers—everyone works in silos, I work across the board, breaking down barriers</td>
<td>1</td>
</tr>
<tr>
<td>Lack of appreciation, feedback, appropriate suggestions being ignored</td>
<td>1</td>
</tr>
<tr>
<td>Work allocations by the boss who does not work the activities and a boss who tries to be a worker not a leader</td>
<td>1</td>
</tr>
<tr>
<td>Decisions made high up in the organisation that seem to be dishonest, that have a negative impact on staff at the lower levels</td>
<td>2</td>
</tr>
<tr>
<td>The financial and bureaucratic constraints put on the health service</td>
<td>2</td>
</tr>
<tr>
<td>Negative staff bringing down the team, lack of staff resources to fill staffing requirements</td>
<td>2</td>
</tr>
<tr>
<td>Dealing with outside agencies with differing work ethic</td>
<td>1</td>
</tr>
<tr>
<td>Having terms/conditions placed upon me by higher level management</td>
<td>2</td>
</tr>
<tr>
<td>Management</td>
<td>1</td>
</tr>
<tr>
<td>Lack of teamwork—not all working to the same goal at times</td>
<td>2</td>
</tr>
<tr>
<td>Deployment of myself and my staff and non-replacement or replacement with lower skilled staff</td>
<td>2</td>
</tr>
<tr>
<td>Executive not following through on issues and leaving myself to pick up the pieces when it does not go to plan</td>
<td>2</td>
</tr>
<tr>
<td>Limited support from senior executive</td>
<td>2</td>
</tr>
<tr>
<td>Changes in management</td>
<td>2</td>
</tr>
<tr>
<td>The lack of skills I have attained. Certain philosophies that seem to be outdated or detrimental</td>
<td>1</td>
</tr>
</tbody>
</table>
All responsibility, no power. I feel micromanaged in my role
Lack of skilled staff that are not up to the challenge of working in this environment
My job is just a requirement of government, but not always accepted as necessary by my colleagues
Poor communication and inadequate consultation
Management at times can limit processes which impact on the ‘big picture’
Too great a work load and a lack of more senior support
Lack of resources
When things don’t go to plan
Workplace psychopaths
Being told decisions, directives and policies
Nothing really, I just step up when required
Being unable to offer timely treatment start dates to patients due to waiting lists
Other people’s opinions
The ‘invisibility’ of this role at an organisational level
Interference from an area level trying to change
Micromanagement
Have been asking for four years for another nurse. They keep asking for yet another report on why I need it
Lack of staff, higher management decisions
Heavy workload, therefore not able to attend to everyone personally as well as I would like
When I am unable to work to my capability due to the current physical layout of my department (this is changing soon)
Continuing managerial focus on economic rationalism
Lack of affirmation of my job
Politics, certain personalities, not being able to move forward easy, people not having an understanding of my role
Lip service from management. Not having my skills and experience valued
Delays in moving things through the red tape
Lack of support professionally and need administrative support
Expected to perform high level tasks with limited resources and support
Lack of physical resources, workplace, stores
Staff dynamics, the hospital, and the system. Feeling trapped in this job because in rural areas there’s nowhere to go
Not being listened to, not being valued, being asked our opinions and then being treated as if our opinions have no value
Repeated presentations of issues to higher management
Obstacles—quick frustration until I find a way around them; people that are narrow minded and small world view and can’t see past their own needs; people that don’t have their eye on the ball and let system fall
Lack of resources, and conflicting directives from management level
Lack of support
When doctors step in and change the environment I’ve created in the room when it is not necessary
Current management
When things don’t go to plan, and there is always someone to put you in your place, sometimes rightly, or someone with a better plan
Very poor management, bullying, poorly treated and used
I feel overqualified and with no sense of autonomy
Time constraints, unproductive staff
People in positions above me, using their position to disempower. The levels of bureaucracy. Totally unnecessary
Mean spirited management and penny pinching by the finances departments
Not being able to get a permanent position, lazy coworkers
Travelling a lot sometimes
Lack of palliative understanding in the acute settings and in the community
Issues around client advocacy, i.e. if state policies are not adhered to at the client’s expense
Management and poor or ambiguous instruction from above that seems to impact patients 1
Inability to achieve goals 6
Repetitive nature of work 3
No one is concerned about the welfare of staff—we are systematically abused 3
Shift work 6
Endless bureaucracy 6
Working with people who are poor communicators, technology lack/failure 5
Lack of services for patients 3
Dysfunctional systems or procedures that appear to be immutable 6
Changes that are unrealistic, reduction of services in and outside hospital, no cover for staff on leave, length of stay used as significant of assessing performance 3
Unsure 6
Too bossy environment, paranoid senior staff, no trust, always want their way, poor way of criticising 3
