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Abstract

The Job Demands-Resources (JD-R) model (Bakker and colleagues) has received increasing attention in recent years, yet there is a distinct literature gap regarding its utility and value towards the international work context. In line with this, understanding how to design jobs representing enhanced climates of work engagement for internationally operating staff alludes practitioners.

This thesis therefore aims to substantiate the claim that previous research applying the JD-R model has neglected the international work context and evaluate whether the model has potential to be used as a framework for managing burnout, work engagement and related outcomes beyond the use in solely national contexts. In order to do so, two review studies (systematic and meta-analytic) and two empirical studies (qualitative and quantitative) are conducted of the JD-R model in the international work context.

Findings suggest: that existing JD-R literature does not consider the international work context, highlighting a distinct literature gap requiring attention, in order to achieve a holistic understanding of the model and its applicability; strong meta-analytic support for the JD-R model and the impact of variation in the international work context represented by dimensions of national culture; the JD-R model has potential for responding to the management of burnout and work engagement for international business travelers but may benefit from theoretical amendments that focus the models utility and direct scholarly research and practitioner approaches; that the model may not be as valuable as assumed for the international business traveler context, yet it is worth considering the findings in light of relevant literature and possible limitations.
Overall, the findings suggest a distinct need for more research examining the JD-R model in the international work context. A number of potential theoretical amendments are suggested in a conceptual internationalized JD-R model that can be used as a foundation for future empirical work to establish the boundaries of the model and its utility. From a practitioner perspective, until more research is conducted, JD-R principles should be applied with caution. As a whole, this thesis encompasses theoretical, empirical and practical contributions relevant for scholarly and practitioner communities which can be built upon over time with regards to the proposed conceptual model.
Dissemination

Results or preliminary results of this thesis were presented as papers in the following international conferences. The final reference relates to a published book review.


Overview of contents

Acknowledgements ............................................................................................................. I
Abstract............................................................................................................................... II
Dissemination....................................................................................................................... IV
Overview of contents.......................................................................................................... VI
List of contents..................................................................................................................... VII
List of tables........................................................................................................................ XII
List of figures....................................................................................................................... XIV
List of appendices.............................................................................................................. XV
List of contents

1 Introduction ......................................................................................................................... 1
  1.1 Context and problem ....................................................................................................... 1
  1.2 Relevance of the problem ............................................................................................. 4
    1.2.1 Practical relevance ................................................................................................. 5
    1.2.2 Theoretical relevance ........................................................................................... 8
  1.3 Research aims and objectives ....................................................................................... 10
  1.4 Thesis structure ........................................................................................................... 13

2 Literature review ............................................................................................................... 14
  2.1 The Job Demands-Resources Model: Development and key assumptions. 14
    2.1.1 Earlier theories/models and limitations ................................................................. 14
      2.1.1.1 Two-Factor theory ......................................................................................... 15
      2.1.1.2 The Job Characteristics Model ....................................................................... 17
      2.1.1.3 The Job Demands-Control (-Support) Model .............................................. 18
      2.1.1.4 The Effort-Reward Imbalance Model .............................................................. 19
      2.1.1.5 Shortcomings and the need for development .................................................. 21
    2.1.2 The JD-R model ..................................................................................................... 23
      2.1.2.1 Dual processes: Health impairment and motivational pathways ................. 25
      2.1.2.2 Interaction effects: Coping and Buffer hypotheses ....................................... 28
      2.1.2.3 The role of personal resources ...................................................................... 31
      2.1.2.4 Curvilinear relationships: Job demands and engagement ......................... 35
      2.1.2.5 Burnout and engagement in the JD-R model ................................................. 38
      2.1.2.6 A robust model yet not a theory? ................................................................. 43
2.2 The JD-R model and the international work context: A systematic review to analyze a gap in the literature ................................................................. 45
  2.2.1 Relevance and aim ........................................................................ 46
  2.2.2 Principles, method and sample ...................................................... 49
  2.2.3 Results .......................................................................................... 55
  2.2.4 Discussion and conclusion ............................................................. 62

2.3 Does the international work context affect the JD-R model? ..............
  A meta-analysis ..................................................................................... 67
  2.3.1 Aim and initial assumptions .......................................................... 67
  2.3.2 Hypotheses on the impact of cultural values ................................. 69
    2.3.2.1 Power Distance ........................................................................ 70
    2.3.2.2 Individualism/Collectivism ...................................................... 72
    2.3.2.3 Masculinity/Femininity ......................................................... 73
    2.3.2.4 Uncertainty avoidance ............................................................ 74
    2.3.2.5 Long-term/short-term orientation ......................................... 75
  2.3.3 Procedures, method and sample .................................................... 77
  2.3.4 Results .......................................................................................... 82
  2.3.5 Discussion and conclusions .......................................................... 86

2.4 International business travelers and the JD-R model ....................... 94
  2.4.1 Global mobility and international business travelers .................... 95
  2.4.2 Definitional approaches to international business travelers .......... 98
  2.4.3 The JD-R model and international business travelers .................. 102
3 Methodology .......................................................................................... 105

3.1 Methodological overview ................................................................ 105
3.2 Philosophical approach .................................................................... 108
3.3 Ethical considerations ..................................................................... 110
3.4 Study 1: Method of the qualitative study ....................................... 111
  3.4.1 Sample .......................................................................................... 113
  3.4.2 Semi-structured interviews ........................................................... 117
  3.4.3 Analysis ......................................................................................... 120
3.5 Study 2: Method of the quantitative study ....................................... 122
  3.5.1 Hypothesis .................................................................................... 123
  3.5.2 Sample and procedure ................................................................. 127
  3.5.3 Measurement of exhaustion and engagement ............................ 129
  3.5.4 Measures .................................................................................... 131
  3.5.5 Procedural limitations .................................................................. 136
  3.5.6 Hypotheses testing ...................................................................... 138

4 Study 1: Qualitative study .................................................................... 139

4.1 Predictors of burnout and engagement for international business ........
  travelers ................................................................................................. 139
  4.1.1 Job hindrance demands ............................................................... 139
  4.1.2 Job challenge demands ............................................................... 141
  4.1.3 Job resources .............................................................................. 142
  4.1.4 Personal resources ...................................................................... 144
4.2 A JD-R model for international business travel contexts .................. 146
4.3 Overview of key findings ................................................................... 154
5 Study 2: Quantitative study ................................................................. 156

5.1 Results ............................................................................................... 156

5.1.1 Data preparation and descriptive analysis..................................................... 156

5.1.2 Analysis of hypotheses ............................................................................. 163

5.1.2.1 Preliminary considerations ..................................................................... 164

5.1.2.2 Demands and resources as predictors of exhaustion and ..........

engagement ................................................................................................. 166

5.1.2.3 Curvilinear relationships between job demands and.................

engagement, job resources and exhaustion ............................................... 172

5.1.2.4 Job demands and resources as moderators in the JD-R model..176

5.1.2.5 Recovery experiences as moderators in the health impairment and

motivational pathways .................................................................................. 179

5.1.2.6 Personal resources as moderators in the health impairment and ....

motivational pathways .................................................................................. 186

5.2 Discussion of results ............................................................................. 190

5.3 Overview of key findings ......................................................................... 199
6 Conclusions ......................................................................................202

6.1 Essence of findings .......................................................................202

6.2 Limitations .....................................................................................210

6.3 Future research, implications for practice and overall contributions ......217

6.3.1 Directions for future research ..................................................217

6.3.2 Implications for practice .............................................................222

6.3.3 Overall contributions .................................................................227
List of tables

Table 2.1. Studies included in the systematic review (alphabetical order)........54
Table 2.2. Regional/country study scope showing support for the assumptions ....
of the JD-R model..........................................................................................58
Table 2.3. Studies included in the meta-analytic review.................................81
Table 2.4. Meta-analytic results showing mean correlations between job ............
demands/resources and burnout/engagement indicating level of support
for hypothesis 1a and 1b..................................................................................82
Table 2.5. Meta-analysis of culture as moderators of the JD-R model .............84
Table 3.1. Strategies taken to achieve trustworthy research..............................112
Table 3.2. Sample characteristics of participants in the qualitative study..........115
Table 4.1. Overview of themes identified for international business travelers in the
interviews........................................................................................................147
Table 5.1. Skewness, kurtosis and associated standard error to provide indication
of data normality in sample’s 1 and 2 respectively.................................159
Table 5.2 Means, standard deviations (SD’s) and correlations between the ........
study variables in sample 1.................................................................162
Table 5.3 Means, standard deviations (SD’s) and correlations between the ........
study variables in sample 2.................................................................162
Table 5.4. Demands and resources as predictors of exhaustion for ...............
samples 1 and 2..............................................................................168
Table 5.5. Demands and resources as predictors of engagement for ..............
samples 1 and 2..............................................................................169
Table 5.6. Curvilinear relationship between workload and engagement for samples 1 and 2 .................................................. 173

Table 5.7. Curvilinear relationship between job resources and exhaustion for samples 1 and 2 .................................................. 174

Table 5.8. Interaction of workload on the motivational pathway (coping hypothesis) for samples 1 and 2 ........................................... 177

Table 5.9. Interaction of job resources on the health impairment pathway (buffer hypothesis) for samples 1 and 2 ........................................... 178

Table 5.10. Moderating effect of recovery experiences in the relationship between workload and exhaustion in samples 1 and 2 ............... 180

Table 5.11. Moderating effect of recovery experiences in the relationship between job resources and engagement in samples 1 and 2 ............... 181

Table 5.12. Moderating role of cognitive flexibility in the health impairment pathway in samples 1 and 2 .................................................. 187

Table 5.13. Moderating role of cognitive flexibility in the motivational pathway in samples 1 and 2 .................................................. 188

Table 5.14. Overview of hypotheses and support .................................................. 191
List of figures

Figure 2.1. The JD-R model ................................................................. 24

Figure 2.2. The JD-R model incorporating findings from the meta-analysis ....... 93

Figure 5.1. The JD-R model as per the regression analysis .......................... 201

Figure 6.1. The conceptualized international JD-R model to be used for future research directions ................................................................. 208
List of appendices

Appendix I. Notification placed on Internations networking website to recruit for the qualitative study ................................................................. 278

Appendix II. Example email to individuals on Internations networking website to recruit for the qualitative study ........................................ 279

Appendix III. Advertisement on Linkedin to recruit for the quantitative study .............................................................................................................. 280

Appendix IV. Notification on Internations to recruit for the quantitative study .............................................................................................................. 281

Appendix V. Example email content sent to HR professionals who have expressed an interest in the quantitative study, but would like to know more about the research ................................................................. 282

Appendix VI. Example email content that was forwarded to networking groups (e.g. LLORGs, OWIT) on the researchers behalf to recruit for the quantitative study .............................................................................................................. 284

Appendix VII. Research summary to increase organizational participation in the quantitative study .............................................................................................................. 285

Appendix VIII. Sample 1 questionnaire .......................................................................................................................................................................................... 289

Appendix IX. Sample 2 questionnaire ......................................................................................................................................................................................... 300

Appendix X: Visual indicators (histograms) for data preparation of quantitative data in sample 1 (please also consult table 5.1 showing skewness, kurtosis and standard error values, outlined in section 5.1.1) .... 310
Appendix XI: Visual indicators (histograms) for data preparation of quantitative data in sample 2 (please also consult table 5.1 showing skewness, kurtosis and standard error values, outlined in section 5.1.1)....316
1 Introduction

Chapter 1 sets the scene for the studies conducted within this thesis, discusses the research problem from a practical and theoretical perspective, outlines the research aims and objectives, finishing with an overview of the thesis structure.