Administration tasks, such as sorting out rosters within more than one organisation and keeping everyone happy; miscommunication 3
Protocols-driven clinical care 3
Systemic problems (e.g. funding, staff allocations, lack of particular resources, inefficiency); staff conflicts 5
Excessive workload; pressure from patient flow; lack of adequate services/infrastructure 3
When too much demands or job requests are made at the same time from different bosses 3
Unfairness, unresolved issues 6
Hospital policy, paperwork and systems not working correctly 5
Not much 3
The failure of the community and organisation to come to terms with the limited resources available for health care 3
Decline 3
Bureaucratic interference 3
Excessive day-to-day supervision 6
Inability to implement change 3
Bureaucracy and self-interested people blocking rational changes 3
Indirect organisational decisions and changes 3
Events out of my control 7
Departmental management decisions not in tune with patient needs or out of touch with clinical events 5
Poor communication between staff, inequity of workload 5
Office politics and lack of transparency with recruitment 6
Doing the job poorly 3
No ability to influence how the organisation runs 5
Unpredictable workload with some periods in which I cannot get much done 5
If people don’t do their job properly 5
Having little impact on a situation, situational problems with getting timely care for patients, patients mistaking me for a nurse (not that there is anything wrong with nurses—they work very hard), missed diagnosis 6
Being told my work or memory are inadequate 7
Workload, physical exhaustion and rude coworkers 5
Having to deal with people who have no regard to what I think is relevant and important 4
Bureaucracy and nepotism/favouritism 5
Excess paperwork 6
I try and avoid focusing on seeing myself as a victim, and I say to myself you have a life to live, and it is not always going to come your way, but I am up for the fight 3
Lack of consultation from higher staff 3
I am not the boss 6
Weighed down by nursing protocols etc … And not being able to fully utilise my clinical skills 7
I don’t feel security in terms of professional registration 3
Not enough experience in the job 7
Bureaucratic interference or bumbling 3
Lack of consultation regarding roster changes—and lack of being informed when they are changed
My supervisor undermines me by micromanaging me, but not giving timely feedback on important components of my work
1. The increasing number of patients who present to emergency with non-emergency problems
2. The poor way
System failure in injecting autonomy in to my role
Unable to change certain culture in the organisation
Inadequate equipment and resources in the hospital to complete my work
Slow turnover of patients resulting in cancellation at end of day
Not sure
Slowness of necessary change. Layers of hierarchy
The endless complaining, yelling at interns and lack of time to get things done
Administration department, paperwork, delays, waiting lists, time pressure, cost saving
Lack of clarity about the future
Being ignored, not being involved
Time-inefficient communication/admin/management, having to waste time on menial tasks due to staff shortages, lack of departmental respect for my research interests
Inadequate resources in areas I feel I have no control or influence over
Lack of support by my fellow
Total lack of understanding of role of my department in this hospital, also my role
The great schism with the hospital executive that Garling described (I’m a staff specialist). Has led to burnout, which I recognise
People going back into the past
Very poor management
Sometimes the organisation does not provide support in difficult circumstances
When there is micromanagement from above
Inappropriate independence (i.e. lack of support/guidance), negative attitudes from other staff members
Lack of tenure
Short turnaround times, variable communication level and quality, occasional organisational culture of defeatism/futility
Lack of resources
Hospital administration
Under-staffing
The inability to further expand the services and modalities in my department or to update equipment when needed
Having to deal with a large inflexible organisation like NSW Health
Learning curve, lack of support sometimes
Admin hierarchy
Uncertainty, short-term aspect of it, that nothing is ever a right answer
Nit-picking bureaucracy causing unnecessary delays
When surrounding idiots make stupid decisions
I clash with administration
The legal system which allows ridiculous immoral decisions to be made against the hospital staff
Role as trainee makes it difficult to sometimes enforce a plan of management
Unnecessary organisational bureaucracy, lack support (esp. with admin issues) within the hospital
Hospital management
I can’t perform my duties as well as I’d like because of paperwork and bureaucracy
Nurses questioning every decision and refusing to follow medical team’s management plan
Overtime roster
I don’t know
Inefficient hospital computers/programs; too much paperwork, especially insurance paperwork; occasional guidelines which reduce my efficiency; dealing with difficult, unmotivated patients
No control whatsoever on workload, staffing *(which can and have been removed with no consultation)*

Inadequate mental health funding

Seeing how processes could be improved but aren’t

When my requests are ignored and concerns are ignored. When I am taken for granted. The inefficiency of the organisation. My colleagues’ laziness

Dealing with so many people in getting things done for the patient means invariably there are always problems in one area or another

Not being able to get non-ED rotations that I have been promised

Inability to

Uncontrollable demands and unrealistic expectations

Little control over external priorities that detract from providing good patient care

Inadequate funding

Different bosses have 1,000 different opinions depending on which phase the stars and moon are in

Being undermined by nursing staff

Relying upon staff who do not display either a desire to change/improve, or the skills to match their roles

Arsehole colleagues

Lack of resources

All jobs with lots of uncertainty and high resource requirements inevitably lead to conflict

Time pressures, limited funding, health service bureaucracy

Chronically inadequate resources to do job well in emergency

Dealing with bureaucracy i.e. trying to transfer a patient for an urgent investigation to a more senior hospital

Duplication of work, bureaucracy

Too many administrators, non-medical, try to run the hospital like a business

Inertia

Management do not respond to requests or follow through

Mindless paperwork, lack of local admin support

Circumstances over which I have no control

Management more focused on budget than patient outcomes

When my comments/recommendations are not taken seriously

Inability to have my own time available to me through the day

Communication breakdown

Attitudes of others

My feeling of complete dissociation from the management of the department

When patient care/comfort is affected by breakdowns in communication

Secretarial work detracting from clinical work

Lack of support and communication. Negative interactions between teams in the hospital. Too busy to do my work to the highest standard. Lack of understanding by more senior staff about the pressures faced by juniors. Unrealistic expectations

Lack of staffing

Short-term training position in relatively unfamiliar area

Disjointed communication

Piecemeal approach to patients—pushed through system without problems being addressed
Poor systems
I have very little control over any aspect of my job
When there are large organisational changes such as amalgamation of health services, and now the break up into LHN. Having to readjust the teams, the
Dysfunctional health system
The constraints of the system that are way out of my department’s control and sphere of influence
Lack of control of budget and recruitment processes, also staff struggling to manage issues directly rather than taking personal ‘sides’
Lack of appreciation by the hospital for the job I do. Payment
Too much bureaucracy and politics
Service demand at expense of being able to pursue research/other interests; unpredictable crises (usually clinical); variable skill bas
My direct manager
Attitude of administration, complete lack of respect, no opportunity to develop specialist services, no opportunity for research
Systemic barriers, rules and regulations limiting flexibility, feeling undervalued and misunderstood by admin/management
Being overworked, being rostered on for too many overtime shifts, little or no flexibility
Working under direct supervision, having many members of staff calling upon me for different tasks
Lack of flexibility. Spend a lot of time doing paperwork but not much actual medicine, decision making or teaching

**General comments.**

A general comments section was added to give participants the opportunity to highlight any other issues. Common themes in the general comments section included being frustrated by management, administration and politics. Another common theme was loving one’s work. One comment poignantly reflected the findings in the literature:

I am continually dismayed at the restraints, changes, rules, budget blowouts and the waste to accommodate all this and the lack of consultation with the nurses and doctors who work at the bed side—i.e. the junior nurse and doctors. They are the ones who are disillusioned with healthcare, and no one seems to recognise their ability to do their job with the ever-changing constraints. No wonder there is huge shortage. And when nurses my age retire, what will happen? Because the older nurses have the experience, the gap is way too large for safety training needs to be put mostly back into hospitals and layered from
the bottom up. Too much pressure is put onto the new graduate nurses, so they become disillusioned, same with the young doctors. We are not nurturing them.

The participants expressed support for the current study and hopes it would be used to help improve conditions. There were many requests for a summary of the results, which were provided to the executive assistants at each participating hospital for them to disseminate to staff, Table E.3.
### Table E.3