1.1 Context and problem

“Globalization has become a fact of business life” suggesting that if organizations are to prosper, ensuring key staff are operating effectively in a global business environment is essential (Stroh et al., 2005, p. vii). International assignments, in particular international business travel embody the core functions that enable organizations to gain a global advantage, yet their strategic value depends on employees thriving across different working environments. Therefore, as evidenced in section 1.2.1 people management in a global context must be precise.

In both the human resource and international human resource management literature the importance of well-being for performance related outcomes is well documented (see chapter 2; Aryee & Stone, 1996; Lazarova, Westman, & Shaffer, 2010; van der Heijden, van Engen, & Paauwe, 2009; Wang & Verma, 2009). Within this, understanding the antecedents to burnout and work engagement (hereafter referred to as engagement) is considered critical for a range of additional outcomes including performance (Bakker & Bal, 2010), job attitudes (Schaufeli, Taris, & van Rhenen, 2008), self-rated health and workability (Hakanen, Bakker, & Schaufeli, 2006), job satisfaction (Nahrgang,
Burnout and engagement are therefore widely accepted as important for organizational success, yet associated research has not convincingly spilled over to the international business travel context (see section 2.1.2.5). International business travelers represent a ‘hidden’ form of international assignments as they are not tracked or managed by human resources (see section 2.4) and are subsequently considered under strategy, policies and procedures relating to domestic staff (i.e. domestic staff are employees who are not involved in any form of global mobility or international business travel) or even other types of international assignments (e.g. expatriates). Consequently, a laundry list of potential predictors of burnout and engagement is drawn upon which may not be as relevant for international business travelers, potentially hampering development of successful interventions. The need for a solid theoretical approach to the management of burnout and engagement in international business travelers can be seen in section 2.4, which is also evidenced by global competition increasing for talent who can manage overseas tasks (see section 2.4.1). Therefore, organizations must be able to identify, attract and retain the appropriate staff (Mayerhofer et al., 2004), something that can only be achieved long term by creating positive environments based on good health (i.e. low burnout) and engagement.

In response to the issues above and those outlined in section 1.2, scholars and practitioners alike are becoming increasingly interested in creating an enhanced climate of engagement in order to achieve optimal employee functioning (Bakker & Leiter, 2010). Consequently, the Job Demands-Resources Model (JD-R) (Demerouti et al.,
2001) has received considerable interest over the last decade as a valuable theoretical framework for organizing and managing the antecedents to burnout and engagement. A high volume of operating variables, contexts and designs have been examined in an attempt to further assess and understand the various processes within the JD-R model (Wilcox & Kittler, 2011), with respect to a variety of positive and negative outcomes, such as organizational commitment (Bakker, Demerouti, & Schaufeli, 2003b), performance (Bakker et al., 2004), job attitudes (Demerouti et al., 2004) and sickness absenteeism (Schaufeli, Bakker, & Van Rhenen, 2009b).

Despite the increasing popularity of the JD-R model, a gap in the literature exists regarding its utility towards the international work context meaning that scholars and practitioners are uninformed about the models applicability to internationally operating organizations, today and in the future (see section 2.2). As is discussed in section 2.1, the JD-R model holds potential for responding to the international work context over other job design or occupational health models. In brief, the JD-R model presents an approach that considers negative and positive stimuli along with both work and personal characteristics, yet is not prescriptive regarding important antecedents, meaning it is applicable as a general framework across a variety of contexts. This flexible and adaptable approach simply specifies that all antecedents to burnout and engagement can be grounded in two over-arching categories of demands and resources regardless of the work context, occupation or employee.

To respond to the above and the practical and theoretical problems outlined in section 1.2, this thesis begins with a systematic review that assesses the JD-R literature stream with respect to its use across different national, cross-national or international work
contexts (see section 2.2). An extensive amount of support for the model in different national and even cross-national contexts, yet a lack of consideration for the international work context is identified. Prior to conducting empirical work the need for an internationalized JD-R model is assessed with a meta-analysis examining the moderating role of the international work context, exemplified in this study by national culture (see section 2.3). Following the two review studies, the focus is narrowed to international business travelers and two empirical studies are conducted, applying the JD-R model to the international work context. Firstly, a qualitative study explores international business traveler experiences and identifies critical demands and resources in the development of burnout and engagement, suggesting amendments to the JD-R model when applied for international business travelers (see section 3.4 and chapter 4). Secondly, a quantitative study assesses the main JD-R propositions and some of the theoretical amendments identified in the qualitative study (see section 3.5 and chapter 5). Together, these four studies suggest a conceptual international JD-R model that imparts important future research avenues and carries implications for practice (see section 6.3).

### 1.2 Relevance of the problem

Section 1.1 has identified the absence of literature on the management of burnout and engagement particularly regarding international business travelers, along with the applicability of the JD-R model to internationally operating organizations, indicating a potential problem in an increasingly international work context. This section discusses the practical and theoretical relevance of this problem.
1.2.1 Practical relevance

International business travel is fast becoming one of the most valued strategies for tackling unique, complex and demanding business tasks of many international organizations. As a result, international business travelers are increasingly used as a strategic method of international coordination (Brookfield Global Relocation Service, 2012; Global Relocation Trends, 2008) with the total number of U.S. initiated business trips reaching 6.78 million in 2011, representing a 3.1 % increase from 2010 (Global Business Travel Association, 2012). Substantial resources are subsequently invested in moving top talent around the globe for short periods of time (Welch & Worm, 2006). However, significant business returns on an incredible financial investment depend on key managers and professionals functioning at their optimal level, something which is currently rarely achieved with this group of professionals (Gustafson, 2012). For example, international business travelers are prone to developing physical and psychological illness (Berg et al., 2011; Burkholder et al., 2010; Westman & Etzion, 2002), carrying direct and indirect implications for work functioning and performance (DeFrank, Konopaske, & Ivancevich, 2000; Striker et al., 1999). As a result, health insurance claims for international business travelers are as much as 80 % higher than for non-business travelers, with claims for psychological stress-related disorders carrying the strongest association with the act of travel itself (Liese, Mundt, & Dell, 1997).

Considering that in the domestic context (i.e. a context where there is no international dimension), it is estimated that around four to twenty-two percent of employees suffer from burnout (Mirvis et al., 2006; Schaufeli, 2003; Taris et al., 2000), it seems logical that burnout also plays a critical role for the functioning of international business
travelers. In the domestic context, given the associated negative consequences of burnout (e.g. low satisfaction, reduced organizational commitment, impaired interpersonal functioning) (Lee & Ashforth, 1996), many scholars have become increasingly interested in engagement. Individuals who experience high levels of engagement tend to find tasks stimulating and meaningful often possessing a positive attitude, a willingness to invest effort in the job and engage in job crafting (the process of proactively enhancing one’s own work environment) (Bakker, 2010; Bakker, Albrecht, & Leiter, 2011; Wrzesniewski & Dutton, 2001).

Conversely, individuals experiencing symptoms of burnout may present as fatigued, demonstrate reduced cognitive functioning, reduced interpersonal ability, have low self-efficacy and a negative distant attitude to their work (Boersma & Lindblom, 2009; Demerouti et al., 2003; Maslach, Schaufeli, & Leiter, 2001). In fact, there is growing recognition that employee well-being correlates highly with the financial situation of organizations (Goetzel et al., 2001). Therefore, focusing attention on both preventing burnout and stimulating engagement seems fruitful to achieve optimal employee functioning and provides a financial incentive. In recognition of this, organizational interest in managing the factors that are considered prominent in the development of burnout and engagement is widespread, including within the international work context, albeit primarily within the expatriate literature (Alarcon, Eschleman, & Bowling, 2009; Hechanova, Beehr, & Christiansen, 2003).

However, it has been suggested that achieving high levels of performance for international employees is considerably more complex than for domestic employees (Gregersen, Hite, & Black, 1996; Suutari & Tahvanainen, 2002) possibly due to
unfamiliarity within the new workplace (Claus, Lungu, & Bhattacharjee, 2011). This suggests that international business travelers may experience different workplace antecedents to burnout and engagement than domestic employees and points at the requirement for employers to fully understand whether they can be managed in the same way, which should in consequence enable consideration of the resulting challenges in their human resource decisions for achieving more desirable results. However, whilst practitioners are aware international business travelers are frequently exposed to impaired health and functioning as a consequence of travel and associated job responsibilities (Collings, Scullion, & Morley, 2007; Meyskens et al., 2009; Welch & Worm, 2006), they are unable to draw on evidence based research that suggests where to focus attention. In recognition of this, there have been recent calls for more research examining how positive and negative outcomes develop for international business travelers (e.g. see Shaffer et al, 2012), suggesting it is important to gather a research based understanding of the contributing factors in a timely manner (Collings et al., 2007; Shaffer et al., 2012).