**Participants’ General Comments**

<table>
<thead>
<tr>
<th>Position and specialty</th>
<th>General comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU</td>
<td>Many of my responses are conflicting, but that is the nature of the work I do.</td>
</tr>
<tr>
<td>Renal</td>
<td>Unhappy that cleaning etc was upped for equipment when this should be a priority all the time in a hospital environment.</td>
</tr>
<tr>
<td>Geriatric</td>
<td>Staffing levels poor for acuity of patients. Access to modern equipment/adequate equipment poor/surroundings old.</td>
</tr>
<tr>
<td>Geriatric</td>
<td>Please make sure that coal face nurses have the opportunity to do this, asking the DONs to speak to their NUMs to allocate time to complete this survey may be the best way to facilitate this.</td>
</tr>
<tr>
<td>Neurology</td>
<td>The questions are very general. While am personally satisfied with my personal work and attitude to it, I am continually dismayed at the restraints, changes, rules, budget blowouts and the waste to accommodate all this and the lack of consultation with the nurses and doctors who work at the bedside—i.e. the junior nurse and doctors. They are the ones who are disillusioned with healthcare and no seems to recognise their ability to do their job with the ever-changing constraints. No wonder there is huge shortage and when nurses my age retire, what will happen? Because the older nurse have the experience. The gap is way too large for safety training needs to be put mostly back into hospitals and layered from the bottom up. Too much pressure is put onto the new graduate nurses so they become disillusioned, same with the young doctors. We are not nurturing them.</td>
</tr>
<tr>
<td>Surgery/General Medicine</td>
<td>Some questions were difficult to answer as senior management staff had changed so many times in past few years.</td>
</tr>
<tr>
<td>Surgery</td>
<td>There is a real clash of values of organisation/management—proclaimed values are not practiced in the workplace. The inefficient use of funds, continual short-term thinking by local management. Failure to translate overarching policies/philosophy to workplace.</td>
</tr>
<tr>
<td>Obstetrics and Gynaecology</td>
<td>The autonomy questions are tricky as in midwifery there is autonomy, but also many guidelines and policies for care of woman and babies in varying states of health. Midwives have a lot of autonomy with a well woman, her unborn child or neonate, but as the woman’s pregnancy or neonate’s health becomes complicated, there are many policies and guidelines to assist effective care. Midwife should be added to your occupation list, our role is very different to nursing.</td>
</tr>
<tr>
<td>Education</td>
<td>Unclear about level of education question—does not allow for postgraduate studies option.</td>
</tr>
<tr>
<td>Geriatric/Infection Control/Staff Health</td>
<td>Do you expect to be with this organisation … could not answer correctly—yes, if centre remains in public system, no, if it is sold.</td>
</tr>
<tr>
<td>Liver, Colorectal and Upper GI</td>
<td>I fear I will be victimised or bullied if this were to identify myself. Many nurses only work for a pay check and have little or no job satisfaction.</td>
</tr>
<tr>
<td>ICU</td>
<td>Some questions didn’t fit into one of the options for me.</td>
</tr>
<tr>
<td>Education</td>
<td>Get rid of the executive management before the place falls apart.</td>
</tr>
<tr>
<td>Department</td>
<td>Comments</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cardiology</td>
<td>Interesting survey, considering I am in research too. Good opportunity to reflect how we feel about our work. Good luck</td>
</tr>
<tr>
<td>Acute Medicine</td>
<td>Well-designed survey</td>
</tr>
<tr>
<td>Child &amp; Family Health</td>
<td>I absolutely love my job, and do a lot of extra study in my own time for it. I am actively looking at moving onto a job outside of NSW Health purely because of the lack of professional pathways in nursing. I have been told there is no funding in my area for an educator, which is where I would like to progress in my career</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>Hope this survey helps this failing system</td>
</tr>
<tr>
<td>Emergency</td>
<td>My survey has been influenced by recent change in management</td>
</tr>
<tr>
<td>Neurology and Outpatient</td>
<td>Income question should be optional, and is it per week, month or year?</td>
</tr>
<tr>
<td>Nephrology</td>
<td>I found some questions difficult to answer as I feel the questionnaire may not fully represent a true picture. I am completely satisfied within my role, enthusiastic and motivated. I am fortunate to work with a group of nurses who have an excellent work ethic, so it’s not difficult to obtain excellent outcomes and continually look at strategies that will improve our performance and that of the patients’ journey through my area. The minimal dissatisfaction I have is when I then have contact with the wider department and the larger organisation, which is not surprising because at that level everyone has their own agenda and it’s very difficult to try and get everyone wanting the same thing</td>
</tr>
<tr>
<td>Midwifery</td>
<td>Media release at hospitals dictates approval interview</td>
</tr>
<tr>
<td>Midwifery</td>