The human resource literature stream consistently identifies common demands/resources across different domestic occupations and contexts that act as antecedents for the development of burnout and engagement which can be drawn upon for employees employed within those contexts (e.g. Bakker, 2009; Christian & Slaughter, 2007; Hausser et al., 2010; Lee & Ashforth, 1996). However, empirical evidence confirming whether these workplace antecedents are also applicable to international business travelers is scarce, but necessary if organizations are interested in adopting a unified approach to managing their staff for achieving optimal employee functioning. Furthermore, as there is an expected dearth of highly skilled internationally
mobile talent in the near future it becomes necessary to ensure key staff are rewarded with positive experiences that encourage effectiveness for this type of work (Shaffer et al., 2012; Worldwide Benchmark Study, 2004).

Focusing attention on preventing burnout and stimulating engagement has been fruitful for achieving positive employee experiences that lead to enhanced functioning (Bakker & Leiter, 2010; Maslach, Schaufeli, & Leiter, 2001) and organizational interest in identifying and managing antecedents of burnout and engagement is widespread (Alarcon, Eschleman, & Bowling, 2009; Hechanova, Beehr, & Christiansen, 2003). However, whilst understanding of important antecedents and processes has improved with domestic employees, the question of what causes burnout and engagement and how these states emerge specifically within internationally operating employees still eludes scholars and practitioners. Therefore, understanding whether the JD-R model is applicable to the international business traveler context and whether theoretical amendments could provide organizations with a competitive advantage is an important avenue to pursue (see section 6.3).

1.2.2 Theoretical relevance

The key to unlocking potential is thought to lie in designing jobs that possess an appropriate balance of demands and resources which are linked to a range of employee behaviors, attitudes and health via burnout and engagement (Bakker & Demerouti, 2007; Bakker & Leiter, 2010). Therefore, in response to scholarly and practitioner interest in creating a climate of optimal employee functioning, the JD-R model has received considerable interest over the last decade as a valuable framework for
organizing and managing the antecedents to burnout and engagement. As a result, it currently forms the basis for many human resource strategies (e.g. wellness audits, workshops, job design, work changes, leadership practices, career planning and development) (Schaufeli & Salanova, 2008) and is considered one of the most popular theories on which to base interventions (Bakker & Demerouti, 2012; Wilcox & Kittler, 2011). Considering a weakness in talent management for utilizing interventions specific to globally mobile staff (Collings et al., 2007), it is likely that these interventions involve international business travelers making it important to establish whether the model requires any context specific theoretical extensions to avoid misapplication.

However, whilst evidence suggests that JD-R principles are highly applicable to the international business traveler context, empirical evidence is lacking that demonstrates whether this model in its current form can respond to the international character of today’s work environment (Wilcox & Kittler, 2011). To some degree lessons can be learned from existing JD-R literature and readily applied elsewhere. However, this approach is risky particularly where for example, international business travelers are concerned which represents an emerging research discipline and therefore we are still learning about the similarities or differences to domestic employees. Furthermore, as job design theory suggests that each work context encapsulates a unique set of characteristics and processes that combine to influence an employees experience and accomplishments at work (Grant & Parker, 2009) and JD-R literature is not entirely unanimous, it becomes important to ensure that theory can fully respond to the modern increasingly international work context. Doing so is likely to help organizations adapt strategies, policies and procedures to maximize the potential of all employees safeguarding personal and organizational investments by enhancing well-being and
performance related outcomes for employees across the organization, bringing further personal and financial gains (Howe-Walsh & Schyns, 2010; Shaffer et al., 2012). At the same time being able to successfully draw on and manage an internationally skilled workforce will provide added organizational competence (Lee, 2005) but this is only possible with international human resource management strategy founded upon relevant theory.

1.3 Research aims and objectives

The above points at a distinct literature gap regarding the international work context. To summarize, there is a lack of research around two primary issues: whether the JD-R model can be used to manage burnout and engagement in the international work context; and the development of burnout and engagement for international business travelers. Together, these two timely issues prevent scholarly and practitioner understanding and application. In light of these literature gaps, the overall aim of this thesis is to evaluate the robustness of the JD-R model for responding to the international work context. In order to do so, two review studies and two empirical studies are conducted. The aims and objectives of each study are outlined below.

Prior to conducting empirical work, this study begins with a review that assesses the state of existing literature. Therefore a systematic review is conducted which aims to provide a critical assessment of JD-R literature (see section 2.2). Two subsequent research objectives are:
• To analyze the use of the JD-R model in empirical research, in particular the extent to which the model found empirical support in different domestic and cross-national settings.

• To identify any attempts to utilize the JD-R model in the international work context and in that absence, any developments or amendments to the model that may allow or foster its use in international contexts as discussed in existing literature.

Building on findings from the systematic review, a meta-analysis is conducted which aims to assess the role of national cultural values in the main pathways of the JD-R model and thus assess the future applicability of the model in international business (see section 2.3). Subsequent research objectives that form the basis for research hypothesis are:

• To analyze support for the main direct relationships of the JD-R model, in that job resources are positively correlated with engagement and negatively correlated with burnout, whilst job demands are negatively correlated with engagement and positively correlated with burnout.

• To investigate whether the international work context (exemplified by popular dimensions of variation across national cultures: power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance and long-term/short-term orientation) moderates the relationships between job demands/resources and burnout/engagement.

Together, the systematic review and meta-analysis confirm the requirement to establish the robustness of the JD-R model in the international work context and identify any
theoretical amendments to increase its utility. As the international work context encapsulates a variety of international assignments (being too wide to investigate in this thesis) and as there is a distinct need for more research on international business travelers (see sections 1.1, 1.2.1 and 2.4), the focus of the empirical research will be narrowed to international business travelers.

As a first empirical step, a qualitative study is conducted which aims to explore the experiences of international business travelers in relation to the development of burnout and engagement (see section 3.4 and chapter 4). Associated research objectives are:

- To identify critical predictors of burnout and engagement for international business travelers.
- Evaluate if there are any theoretical extensions required in order for the JD-R model to more fully respond to the needs of an international business travelers.

Using the findings from the qualitative study as a foundation, a quantitative study is conducted which aims to assess the main propositions of the JD-R model and some of the theoretical amendments suggested in the qualitative study that may present a more international model (see section 3.5 and chapter 5). The research objectives are:

- To investigate if exhaustion and/or engagement can be predicted according to the main propositions of the JD-R model for international business travelers.
- To assess if curvilinear relationships exist between job demands and engagement and/or job resources and exhaustion for international business travelers.
• To investigate if recovery experiences and/or personal resources moderate the health impairment and motivational pathways for international business travelers.

1.4 Thesis structure

The thesis is structured across six chapters. Following on from chapter one, chapter two presents a comprehensive literature review detailing: the JD-R model; burnout and engagement; the systematic review; the meta-analysis; the definition and nature of international business travelers; and how the model could be useful for this context. Chapter three provides details of the methodological approaches taken for the two empirical studies. This chapter also includes the philosophical approach along with ethical considerations. Chapter four details the results and discussion from the qualitative study focusing on predictors or burnout and engagement for international business travelers suggesting a more international business traveler focused JD-R model. Chapter five details the results and discussion from the quantitative study with respect to assessing the model in an international business traveler context. Chapter six concludes the thesis and details a general discussion, limitations, implications for future scholarly research and practice and contributions.
2 Literature review

Chapter 2 provides a comprehensive literature review. It begins by discussing development of the JD-R model in relation to previous influential theories and models. The main propositions of the JD-R model along with burnout and engagement are then delineated, by providing an overview of relevant literature. Next, the focus narrows to the international work context beginning with a systematic review titled ‘The JD-R model and the international work context: A gap in the literature’, followed by a meta-analysis titled ‘Does the international context affect the JD-R model A meta-analysis’. Lastly, issues of global mobility, the definition and nature of international business travelers are discussed, finishing with a section on the JD-R model and the international business traveler context.

2.1 The Job Demands-Resources Model: Development and key assumptions

This section provides a brief overview of earlier theories and models that were influential in the development of the JD-R model. A short description of each is given and their limitations discussed.

2.1.1 Earlier theories/models and limitations

According to Bakker and Demerouti (2012) the development of the JD-R model was influenced by prominent job motivation and stress theories/models. Prominent antecedents of the JD-R model include the two-factor theory (Herzberg, 1966), the job
characteristics model (Hackman & Oldham, 1980), the demand-control (-support) model (Johnson & Hall, 1988; Johnson, Hall, & Theorell, 1989; Karasek, 1979) and the effort-reward imbalance model (Siegrist, 1996). An overview will be provided of each theoretical approach building into a critique of earlier generation approaches and pointing at the emergence of the JD-R model. According to the authors of the JD-R model (Bakker and colleagues) the aforementioned theories played the most significant role in the development of the JD-R model as a whole.

However, literature suggests that additional motivation/stress approaches have also been important in its development albeit to a lesser degree. Therefore with the intent of avoiding a thesis that simply explains various occupational stress/motivation theories an overview will not be provided of all influential theories, but where relevant they will be referred to. As examples but not limited to, Conservation of Resources theory (see Hobfoll, 1989) was influential in developing the coping hypothesis, the Broaden and Build theory (see Fredrickson, 2001) in reciprocal relationships, the Transactional stress theory (see Lazarus & Folkman, 1984) in the importance of balance between demands and resources and Self-Determination Theory (see Ryan & Deci, 2000) in conceptualizing job resources. For a detailed overview please see associated references.

2.1.1.1 Two-Factor Theory

Herzberg’s (1966; Herzberg, Mausner, & Snyderman, 2005) influential two-factor theory suggests that employees have two different sets of needs being hygiene factors (related to survival needs) or growth factors and the work context can satisfy or dissatisfy such needs. Hygiene factors refer to extrinsic conditions that surround
performing a job and may include company policy, supervision, working conditions, reward systems or interpersonal relations. Their presence neither creates satisfaction or motivation, only serving to avoid dissatisfaction. When present, growth needs are motivational and refer to intrinsic work factors such as achievement, recognition, responsibility or advancement. When motivators are absent, employees will carry out their jobs as necessary but when present, employees go beyond minimum job requirements (Bakker & Demerouti, 2012).

Whilst various studies have supported Herzberg’s two-factor theory across different contexts (e.g. Balmer & Baum, 1993; DeShields, Kara, & Kaynak, 2005; Parsons & Broadbride, 2006), it has received criticism regarding how motivation and satisfaction are achieved via hygiene and growth needs (Lundberg, Gudmundson, & Andersson, 2009). For example, the theory suggests that growth factors relating to job content or job enrichment are the only ways to increase work motivation (Furnham, Forde, & Ferrari, 1999; Parsons & Broadbride, 2006; Wright, 1989), yet hygiene factors are thought to also act as motivators (Pinder, 1998). Similarly, the theory does not account for organizational or individual differences (e.g. levels of needs, gender, culture, age) and it appears that theoretical support depends on methodology used (Ambrose & Kulik, 1999; Lundberg et al., 2009). Nevertheless, the two-factor theory has been particularly influential in the development of job design by increasing awareness that jobs are capable of being enriched to maximize employee potential (Grant, Friend, & Juillerat, 2010).
2.1.1.2 The Job Characteristics Model

According to Hackman and Oldham’s (1976, 1980) job characteristics model the presence of five core job dimensions positively influence an employees response to the job (e.g. increasing motivation, satisfaction, work effectiveness) via the attainment of three critical psychological states, being experienced meaningfulness of work, experienced responsibility for outcomes and knowledge of results of work activities. Specifically skill variety, task identity and task significance are believed to influence experienced meaningfulness, whilst autonomy influences experienced responsibility and feedback influences knowledge of results (Humphrey, Nahrgang, & Morgeson, 2007). The five core job characteristics are: autonomy (i.e. freedom in carrying out one’s work); skill variety (i.e. the extent of using different skills to perform a job); task identity (i.e. the extent an employee can complete a whole piece of work); task significance (i.e. the extent the job impacts upon others lives); and feedback (i.e. the extent an employee received information on their performance) (Humphrey et al., 2007).

Research has shown that the presence of the five core job characteristics leads to positive employee attitudinal and behavioral outcomes such as improved job satisfaction, motivation, performance, reduced absenteeism and burnout (Fried & Ferris, 1987; Griffin, Hogan, & Lambert, 2012). Whilst the job characteristics model has been successfully used to explain the direct impact of job characteristics on various outcomes in prior studies, there has been less research of the three psychological states (Bakker & Demerouti, 2012; Renn & Vandenbarg, 1995). Of the few studies that assess the three psychological states, mixed results have been found with experienced meaningfulness.
of work proposed as the most prominent mediator, as it mediates all five job characteristics-outcome relationships (Humphrey et al., 2007; Johns, Xie, & Fang, 1992). Furthermore, the model also suggests that the job characteristic-psychological states-outcome relationships will be stronger for those who are highly motivated to learn and grow on the job, yet evidence for such an effect is inconsistent (Bakker & Demerouti, 2012).

2.1.1.3 The Job Demand-Control (-Support) Model

The job demand-control model (Karasek, 1979), later termed the job demand-control-support model (Johnson & Hall, 1988; Johnson et al., 1989) hypothesizes that psychological strain is highest in jobs characterized by a combination of high job demands, low control and low support, termed ‘high-strain jobs’. However, when high job demands are combined with high control and support, employees are thought to experience task enjoyment, learning and personal growth in what is termed ‘active-learning jobs’. Job demands typically refer to quantitative (e.g. workload, time pressure), physical (e.g. heavy lifting) or emotional (e.g. role conflict) aspects of work. Control is also referred to as decision latitude and is composed of skill discretion (i.e. the extent an employee is able to use specific job skills) and decision authority (i.e. the extent an employee possesses autonomy in decision making, timing and method control). The former condition, referred to as a ‘strain hypothesis’ increases the likelihood of physical and psychological illness by additive or multiplicative effects. Conversely the latter condition, referred to as a ‘buffer hypothesis’ has potential to improve well-being through the interaction of demands and control, or support (Hausser et al., 2010; Van Der Doef & Maes, 1999).
This model has been prominent on research on occupational stress in the 1980’s and 1990’s partly due to its innovation in demonstrating that certain outcomes were a result of the interaction effects of job demands and control. As such, there is a substantial associated literature base, albeit with mixed empirical findings (Hausser et al., 2010; Van Der Doef & Maes, 1999). Support is substantial for the strain hypothesis especially if sufficient sample sizes are found and cross-sectional methodologies used. Support for the buffer hypothesis is generally weak, yet the pattern of results suggest this could be due to the degree of match between demands, control or support regarding their emotional, cognitive or physical aspects (Hausser et al., 2010) or the use of homogeneous samples which restricts the understanding of variation in job attributes particularly with interaction effects (Bakker, van Veldhoven, & Xanthopoulou, 2010b).

As the model does not specify outcomes emerging from these processes it has been used to better understand a range of outcomes, both negative (e.g. exhaustion, anxiety, absenteeism) and positive (e.g. motivation, satisfaction, learning) (Houkes et al., 2003). Critics of the model have pointed at the lack of consideration for reversed or reciprocal relationships, the idea of matching, consideration of personality or cultural impact presents conceptual weaknesses in this model (Bakker & Demerouti, 2012; Gyorkos et al., 2012; Houkes, Winants, & Twellaar, 2008).

2.1.1.4 The Effort-Reward Imbalance Model

The effort-reward imbalance model (Siegrist, 1996) has received considerable attention in the occupational stress literature, particularly with European studies. The model’s
basic premise is that the balance between effort (e.g. high job demands such as workload) and rewards (e.g. job resources such as money, esteem, security) influence job stress and this relationship is potentially moderated by a personality trait, overcommitment i.e. a personality characteristic capturing attitudes, behavior and emotional elements reflecting an excessive ambition and desire to be approved and esteemed (Hanson et al., 2000).

More specifically, three main processes are thought to be at play: an extrinsic effort-reward imbalance hypothesis whereby a low level of rewards increase health risks; an intrinsic over-commitment hypothesis, whereby a high level of over-commitment increases health risks; an interaction hypothesis whereby the combination of these extrinsic and intrinsic processes further increases health risks beyond their individual effects (Vegchel et al., 2005). Therefore highly committed individuals will experience greater strain via a greater imbalance, such that employees who have demanding, unstable jobs with low levels of rewards will lead to a range of health risks made worse by those who are highly committed (Vegchel et al., 2005).

The Effort-Reward Imbalance model therefore highlights the importance of personality and external factors in the development of stress related symptoms. A review of 45 studies published between 1986 and 2003 demonstrated considerable empirical support for the extrinsic effort-reward imbalance hypothesis, yet inconsistent support for the intrinsic over-commitment hypothesis (see Vegchel et al., 2005). The authors of this review note that the moderating effects of over-commitment on the relationship between effort-reward imbalance and health outcomes requires more research i.e.
essentially the moderating role of personality in the relationship between job characteristics and health outcomes.

2.1.1.5 Shortcomings and the need for development

Whilst each of these theoretical approaches have held a prominent place in understanding motivation and stress, according to Bakker and Demerouti (2012) there are overlapping problems. For example, despite clear reciprocal links between stress and motivation (Bakker, Van Emmerik, & Van Riet, 2008; Leiter, 1993) the research trend has been to adopt a one-sided approach which has infiltrated into organizations e.g. human resources departments may focus on motivation whereas occupational health departments on stress reduction, each drawing on prominent theories in their own literature streams despite that the overall aim is unanimous.

Furthermore, the simplistic nature of these earlier generation approaches is viewed as being negative because they reduce the complex reality of organizations to a small number of predictor variables and processes and in doing so fail to capture what is potentially important across different types of jobs. They essentially ascribe employee well-being to a defined set of predictor variables irrespective of the context under study (Lewig & Dollard, 2003) and are therefore viewed as being prescriptive and static in nature without considering that each context may have different predictors, or combinations of predictors of well-being and performance related outcomes. For example, considering jobs such as air traffic controllers or a psychologist where cognitive processing or emotional intelligence are important respectively, it is unlikely that in all contexts control is the single most important job resource (drawing on the
demand-control model; Karasek, 1979). Supporting this is the fact that each earlier generation theoretical approach postulates different workplace predictors or focuses on different processes as being the most important, yet none of them fully corroborate.

As workplaces today are rapidly evolving, theories need to be flexible to account for constant change. Workplaces, contracts of employment and the general nature of jobs are no longer static, with distinct working conditions being negotiated and more complex employee expectations being realized meaning that for any theory to be used in the future it has to be flexible for incorporating constant change. Therefore, utilizing an approach that dictates a small set of predictors or processes becomes illusionary and needs to be replaced with more realistic representations if organizations are to successfully implement interventions. By drawing on the vast literature base that surrounds these earlier approaches, considering their limitations and what needs to be achieved in an increasingly complex world of work, the JD-R model emerged (see figure 2.1, p. 24).

The JD-R model of burnout was quickly adopted as an approach for understanding the development of a range of negative and positive outcomes relating to well-being and performance (Bos et al., 2009). This model attempts to overcome limitations of earlier theories by offering an over-arching, flexible (although this flexibility could also be viewed as a weakness as it commands knowledge of what the influential demands and resources are, specific to a particular context and prior to application as a job design tool) and balanced model that considers the stress and motivation research traditions, the impact of job and personal characteristics along with the positive and negative outcomes of the work context, claiming applicability to a multitude of contexts (Bakker
& Demerouti, 2007; Bakker et al., 2010b; Lewig & Dollard, 2003). It does so by proposing that all antecedents to burnout and engagement can be grounded in two over-arching categories of demands and resources regardless of the work context, occupation or employee. Supporting this approach is the knowledge that a considerable amount of burnout and engagement research has adopted this demands-resources perspective (Alarcon et al., 2009; Crawford, LePine, & Rich, 2010; Halbesleben, 2010; Park et al., 2009; Taris, 2006). A detailed overview of the JD-R model is provided in the next section.