<td>I am very glad this survey is being conducted. I think if we want to keep a strong workforce we need really need to look at people’s level of satisfaction and from what I am hearing from colleagues, morale is very low and older staff are saying things have never been as bad as now</td>
</tr>
<tr>
<td>Paediatrics/Emergency/ICU</td>
<td>Unfortunately, politics seems to get in the way of providing good health care. As a consequence, rural funding is not adequate for our growing populations in rural areas and many now have to travel to major centres for medical services</td>
</tr>
<tr>
<td>Neurology</td>
<td>I have not been working in the clinical environment (but a senior position in the AHS for the past two years) and am saddened by the changes. I can’t wait to get back out of the clinical environment.</td>
</tr>
<tr>
<td>Community</td>
<td>Difficult to differentiate questions between organisation as a whole, or just the section I work in. Community is excellent, as are the staff, but executive management of this health service are appalling and treat people with disrespect and disdain</td>
</tr>
<tr>
<td>Allied Health</td>
<td>Don’t excluded allied health</td>
</tr>
<tr>
<td>Education/Emergency/Maternity/General/O/T</td>
<td>No questions relating to pressure to work more were asked, or how participants feel about shift/rostering</td>
</tr>
<tr>
<td>Renal</td>
<td>My enjoyment at work stems from a positive microculture within my unit, a good NUM and colleagues. This is despite an ongoing lack of support from senior admin</td>
</tr>
<tr>
<td>Tact/Emergency</td>
<td>GOOD LUCK</td>
</tr>
<tr>
<td>Education</td>
<td>Clinical nurse educator. Clarification on what you mean by organisation, is it the South Eastern Sydney Illawarra Health Service, The Southern Hospital Network or the Rural Health Directorate</td>
</tr>
<tr>
<td>Mental Health</td>
<td>It selected ‘some’ for work in public hospital, but I don’t, but had to put an option</td>
</tr>
</tbody>
</table>
2 Education I work area-wide nurse mental health educator
1 Paedology Good and properly funded primary health care can decrease the stress on hospital and staff
1 Mental Health Perhaps some investigation of participants' personal emotional awareness and insight may assist the study?
2 Primary Care I believe my unit provides excellent care for patients, but the organisation does not place the same importance on taking care of staff
2 Dementia Care That you have a category for CNCs in the categories and CNS
1 Geriatric Congratulations, this is the first questionnaire we have had the option to fill in without it been identified or screened by health. There are some questions that do not allow for community health workers. e.g. show how much of your time is spent in hospitals? Further suggestions may include the fact that since amalgamation, the middle level of management who did have hands on to the coalface, when dismissed, felt such an increase of hierarchy mainly male staff, justifying their own presence at the expense of the nurses etc. leaving the most vital services depleted in numbers, and setting them up to fail e.g. making medication mistakes etc. let alone burnout. How do staff doing ‘doublers’ remain bright and alert in very responsible roles. When ordering supplies there were approx. three levels of signing off by management, now there are approx. seven justifying their roles. Anything can be justified to Canberra with the right words and time to write these reports
2 Mental Health What sort of follow up will there be on this research e.g. can we expect some positive changes as a result
1 Geriatric/Palliative Care/Rehabilitation Keep in mind I work as a nurse as well as admin work, that is a main reason I love my job
1 General Medicine Birth to death and everything in between. Solo community health nurse, child and family health nurse, palliative care nurse
2 Administration My role is changing from Rural Health Service leadership to management despite the rhetoric to the opposite by AHS and NSW Health
1 Child and Family Health Sometimes hard to distinguish between local levels of satisfaction as compared with overall health service
1 Midwifery I am in an exclusive work field that does not reflect the values of midwives generally
1 ICU You need more varied nursing classifications in the demographic; also perhaps ask first if you are happy/passionate about work, if not—when was the last time you felt passionate and what has changed
1 After Hours Clinical Support AH clinical support whole hospital CNC
1 General Medicine/Geriatric Would like a permanent part-time position within the area and to gain my Bachelor of Nursing
1 Surgery Small hospital, personnel easily identified—please ensure anonymity!
1 Head and Neck/ENT Surgery would be interested to see what this research shows
1 Refugee and Multicultural Health I now enjoy my work more because of the area of employment—the culture of the hospital after 25 years had chewed me up and spat out—I could no longer function in that space—I have stepped into the unknown and found great pleasure in my purpose of work where I now feel valued
2 General It is difficult to always answer questions using set answers. For instance, regarding management, I have faith in local managers but feel
Medicine  