2.1.2 The JD-R model

This section introduces the JD-R model and its development as a response to shortcomings of earlier models and theories (section 2.1.1), informs about its major assumptions and identifies the international work context as a possible extension on the path to further develop the JD-R model. The main component to the model that arguably separates it from earlier models is the flexible nature achieved in its attempt to synthesize previous theoretical insights. At its core the JD-R model assumes that whilst every occupation and context carries its own set of prominent risk factors, all job characteristics can be classified into either job demands or job resources which through direct or interaction processes affect well-being and performance related outcomes such as burnout and engagement (Demerouti & Bakker, 2011). Therefore, unlike its predecessors the most important job demand or resource depends on the occupation and context, allowing the theory to be applied to any work environment or occupation (Hansen, Sverke, & Naswall, 2009).
Figure 2.1: The JD-R Model

Job Demands \rightarrow Burnout

Job Resources \rightarrow Engagement

Health impairment pathway
Buffer hypothesis
Coping hypothesis
Motivational pathway

Linear effects \rightarrow
Moderating effects \rightarrow
Job demands (e.g. high workload, role ambiguity and role conflict) refer to any physical, social, psychological or organizational aspect of the job that requires the employee to continually engage in physical or mental effort (Bakker & Demerouti, 2007). Job demands only lead to negative outcomes when the individual has not adequately recovered from the effort expended (Bakker & Demerouti, 2012; Meijman & Mulder, 1998). Job resources (e.g. autonomy, support and job security) on the other hand refer to physical, social, psychological or organizational aspects of the job that play an intrinsic or extrinsic motivational role (Bakker, Demerouti, & Euwema, 2005a; Bakker et al., 2007; Llorens et al., 2006). Figure 2.1 (p. 24) shows the JD-R model adapted from Demerouti and Bakker (2011). This figure depicts the dual processes, coping and buffer hypothesis which represent the most well-researched aspects of the model.

2.1.2.1 Dual processes: Health impairment and motivational pathways

Both categories of workplace characteristics evoke different, yet related psychological effects called the health impairment and motivational pathways. In the health impairment pathway, excessive job demands create a situation where the individual can become overburdened and is required to expend increasing amounts of effort in order to maintain performance levels. This activates an energy depletion process made worse by an imbalance of effort and recovery (Akhtar & Lee, 2010), causing subsequent health problems over the long-term (Bakker & Demerouti, 2007). In an attempt to preserve energy reserves, employees might reduce the effort expended (Van den Broeck et al., 2010) often manifesting as reduced performance, an increase in sickness absence
Conversely, the motivational pathway assumes that job resources carry motivational potential to enhance engagement and other positive organizational outcomes such as performance (Bakker et al., 2008) and commitment (Parzefall & Hakanen, 2010) via intrinsic motivation which encourages growth, learning and development or extrinsic motivation by being functional in achieving work goals (Demerouti & Bakker, 2011). Job resources therefore fulfill basic psychological needs such as the need for autonomy, relatedness and competence (Bakker & Demerouti, 2012; Ryan & Deci, 2000). Consequently, job demands are generally the most important predictors of negative outcomes (e.g. burnout, low productivity) whereas job resources are the most important predictors of positive outcomes (e.g. engagement, commitment, performance) (De Lange, De Witte, & Notelaers, 2008; Halbesleben, 2010).

A number of key studies support the dual processes and the idea that job demands and resources initiate two different psychological processes that eventually lead to negative or positive organizational outcomes, via burnout and engagement respectively (e.g. Bakker et al., 2003a; Demerouti et al., 2001; Hakanen et al., 2006). In a study with 477 Dutch call centre employees, Bakker, Demerouti and Schaufeli (2003b) demonstrated the value of the JD-R model for predicting self-reported absenteeism and turnover intention. Using structural equation modeling, job demands (i.e. work pressure, computer problems, emotional demands and changes in tasks) were shown to be the most important predictors of sickness absence via health problems (i.e. exhaustion and repetitive strain injury) and job resources (i.e. social support, supervisory coaching,
performance feedback and time control) were the most important predictors of turnover intentions via involvement (i.e. dedication and organizational commitment).

Similarly, Bakker et al (2004) showed with 146 employees from a range of occupations and job sectors that high job demands (workload, emotional demands and work-home conflict) were the most important predictors of exhaustion, which in turn predicted in-role performance. Job resources (autonomy, possibilities development and social support) were the most important predictors of extra-role performance via (dis)engagement. In a study with Finish dentists, Hakanen et al (2008b) in a two-wave, three-year longitudinal design showed that job resources (e.g. craftsmanship, professional contacts and length of time to results) directly influenced future engagement, which subsequently predicted organizational commitment and job demands (quantitative workload, work content and physical work environment) predicted burnout over time which led to symptoms of depression. Comparable results have also been found by Jackson, Rothman and van de Vijver (2006) with respect to ill health and organizational commitment as outcomes of the health impairment and motivational pathways, along with Dollard and Bakker (2010) regarding job demands (psychological demands, emotional demands) and job resources (decision authority, skill latitude with burnout and engagement respectively.

However, despite the fact that empirical research supporting the health impairment and motivational pathways has been steadily increasing since the models introduction in 2001 (see Bakker & Demerouti, 2007; Demerouti & Bakker, 2011), findings are not entirely consistent. With regards to the health impairment pathway, Bakker et al (2008) linked self-report questionnaire responses of work characteristics from 176 temporary
agencies employees to company objective performance systems and found that exhaustion did not mediate the relationship between job demands (work pressure, emotional demands and work-home conflict) and performance. Lee (2011) and Brenninkmeijer et al (2010) also report positive, yet non-significant correlations between job demands and burnout. The former with respect to workload with exhaustion and cynicism, the latter with regards to interpersonal conflict and exhaustion.

With regards to the motivational pathway, in a two-year longitudinal study of 409 Finnish health care professionals Mauno, Kinnunen and Ruololainen (2007) assessed the relationship between job resources (job control and management quality) and engagement (vigor, dedication and absorption). The positive effect of job control on dedication was the only relationship that remained statistically significant after controlling for baseline engagement. Furthermore, Schaufeli and Bakker (2004) found that engagement mediated the relationship between job resources and turnover intention in only three out of four samples and Hakanen, Bakker and Schaufeli (2006) reported a weak relationship between job resources and engagement in their sample of Finnish teachers.

2.1.2.2 Interaction effects: Coping and Buffer hypothesis

The JD-R model also proposes key interaction effects between job demands and resources. Firstly, job resources are valuable because they hold potential to reduce the initial generation of certain demands or alter employee perceptions of and responses towards demands, thus offering a protective element, which reduces the risk of burnout
(Bakker & Demerouti, 2007; Kahn & Byosserie, 1992). The JD-R model expands the Demand-Control model (Karasek, 1979) and effort-reward model (Siegrist, 1996) by claiming that any set of job resources (i.e. as opposed to control, support or rewards only) can buffer against or weaken the health impairment pathway (Demerouti & Bakker, 2011). This viewpoint is consistent with Kahn and Byosserie (1992) who claim that any type of job or individual characteristic can interact in the stress-strain sequence. This ‘buffering hypothesis’ is thought to occur for different reasons depending on the types of resources. For example, job autonomy is thought to provide individuals with more self-chosen opportunities to cope with stressful events, thus enhancing health related outcomes (Karasek et al., 1998). Social support however allows individuals to achieve work goals in a more direct manner e.g. it might help reduce the time spent on work (Van Der Doef & Maes, 1999).

Secondly, termed the ‘coping hypothesis’ the JD-R model assumes that job demands amplify the motivational pathway in that for job resources to be the most effective at creating a motivational component the individual must be presented with a challenge demand. In other words job resources will influence engagement more when job demands are high (Demerouti & Bakker, 2011). The coping hypothesis is not to be confused with the potential of job resources to help individuals cope with high job demands as represented in the buffer hypothesis. Rather, the coping element of this interaction effect emerges when individuals are threatened with resource loss by the presence of high job demands and therefore cope by increasing their dedication to work in order to retain current resources and gain more (i.e. as individuals are naturally motivated to accumulate increasing resources). This idea draws on the Conservation of Resources theory (Hobfoll, 1989) which assumes that when individuals are threatened
with resource loss, they will be increasingly motivated to protect their resources and gain more at the same time, thus increasing the amount of engagement.

Several studies have demonstrated support for these interaction effects. Firstly, regarding the buffer hypothesis, in a cross-sectional study with 747 care home employees, Xanthopoulou et al (2007b) assessed interaction effects between job demands and job resources (i.e. autonomy, social support, performance feedback and opportunities for development) in the prediction of burnout. 66% of all interaction effects were significant and in the expected direction. Within this, job resources had a stronger moderating effect on the relationship between emotional demands/patient harassment and burnout than of workload/physical demands and burnout. Specifically, autonomy followed by support and opportunities for professional development were the strongest buffers against job demands for exhaustion and cynicism. Similarly, with a sample of 805 Finnish teachers, Bakker et al (2007) found that job resources (e.g. supervisor support, innovativeness, appreciation and organizational climate) weakened the negative relationship between job demands (e.g. pupil misconduct) and engagement. This study also showed that the motivational pathway was stronger when teachers were confronted with high levels of pupil misconduct, providing support for the coping hypothesis.

Hakanen et al (2005) also predicted that job resources (e.g. variability in professional skills, peer contacts) would be valuable for preserving engagement under conditions of high job demands (e.g. workload, un-favourable physical environment). The sample of 1919 Finnish dentists was split into two random groups to cross-validate the findings and hierarchical regression analysis was used to assess the moderating effect of job
demands on the motivational pathway. 40% of interaction effects were significant demonstrating that for example, variability in professional skills increased engagement when qualitative workload was high. These results are corroborated elsewhere (e.g. Bakker et al., 2005a; Bakker et al., 2004; Bakker et al., 2011; Rothmann & Joubert, 2007) and in sum show that firstly an employee can experience favourable outcomes when they are faced with high job demands, if they are able to draw on job resources and having the right mix of demands and resources is important as employees will thrive in challenging, resourceful work environments.

2.1.2.3 The role of personal resources

The JD-R model suggests that personal resources are important in the development of burnout, engagement and associated outcomes, operating in much the same way as job resources (Xanthopoulou et al., 2007a). Personal resources can be defined as aspects of the self, which refer to an individual’s ability to be resilient, control and impact upon their environment successfully (Hobfoll et al., 2003). They typically encompass positive self-evaluations that can be developed and managed within the work context (Hakanen & Roodt, 2010) and can predict a range of desirable outcomes such as engagement, motivation, performance and goal setting (see for a review Judge, Van Vianen, & De Pater, 2004).