Disappointed in decisions made by more senior managers removed from the ‘coalface’ who do not see how their decisions impact on staff and quality of service. This cannot be expressed in this style of survey.

1 Oncology  

Your questions are too airy fairy. I hate these types of questions as they are too open to misinterpretation.

1 Cardiology  

Ambulatory Services/Outpatient Program  

Tried to complete this before and nearly completed it and it closed. I think this was a new format today and no problems this time.

1 Trauma  

You asked about overtime. You didn’t ask about unpaid extra hours.

1 Geriatric  

I do this job because I can, not because I like it. It feeds my family and pays the mortgage. I feel trapped in the job because I need the money. Yes I’m burnt out, but employment is difficult in country areas. I’m studying other interests, but this isn’t going to feed the family. Why won’t I study to get different work? Because I’m nearly 50 and can’t be bothered. In any case, it’s difficult to get work in Coff’s Harbour, so nursing will feed the family and my other thing (yoga teaching) will keep me sane.

1 Cardiology  

Yes, I am a nurse practitioner, which is different to a ‘nurse’ and ‘nurse manager’

1 Surgery/Emergency  

Overall, I enjoy the ability to be a nurse, but find it disappointing and downgrading in my current employment due to very poor management and dangerous working conditions. I believe a new type of management model needs to be employed with greater accountability on funding and management choices.

2 Surgery  

Some of the questions could have different answers. e.g. Is there a sense of fair play in your organisation? Answers would be better if they were, agree, disagree, etc.

1 Renal  

Looks like a good questionnaire, I am a PhD student as well as a clinician so questionnaire design interests me.

6 Microbiology  

What is your work position? Not enough choices, so I picked one that seemed close. Is this a US survey?

3 ICU  

Please keep it confidential, I guess it’s their way of working with new people.

3 Obstetrics and Gynaecology  

Public hospital—poor efficiency among management level.

3 Neurology  

I’m a neurology registrar, please put registrar down as one of the work position choices. There is not enough allied health staff in Westmead hospital and this impacts significantly on patient care.

3 Emergency  

Opportunity to win prizes (movie tickets) should not be linked to email—as this doesn’t ensure confidentiality as most emails have the person’s name in them.

3 Anaesthesia  

All the best—should be interesting. The public system is out of control! The first section that has Disagree etc as a response has Disagree then Totally Disagree as responses, rather than Totally Disagree first. Not sure if this was deliberate to check we are answering properly!

6 Anaesthesia  

Anaesthetics registrar (registrar option is not available above—should be between ‘resident’ and ‘senior doctor’)  

3 Emergency and Retrieval  

High level staff like myself feel frustrated at the slowness of changes blocked by self-interested people working in their own little silos.

6 Emergency  

Survey design problem—Midway thought the survey the order of the level of agreement switches. Starts with most agreement to the right, then at the end most agreement is on the left. If people don’t read carefully you may not get accurate or intended answers.

7 Endocrinology  

Imaging department is tremendously backlogged and very inadequate compared to Sutherland. This makes the entire hospital far slower than it should be.

3 Emergency  

Keep up the good work.
I think that we need compassionate leadership who can drive a change in hospital culture so that we address the suffering of patients and the suffering of clinicians (the compassionate hospital).

JMOs need to be consulted more about decisions that affect them, instead of just being made by bureaucrats who have no idea what it’s like doing a night shift by yourself, covering 300 patients in the middle of a 70–80 hour work week.

Be careful with the way you survey… you had strongly agree on the right in one table, and then not long after, it was on the left. You should have consistency so that agree is always towards the right and disagree to the left; else, you’ll get false responses.

Looking forward to a phone or face-to-face discussion.

I hope you can work out why hospitals employ excellent clinical staff but insist on sociopathic administrators.

I suggest the following two points: The health system should encourage health professionals to work in more than one hospital or institution to give the health professionals a variety of experience and keep the diversification of skills and maintain enjoyment in doing their jobs. The second is to encourage further education and training by changing the rules and regulations regarding study leave. Currently we can only save two years’ worth of funds for our education and this will not be enough to support someone who intends to spend 6–12 months overseas to sub-specialise or re-train in a certain area of subspecialisation. In the old system, our colleagues were able to accumulate the funds for as long as they wanted. I suggest extending the period from 2 to 6 years as this will be enough to support the effort to stay for the 6–12 months overseas without running into financial stresses from existing mortgage and family commitments.

The survey doesn’t clearly separate management from supervisors (e.g. I would consider management hospital executive/admin, who make decisions that affect staff without consulting them and are impossible to deal with in any kind of productive manner, and as such I have little respect for them. On the other hand, my supervisors are clinicians who are wonderful but have little power within the organisation).

My primary job is part time in private general practice. I feel sorry for the hospital clinical staff having to use such a non-intuitive computer system.

Assessing registrars in their workplace is complicated by the fact that we are employed by a hospital network and rotated between various hospitals during our years of training—it makes answering these questions difficult—am I referring to my current hospital (a 3-month block) or the alternate hospital I worked at for the last 6 months—obviously each hospital has its own working environment.

I am a senior dentist, not a medical doctor. I am employed in the public system, I treat patients in theatres in three hospital (regularly), I am responsible for the management of the Orange Community Dental Clinic and its satellite clinics.

Nice to be asked!

I am thinking of retirement but it may be up to five years away.

Too many non-medical administrators who don’t have a clue about healthcare.

The limited clerical/administrative support for managers and clinicians in the public health sector reduces effectiveness and efficiency.

Adequate staffing.

Your survey using terms like ‘customers’ and ‘products’ to describe patients and health care, puts me very much offside.
<table>
<thead>
<tr>
<th>Department</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palliative Medicine</td>
<td>The question how many full-time years have you worked with your employer—I have worked 11 full years at 16 to 24 hours/week</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>The ethics of this organisation in practice have differed greatly from those on paper at times. Recent change of CEO [Chief Executive Officer] has helped but still not sure that any AHS will ever fully prioritise the needs of mental health clients. This is very frustrating at times. Senior management is often a questionable role model, but immediate manager is excellent in all respects</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>There is more to the public system than public hospitals—I work in community based services a lot; level of education should also include Fellowship of Learned College. A useful topic for research, though I wonder how the results might support change (needed)</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>Some questions are difficult to answer in the context of one’s immediate versus wider work environment. Many workers in hospitals, me included, derive great satisfaction from their direct work with patients and the work with their colleagues, while feeling very negatively about their employer</td>
</tr>
<tr>
<td>Relief</td>
<td>Public hospitals need to realise that junior staff are only human, and that they also have lives with other commitments. One of the biggest frustrations is the lack of flexibility in taking leave when needed, and that when asked which overtime shifts we’d not want to or are unable to work, this seems to generally be ignored</td>
</tr>
</tbody>
</table>
Appendix F: Ethics letters of approval

The letters of approval for the studies conducted for this thesis follow.
2 May 2005

Ms Amanda Ferguson
2/2 Taminga Street
Bayview NSW 2104

Reference: HE01APR2005-D03948

Dear Ms Ferguson

FINAL APPROVAL

Title of project: Employee engagement: does it exist, and if so, how does it relate to performance, other constructs and individual differences

Your responses to the outstanding issues raised by the Committee have satisfactorily been addressed. You may now proceed with your research.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at http://www.ro.mq.edu.au/ethics/human/forms

2. However, at the end of the 12 month period if the project is still current you should instead submit an application for renewal of the approval if the project has run for less than three (3) years. This form is available at http://www.ro.mq.edu.au/ethics/human/forms. If the project has run for more than three (3) years you cannot renew approval for the project. You will need to complete and submit a Final Report (see Point 1 above) and submit a new application for the project. (The three year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

3. Please remember the Committee must be notified of any alteration to the project.

4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University (http://www.ro.mq.edu.au/ethics/human).

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University's Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely

Dr Cariona Mackenzie
Chair, Ethics Review Committee (Human Ethics)

cc. Dr Jane Carstairs

CRO File: 05/454

ETHICS REVIEW COMMITTEE (HUMAN RESEARCH)
MACQUARIE UNIVERSITY (E11A)
SYDNEY, NSW, 2109 AUSTRALIA
Secretary: Ph: (02) 9850 7854 Fax: (02) 9850 8799 E-mail: kdesilva@vc.mq.edu.au
http://www.ro.mq.edu.au/ethics/human

Portrait (85%)
17 June 2005

Ms Amanda Ferguson
2/2 Taminga Street
Bayview NSW 2104

Reference: HE29APR2005-D04023

Dear Ms Ferguson

APPROVAL OF AMENDMENT TO PROTOCOL

Title of project: "Employee engagement": does it exist, and if so, how does it relate to performance, other constructs and individual differences

Thank you for your recent correspondence dated 9 June 2005. The requested amendments have been reviewed and approved.

This approval applies to the following amendments:
1. The extension of the study to involve the dissemination of the survey to three other groups of participants to be recruited from The Mosman Professional Centre, ICON Communications International and a convenience sample of acquaintances.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at http://www.ro.mq.edu.au/ethics/human/forms
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3. Please remember the Committee must be notified of any alteration to the project.
4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.
5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University (http://www.ro.mq.edu.au/ethics/human).