It is thought that individuals with high levels of personal resources have higher positive self-regard, creating intrinsic motivation directed at pursuing goals, which triggers higher performance and satisfaction (Bakker & Demerouti, 2012). Associated research has typically examined either the direct relationship of personal resources with burnout
and engagement or the mediating/moderating role of personal resources in the relationships between job demands/job resources with burnout/engagement. Unfortunately, JD-R research to date has not included the negative side to individual differences (e.g. personal demands). For example, a lack of conscientiousness could be a hindrance for individuals required to work to tight deadlines.

The majority of findings suggest that personal resources carry a negative association with burnout (e.g. Brenninkmeijer et al., 2010; Garrosa et al., 2011; Peng, Wong, & Che, 2010) and a positive association with engagement (e.g. Alarcon et al., 2009; Bakker & Leiter, 2010; Dikkers et al., 2010; Halbesleben, 2010; Mauno et al., 2007; Xanthopoulou et al., 2009a) which is consistent with previous findings not related to the JD-R model (see Xanthopoulou et al., 2007a). Findings are not entirely unanimous though. In a sample of 284 self-employed individuals, Rubino et al (2009) found that intrinsic motivation was negatively related to cynicism and reduced professional efficacy but positively related to exhaustion. Given that the sample were various self-employed individuals who typically possess passion, enthusiasm and high self-esteem (conditions thought to be characteristic of those high in intrinsic motivation) (Deci & Ryan, 1985; Ryan & Deci, 2000) they may be less susceptible to experiencing cynicism and reduced professional efficacy despite becoming increasingly exhausted.

With regards to the mediating role of personal resources in the JD-R model, the majority of JD-R studies have examined their role in relation to the motivational pathway. For example, in a study with 714 employees from an electrical engineering and electronics company in the Netherlands, Xanthopoulou et al (2007a) found that personal resources (optimism, self-efficacy, organizational based self-esteem) partially
mediated the relationship between job resources (autonomy, social support, supervisory coaching, professional development) and engagement and fully mediated the relationship between job resources and exhaustion. In a later five-day diary study with 42 employees of a fast food company, Xanthopoulou et al (2009b) found that the same personal resources measured at day level mediated the relationship between job resources (autonomy, supervisory coaching, team climate) and engagement after controlling for general levels of personal resource and engagement.

Vink, Ouweneel and Le Blanc (2011) also found that psychological capital (self-efficacy, optimism, hope, resiliency) mediated the motivational pathway with similar results being found by Van den Broeck et al (2008) regarding the mediating role of the satisfaction of basic psychological needs in the health impairment (exhaustion only, full mediation) and motivational (vigor only, part mediation) pathways. However, whilst Rubino et al (2009) also found that personal resources fully mediated the health impairment pathway this was only for reduced professional efficacy, not cynicism or emotional exhaustion. Lastly, in a five-day diary study with 42 employees, Tims, Bakker and Xanthopoulou (2011) demonstrated how day level optimism fully mediated the relationship between daily transformational leadership style and engagement but self-efficacy did not.

The moderating role of personal resources in the JD-R model has received less attention, with studies focusing on the health impairment pathway. This trend could have emerged from earlier non JD-R studies, which mainly examined personal resources with respect to the work characteristic-negative outcome relationship (Xanthopoulou et al., 2007a). For example in the study outlined above, Xanthopoulou et
al (2007a) also found that personal resources did not moderate the relationship between job demands and exhaustion. Conversely, Tremblay and Messervey (2011) found that the personal resource of compassion satisfaction (i.e. fulfillment experienced by caregivers) moderated the health impairment pathway by protecting individuals from job strain as a result of role over-load. Similarly in a sample of 459 South African public sector employees, Williams and colleagues (2009, 2010) found that emotional intelligence moderated the relationship between growth opportunity/advancement and dedication (but not vigor), with self-efficacy slightly moderating the relationship between growth opportunities and dedication. It is important to note in these two studies that a range of job demands and resources were measured which did not result in any significant moderating effects.

As can be seen, there is mixed evidence on the role of personal resources within the JD-R model. Nevertheless, it is clear that they carry direct implications for burnout and engagement and can act as either mediators or moderators in the relationship between work characteristics and burnout and engagement (Xanthopoulou et al., 2007a). Evidence clearly suggests that personal resources carry potential to positively influence the way an individual interprets and reacts to the work environment (Judge, Locke, & Durham, 1997), so if scholars and practitioners have a greater understanding of how individual differences alter employee responses or of the factors that make employees more prone to developing burnout and engagement, they will be better armed for creating a more positive work environment. For example, an individual high in efficacy beliefs or optimism might believe that they are more capable of handling the work environment leading them to pursue goals more readily, thus enhancing engagement. Alternatively they may more easily rationalize or accept the difficulties presented by job
demands making them more resilient to burnout. Establishing for example, which personal resources are most important for positively responding to changing work environments could direct intervention efforts into encouraging the development and activation of such resources or provide more substance to personality testing.

2.1.2.4 Curvilinear relationship: Job demands and engagement

A recent distinction has been made within the JD-R model between challenge and hindrance job demands (Crawford et al., 2010; Van den Broeck et al., 2010). In a similar manner to job resources, challenge job demands (i.e. workload, responsibility) are those that carry potential to promote personal growth and achievement (Podsakoff, LePine, & LePine, 2007). They are often perceived as opportunities to learn, achieve and demonstrate competence, creating a rewarding experience. As a result, despite the potential for energy depletion, positive emotions (i.e. excitement, eagerness) and an active problem-solving coping style can be generated through a willingness to invest effort that is rewarded in a meaningful way (i.e. formal recognition) (Crawford et al., 2010). On the other hand, hindrance job demands (i.e. role overload, internal politics) are aspects of the work context that involve extreme and/or unfavorable constraints which prevent an employee from achieving personal growth, learning and goal attainment and as such they are thought to carry stronger associations with burnout than challenge job demands (Cavanaugh et al., 2000; Crawford et al., 2010).

As all types of demands are thought to activate a health impairment process (Crawford et al., 2010), research on the different role of challenge and hindrance job demands in the JD-R model has tended to concentrate on the less established relationship between
challenge job demands and engagement, with contradictory findings. For example, Van
den Broeck et al (2010) found that workload/cognitive demands positively correlated
with vigor and Dikkers et al (2010) found that quantitative demands positively
correlated with vigor/dedication/absorption. However, Williams and colleagues (2009,
2010) found no significant correlation between overload with dedication/vigor and
Mauno et al (2007) reported mixed findings with weekly hours worked/time demands
both positively correlating with absorption, but not with dedication/absorption and this
was to a lesser degree than job control or organizational based self-esteem.

Inconsistent findings such as these have led some scholars to conclude that demands are
irrelevant for engagement (Schaufeli & Bakker, 2004). However, Van den Broeck and
colleagues (Van den Broeck et al., 2010; 2008) found through confirmatory factor
analyses of two different samples that a three factor model of job characteristics (i.e. job
hindrances, job challenges, job resources) offered a better fit to the data than a one or
two factor model. They also found that job hindrances positively relate to exhaustion
and negatively to vigor whilst job challenges were unrelated to exhaustion and
positively related to vigor. It is worth considering that if demands were irrelevant for
engagement we would not see any significant correlations in any direction. As noted by
Demerouti and Bakker (2011), there lacks sufficient empirical evidence to draw
conclusions on the differentiation between challenge and hindrance demands, their
independent roles in the JD-R model and whether these assumptions are valid for
different occupational contexts.

Differences across studies could be due to an inverted U-shaped relationship that may
be more pronounced for complex jobs such as those involving international business
travel. According to activation theory this is because when individuals operate at either a low or high level of activation their ability to process information becomes impaired (Gardner & Cummings, 1988). For simple jobs, information processing capacity is less important and therefore job under/overload (e.g. low or high workload) will have less impact on performance outcomes (Janssen, 2001). However, for complex managerial jobs such as those involving international business travel, where individuals are faced with working across dual or multiple contexts, dealing with cultural differences, unique tasks and so forth, constant high information-processing is required and therefore extremes in activation level will likely affect performance by lowering information processing capacity when it is even more essential (Janssen, 2001). Further supporting the idea of a curvilinear relationship between challenge demands and engagement is previous literature showing that an inverted U-shaped relationship has been found between job stimulation and job performance (Gardner, 1986) and job complexity with affective outcomes (Champoux, 1992).

Whilst it is often difficult to remove certain job demands due to the nature of the job (e.g. the time urgency of a deadline) encouraging employees to focus on challenge as opposed to hindrance job demands could alter their appraisal of the job (Lazarus & Folkman, 1984) helping to create a sense of engagement without actually being faced with the difficult task of removing an unavoidable work characteristic. Therefore, in a world where time and effort is money and organizations are constantly seeking better ways to maximize return on investment, understanding the role of challenge demands could be a fruitful avenue for JD-R associated interventions. As such, this aspect of the JD-R model requires further investigation.
2.1.2.5 Burnout and engagement in the JD-R model

The term ‘burnout’ was first used in the United States in the late 1960s and since has become a topic well researched globally in the pursuit of understanding employee well-being. Burnout can be defined as “a prolonged response to chronic emotional and interpersonal stressors on the job” (Maslach, 2001, p. 397) and as the definition adopted by the JD-R model is today most commonly represented by three robust and conceptually distinct concepts being (emotional) exhaustion, cynicism (sometimes referred to as depersonalization) and reduced professional efficacy (Boersma & Lindblom, 2009; Maslach et al., 2001). Exhaustion refers to an inability to perform ones job tasks as a result of energy drainage from feeling overextended. Cynicism refers to psychological distancing and lack of identification with the job. Reduced professional efficacy refers to feelings that one is no longer effective in their job. Maslach and colleagues encouraged burnout to be viewed as a multidimensional construct whereby each component may have differential relationships with job characteristics, demographic characteristics and so forth (Wittmer & Martin, 2010).