Yours sincerely

[signature]
Dr Catriona Mackenzie
Chair, Ethics Review Committee (Human Ethics)

cc. Dr Jane Carstairs
14 July 2005

Ms Amanda Ferguson
2/2 Taminga Street
Bayview NSW 2104

Reference: HE29APR2005-D04023

Dear Ms Ferguson

FINAL APPROVAL

Title of project: “Employee engagement”: does it exist, and if so, how does it relate to performance, other constructs and individual differences (Part A)

Your responses to the outstanding issues raised by the Committee have satisfactorily been addressed. You may now proceed with your research.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at http://www.ro.mq.edu.au/ethics/human/forms

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3. Please remember the Committee must be notified of any alteration to the project.

4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University (http://www.ro.mq.edu.au/ethics/human).

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide Macquarie University’s Research Grants Officer with a copy of this letter as soon as possible. The Research Grants Officer will not inform external funding agencies that you have final approval for your project and funds will not be released until the Research Grants Officer has received a copy of this final approval letter.

Yours sincerely

[Signature]

Dr Catriona Mackenzie
Chair, Ethics Review Committee (Human Ethics)

cc. Dr Jane Carstairs
3 August 2005

Ms Amanda Ferguson
2/2 Taminga Street
Bayview NSW 2104

Reference: HE29APR2005-D04023

Dear Ms Ferguson

APPROVAL OF AMENDMENT TO PROTOCOL

Title of project: “Employee engagement”: does it exist, and if so, how does it relate to performance, other constructs and individual differences (Part A)

Thank you for your recent correspondence dated 28 July 2005. The requested amendments have been reviewed and approved.

This approval applies to the following amendments:
1. Minor amendments to the questionnaire.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at http://www.ro.mq.edu.au/ethics/human/forms

2. However, at the end of the 12 month period if the project is still current you should instead submit an application for renewal of the approval if the project has run for less than three (3) years. This form is available at http://www.ro.mq.edu.au/ethics/human/forms. If the project has run for more than three (3) years you cannot renew approval for the project. You will need to complete and submit a Final Report (see Point 1 above) and submit a new application for the project. (The three year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

3. Please remember the Committee must be notified of any alteration to the project.

4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University (http://www.ro.mq.edu.au/ethics/human).

Yours sincerely

Dr Catriona Mackenzie
Chair, Ethics Review Committee (Human Ethics)

cc. Dr Jane Carstairs
30 June 2008

Ms Amanda Ferguson
PO Box 921
Spit Junction
NSW 2088

Reference: HE27JUN2008-D05946

Dear Ms Ferguson

FINAL APPROVAL

Title of project: “Employee Engagement: Does it exist, and if so, how does it relate to performance, other job constructs and individual differences? Are there any differences between corporate and clinical contexts?”

Interim approval of the above application was granted by the Executive of the Ethics Review Committee (Human Research) on 13 June 2008. This interim approval was reviewed by the full Committee at its meeting on 27 June 2008 and was ratified. This approval is subject to the following condition:

1. Please forward a copy of the site specific (SSA) form and approval from Hornsby, Ku-ring-gai and Mona Vale Hospitals when available.

Please note the following standard requirements of approval:

1. Approval will be for a period of twelve (12) months. At the end of this period, if the project has been completed, abandoned, discontinued or not commenced for any reason, you are required to submit a Final Report on the project. If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. The Final Report is available at: http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms

2. However, at the end of the 12 month period the project is still current you should instead submit an application for renewal of the approval if the project has run for less than five (5) years. This form is available at http://www.research.mq.edu.au/researchers/ethics/human_ethics/forms. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report (see Point 1 above) and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

3. Please remember the Committee must be notified of any alteration to the project.

4. You must notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that might affect continued ethical acceptability of the project.

5. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University http://www.research.mq.edu.au/researchers/ethics/human_ethics/policy

________________________________________

ETHICS REVIEW COMMITTEE (HUMAN RESEARCH)
LEVEL 3, RESEARCH HUB, BUILDING CSC
MACQUARIE UNIVERSITY
NSW, 2109 AUSTRALIA

Ethics Secretariat: Ph: (02) 9850 6846 Fax: (02) 9850 4464 E-mail: ethics.secretariat@vc.mq.edu.au
http://www.research.mq.edu.au/researchers/ethics/human_ethics