As a result, in line with Leiter and Maslach’s (1988) process model of burnout, emotional exhaustion is widely considered to be the most central component of burnout, followed by cynicism and then reduced professional efficacy (Cordes, Dougherty, & Blum, 1997). This is because emotional exhaustion represents an initial direct response to chronic job demands (e.g. quantitative work overload), whereas cynicism refers to an attitude that emerges in response to an individuals coping method (e.g. by gaining psychological distance) and over time this creates negative feelings about one’s ability to be competent in achieving job tasks, often influenced by the extent one feels appreciated represented by reduced professional efficacy (Cordes et al., 1997). Whilst
other process models of burnout have been suggested (e.g. Golombiewski, Munzenrider, & Stevenson, 1986; Van Dierendonck, Schaufeli, & Buunk, 2001), the aforementioned emotional exhaustion-cynicism-reduced professional efficacy process has received the most support (e.g. Bakker et al., 2000; Cordes et al., 1997). Therefore, it has been suggested that emotional exhaustion is most strongly associated with demand stressors, cynicism with variables relating to the perception of the job environment and professional efficacy with variables associated to feelings of being appreciated (Cordes et al., 1997). Despite research pointing at this sequence, the JD-R model doesn’t consider the developmental sequence of the three components of burnout.

As outlined in section 1.2.1, burnout is considered to be a global phenomenon. To some degree, believed to be due to a lack of longitudinal studies and measurement of objective work characteristics, inconsistent findings exist regarding the predictive value of burnout for performance (Taris, 2006). However, this appears to be more in relation to cynicism and reduced professional efficacy as opposed to exhaustion, placing exhaustion as an important predictor of performance (Halbesleben & Bowler, 2007). For example, Wright and Bonett (1997) found that emotional exhaustion significantly predicted task performance over a two year study at a more than satisfactory level, whereas depersonalization and reduced personal accomplishment did not (please note the latter two dimensions were typically used in burnout research in the 1980s and currently are proxy for the more recent cynicism and reduced professional efficacy). Wright and Cropanzano (1998) also found emotional exhaustion to be a healthy predictor of performance. Burnout has also been linked to a wide range of personal, interpersonal and organizational risk factors across a variety of occupational contexts and is considered important for employee attitudes (e.g. job dissatisfaction), health (e.g.
infection, depression) and behaviours (e.g. absenteeism, turnover intention, poor performance) making it extremely relevant for organizations as these outcomes directly or indirectly lead to financial loss (see Alarcon et al., 2009; Lee & Ashforth, 1996; Schaufeli, 2003).

An increasing interest in positive psychology has led to a sharp rise in empirical studies on engagement since the late 1990’s (Bakker, Albrecht, & Leiter, 2011). A concept originally termed by Kahn (1990), it is now most typically defined as “a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption” (Schaufeli & Bakker, 2004, p. 295), a definition adopted by the JD-R model. It characterizes an experienced state where employees: are feeling energized, possess mental resilience and a willingness to invest effort even in the face of difficulties (vigour); feeling involved in work, viewing tasks as significant and meaningful (dedication); and are engrossed in their work (e.g. absorption) (Bakker & Bal, 2010). Such a state develops inspiration amongst teams via the crossover of engagement (Bakker et al., 2011; Bakker, van Emmerik, & Euwema, 2006; Bakker, Westman, & van Emmerik, 2009; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008a) and can help individuals craft their own jobs especially if they are drawing on a proactive personality (Bakker, Tims, & Derks, 2012). Engagement is thought of as a relatively stable variable due to largely unchanging work environments (Macey & Schneider, 2008), however daily and weekly fluctuations can be experienced (Bakker & Bal, 2010; Xanthopoulou et al., 2008). It is conceptually distinct from other motivation related constructs, which are often used to describe engagement but are best conceptualized as outcomes (e.g. commitment, satisfaction, turnover intention) (Bakker, Albrecht, & Leiter, 2011).
Engaged employees tend to possess a positive attitude, are highly energetic and self-efficacious and whilst they can feel tired after hard work, it tends to be described as satisfying due to being associated with accomplishment (Bakker et al., 2011). Whilst some researchers have documented a negative side to engagement such as work-family conflict (Halbesleben, 2011), increasing job demands (Sonnentag, Binnewies, & Mojza, 2010) and job crafting at the expense of the team (Bakker et al., 2011) the importance of improving and maintaining engagement is evidently important for attitudes (Schaufeli et al., 2008), financial returns (Xanthopoulou et al., 2009b), health (Demerouti et al., 2001; Shirom, 2011), turnover (Schaufeli & Bakker, 2004) and job performance (Bakker & Bal, 2010; Halbesleben & Wheeler, 2008) amongst other outcomes (see Schaufeli & Bakker, 2003).

Early research on engagement frequently focused on its relationship with burnout considering it to be the positive antithesis and since, different views have emerged regarding the dimensionality and associated measurement of burnout and engagement. Research has suggested that exhaustion/vigour are the most strongly related and sit on a continuum labelled ‘energy’ and dedication/cynicism sitting on a continuum labelled ‘identification’ (Gonzalez-Roma et al., 2006; Halbesleben, 2010). The direct opposite of reduced professional efficacy is not included in the engagement concept and likewise absorption does not have a burnout counterpart (Halbesleben, 2010; Schaufeli & Bakker, 2003). This is because there is accumulating evidence that exhaustion and cynicism represent the core of burnout with reduced professional efficacy playing a less important role (Maslach et al., 2001) and absorption (i.e. being engrossed in one’s work) best captures a third element to engagement, not represented by feelings of efficacy (Schaufeli & Bakker, 2003). In fact professional efficacy has been shown to load onto engagement more than burnout (see Schaufeli & Bakker, 2010).
Intending to further determine if burnout and engagement are bipolar opposites and should therefore be measured by one instrument, Demerouti et al (2010) assessed their dimensionality in a recent study with 528 South African construction industry employees using the Oldenburg Burnout Inventory (Demerouti et al., 2001; Demerouti et al., 2010; Halbesleben & Demerouti, 2005), Maslach Burnout Inventory (Maslach & Jackson, 1986) and Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003). They found that whilst the identification dimension represents a continuum (e.g. cynicism is an erosion of dedication) the energy dimension did not, although exhaustion and vigor were highly correlated. Therefore one measurement instrument could be used for measuring cynicism/dedication yet different scales for exhaustion/vigor are required and of course, inefficacy or absorption. These findings carry implications for the design of interventions. The dimensionality issues also suggest we could be dealing with profiles of burnout and engagement as opposed to employees being burned out or engaged (Demerouti, Verbeke, & Bakker, 2005).

Whether burnout and engagement are bipolar opposites, some also suggest they should be treated as conceptually distinct and measured independently, with for example the Maslach Burnout Inventory and the Utrecht Work Engagement Scale (Schaufeli et al., 2002). The idea behind this is that an instrument of purely negatively or positively phrased items can’t capture the concepts opposite accurately and may contain less relevant wording (Demerouti et al., 2010) e.g. individuals may be low on cynicism but not high on dedication. As the relationship between burnout and engagement is not entirely conclusive yet and literature is still trying to establish the role and strength of absorption/reduced professional efficacy and the energy/identification dimensions, JD-R literature has tended to although not exclusively measure burnout and engagement.
separately (Schaufeli & Bakker, 2003). Various versions of the Utrecht Work Engagement Scale and Maslach Burnout Inventory have been used and to a lesser degree the Oldenburg Burnout Inventory, as these three instruments theoretically capture the most widely used definitions as outlined above.

2.1.2.6 A robust model yet not a theory?

The JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001) has received increasing support over the last decade as a valuable framework for organizing antecedents to burnout and engagement and there has been a significant amount of research published which uses the assumptions of the JD-R model to examine a variety of positive and negative outcomes such as organizational commitment (Bakker et al., 2003b), performance (Bakker et al., 2004), job attitudes (Demerouti et al., 2004) and sickness absenteeism (Schaufeli et al., 2009b). Since its inception there has been a global surge in related research across a variety of national work contexts (Wilcox & Kittler, 2011) in order to predict a range of outcomes e.g. organizational commitment (Bakker et al., 2003b), performance (Bakker et al., 2004) and job attitudes (Demerouti et al., 2004), highlighting it’s value for diverse and/or changing national and even international work contexts.

Furthermore, Llorens et al (2006) tested the robustness of the JD-R model with two different occupational samples in Spain \( n = 654 \) and the Netherlands \( n = 477 \) and found that the basic structure of the model upheld within different national and occupational contexts using different methodologies. Evidence that the JD-R model extends previous theory in a flexible and rigorous manner has also been demonstrated by Lewig and Dollard (2003), who found that the JD-R model accounted for more
variance in emotional exhaustion and job satisfaction than the Job Demand-Control model or Effort-Reward Imbalance model in a sample of 98 Australian call centre employees. Similar results were found by Van Veldhoven et al (2005) who found the JD-R model provided a better understanding of the impact of the work context on well-being than the Job Demands-Control (-Support) model, in a study with 37291 Dutch employees.

What was originally a theory regarding the development of burnout from two types of work characteristics developed into a model that since has been constantly evolving to fully capture the complex world of work. Over the years, there appears to have been interplay between theory and model development whereby theory originally produced a model that was used to test that theories viability. This process created additional theoretical ideas that in turn led to further model development and so forth. In this sense ‘theory’ refers to an original, useful, relevant set of statements about concepts and their interrelationships, which together explain a phenomena (Corley & Gioia, 2011). A ‘model’ on the other hand refers to a manifestation (often depicted graphically) or description of this theory that is used to further test its fundamental underlying structure.

Whetten (1989) suggests a complete theory must contain particular elements according to the following: what factors (variables, constructs and concepts) help explain the phenomena of interest, which can be assessed by considering comprehensiveness (i.e. inclusion of all relevant factors) and parsimony (i.e. deletion of factors due to minimal contribution); how these factors are related, what patterns are involved and does causality exist; establishing why these processes exist and using logic to explain them
(e.g. theoretical assumptions have to make sense); and lastly establishing the boundaries or limitations of theory by confirming the whom, where and when of application is important. The first two describe what is happening and might refer to a ‘model’ whereas the third provides an explanation, moving towards a ‘theory’. Together these constitute a simple theory or perhaps one that is still emerging. The fourth aspect is required to create a complete theory.

With this in mind, the JD-R model still has a long way to go before it is complete. Despite that the original developers of the model claim we now have a fully complete JD-R theory (see Bakker & Demerouti, 2012) it doesn’t account for the ‘whom, when and where’ that is needed for a complete theory. We may be able to claim ‘theory’ stance regarding certain aspects of the model in relation to particular contexts (e.g. teachers, dentists, care staff as being well represented in JD-R literature) but not if this theory is to be used on an all-encompassing flexible nature as originally intended e.g. in the modern world of work that incorporates constantly evolving international work contexts. Therefore in pursuit of a complete JD-R theory research must re-consider all aforementioned elements (e.g. what, how, why), as outlined by Whetten (1989).

2.2 The JD-R model and the international work context: A systematic review to analyze a gap in the literature

While the universal applicability of traditional human resource management theories has been subject to discussion (e.g. Brewster, Sparrow, & Harris, 2005), some newer theories are still developed within one national context (although perhaps intended to be used cross-nationally) and leave it up to future research to assess their applicability in
other national or cross-national contexts. To avoid relying on potentially damaging assumptions of universal applicability, it is necessary to revisit such conceptualizations to empirically assess whether they accurately reflect the challenges and realities of a (nationally distinct) work context which is different from the one in which it was originally developed. The JD-R model is an example of such a theory. Beyond the requirement to establish evidence-based universal applicability, literature surrounding the JD-R model appears to be at a critical point whereby a high quality systematic review is timely and warranted in order to provide evidence-based insight into the field that can enable future researchers to build on prior findings in an appropriate manner, advancing knowledge and enabling practitioners to access important research (Briner & Denyer, 2012).

2.2.1 Relevance and aim

Ashcraft et al (2011) recently renewed the call for research examining how well existing theories and assumptions about management research apply in changing work environments. With an increasing need for employees and companies to function successfully in an internationalizing environment (Caligiuri & Colakoglu, 2007; Stroh et al., 2005), this call may particularly apply to human resource management theories and conceptualizations (such as the JD-R model) that emerged out of a single national context but have arguably shown the potential to be valuable within other national as well as international contexts.

Within the international work context, prevailing in multinational corporations but also of importance for smaller and non-profit organizations (Brewster & Scullion, 1997;
pressures arise from factors such as geographic dispersion and frequent mobility (Taylor et al., 2008) that may create different types of employees and job characteristics. Making this systematic review more necessary are two questions of high relevance to practitioners and scholars alike. Firstly, whether theories such as the JD-R model developed in national contexts can cope with variations across different national work contexts and secondly whether they are able to respond to the international imperative (Brewster et al., 2005) without specific theoretical development.

While both the human resource management and international human resource management literature streams appear to analyze identical or at least related outcomes, little cross-pollination seems to take place. In the international context meta-analytic evidence (Bhaskar-Shrinivas et al., 2005; Hechanova et al., 2003) indicates that the association of components that are used to assess the relationship between job characteristics, well-being and performance-related outcomes in national settings have also been addressed in international contexts, albeit this has been based on different conceptualizations. As the two research streams, human resource management and international human resource management literature (e.g. focusing on foreign assignments) show convincing points of contact, it seems surprising they appear to be largely independent of each other and scholars seem to form mutually exclusive peer groups. This section attempts to make the boundaries between these two groups more permeable.

Following the discussion above, the overall aim of this section is to provide a synthesis and evaluation of literature surrounding the JD-R model from a different perspective.
that has already been outlined pointing towards current and emerging insights. Two subsequent objectives are: (1) to analyze the use of the JD-R model in empirical research in particular (a) the extent to which the model found empirical support in different national settings (b) and in cross-national settings; (2) identify from current empirical literature if any developments or amendments to the model are required that may foster its use in international contexts that can then be pursued in future research. It is not an objective of this section to lead a generic discussion of whether human resource management theories are applicable universally, which has already stimulated intense discourse in the past (Wright, Snell, & Dyer, 2005).

Furthermore, whilst the JD-R model has been examined with respect to a range of outcomes, this review focuses solely on burnout and engagement as original outcome variables of the JD-R model (Demerouti et al., 2001). In order to respond to the research objectives outlined above, the remainder of this section is structured as follows. The next section will provide an overview of the methodology and provide detail on the modified systematic review approach employed to analyze the use and particularly the regional scope of the JD-R model in empirical research and the findings resulting from these studies. The following results section will present the major findings of the simplified systematic review and discuss them, concluding that there is very little research with an international element to it when it comes to the JD-R model. The section closes with an overview of major findings, limitations and major implications for future research.
2.2.2 Principles, method and sample

A first observation when engaging with JD-R research is an inflationary use of the model since its inception in 2001 (see section 2.1), yet there has been little attempt to review and assess the literature in a systematic manner. Different to what is presented in this section, the few existing attempts of narrative reviews (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011) and meta-analysis (Crawford et al., 2010; Nahrgang et al., 2011) have either drawn on literature external to the JD-R model or not included literature based on essential criteria, therefore not offering an appropriate synthesis of evidence that is important for informing future research, policy and practice (Tranfield, Denyer, & Smart, 2003). However, as research results accumulate it becomes increasingly difficult to compile and integrate them yet at the same time systematic reviews become an even more necessary tool for managing diversity of knowledge and are regarded as fundamental for identifying key scientific contributions and future research avenues (Tranfield et al., 2003).

Systematic reviews originally emerged in response to an acknowledged requirement for evidence-based research within the medical literature (Denyer & Neely, 2004; Tranfield et al., 2003) and are now considered “a key tool for advancing scholarship in management and organization studies and improving the practice of management” (Briner & Denyer, 2012, p. 329). They focus on pulling together existing empirical evidence, regardless of publication outlet or disciplinary backdrop (Thorpe et al., 2005) and “consolidating knowledge around a defined and agreed agenda” (Briner & Denyer, 2012, p. 331), in this case the cross-national and international application of the JD-R model.
A well-conducted systematic review that adheres to a set of core principles allows a broad impartial summary of existing research, that is inclusive of different epistemologies whilst maintaining rigor for appraising evidence (Thorpe et al., 2005). The systematic approach therefore provides an essential tool for advancing evidence-based research in a particular literature stream, in this section represented in studies based on the JD-R model and consequently providing confidence for future researchers (Briner & Denyer, 2012). This section therefore aims at closing the research gap addressed above by adopting a systematic review method conducted in line with suggestions drawn from earlier papers in this journal (e.g. de Menezes & Kelliher, 2011; Denyer & Neely, 2004; Macpherson & Jones, 2010; Rashman, Withers, & Hartley, 2009; Thorpe et al., 2005). A narrative or meta-analytic review was considered less appropriate for these research objectives, as the former is considered less rigorous and the latter potentially problematic, making it an approach to pursue only if there is a distinct need that can’t be met elsewhere (Hunter & Schmidt, 2004; Miller, 2000). For example, if a meta-analysis is not conducted appropriately the researcher runs the risk of compounding the statistical errors from the individual studies or incorrectly synthesizing findings from disparate studies producing meaningless findings, which places the research at risk when judged against the clear, exhaustive, unbiased and precise nature of systematic reviews (Denyer & Neely, 2004; Tranfield et al., 2003).

There are a number of key principles inherent within quality systematic reviews, which this current review, adhered to where possible e.g. transparency, clarity, focus, synthesis (for a more detailed overview see Thorpe et al., 2005). By adhering to these, future repetition within the literature stream can be avoided and research efforts can become
more focused and united towards linking past research findings with future research endeavors (Tranfield et al., 2003). To ensure further rigor in this review the stages recommended by Tranfield (2003) were adhered to, which is based on an agreement of sought-after methodological characteristics (Davies & Crombie, 1998), useful for constructing a trustworthy knowledge base for future JD-R related studies.

In accordance with these guidelines, the researcher scoped the literature in more detail in order to generate a research question (outlined in section 1.3) and subsequent review protocol detailing for example, the research objectives and inclusion criteria carefully derived from review questions. A comprehensive literature search aimed at identifying all relevant research in the field and applying the boundaries of the inclusion criteria was conducted. Academic work was assessed for quality and work that was not based on criteria of academic quality was excluded. Data-extraction forms were utilized in order to reduce human error and bias in synthesizing data, including information such as the effect assessed, level of support, location of study and key findings. The remaining studies were analyzed according to user-driven research questions and findings discussed with the primary supervisor.

The basic user-driven research questions guiding the analysis were whether there is support across different national contexts for the following: (a) the health impairment pathway, (b) the motivational pathway, (c) the reversed health impairment pathway, (d) the reversed motivation pathway, (e) the buffer hypothesis and (f) the coping hypothesis. As the reader will see in this review, the reversed health impairment and motivational pathways have received less attention than the dual pathways yet are still considered important within the model and are therefore included here. As can be seen
in sections 2.1.2.3 and 2.1.2.4 respectively, additional effects have recently been introduced to the model that incorporate personal characteristics (see Bakker et al., 2010a) or distinguish between challenge and hindrance demands (see Crawford et al., 2010; Van den Broeck et al., 2010). However, as empirical evidence for these newer JD-R assumptions is still maturing there is little associated data to be included in the review. There was also interest in which of the studies associated with the JD-R model contain components of an international workplace and what these components or extensions are. These questions provided the basis for a review protocol.

Considering the basic premise of a systematic review is to search extensively in order to identify all relevant research, articles referring to the JD-R model were identified using major databases. The research was restricted to non-invited, peer-reviewed English language articles (to allow full comprehension of the studies by the researcher) published in print or accessible via online preview by May 2011, spanning the first decade of JD-R themed research since its inception in 2001. It can be assumed that despite the rigorous application of the search criteria not all studies referring to the JD-R model have been identified. However, it was assumed that for instance, foreign language findings (e.g. Dutch or German, considering the origin of the JD-R model) that would contradict the majority of findings in English language papers would at least be reported to some extent in the studies included in the systematic review. It should be noted that no articles were found with findings that contradicted the major findings in English language papers. Books, book chapters and non-peer reviewed journal articles were omitted to avoid overlap or repetition between book content and journal content and to ensure quality in the foundations of the review. It is felt that this approach allows an accurate depiction of pertinent scholarly research.
To assemble a representative sample of literature, the term ‘job demands-resources model’ and combinations of key terms (job demands, job resources, JD-R) were entered into EBSCO and Web of Science databases. The electronic search was supplemented with a manual search of reference lists. A total of 204 accessible articles were identified that made reference to the JD-R model which were subjected to further analysis. To be selected for further analysis the studies had to meet the following criteria in order to correspond to the research objectives outlined earlier: (1) publication between January 2001 and May 2011 (including online previews of articles), (2) presentation within the JD-R framework to ensure that the review solely synthesizes JD-R literature, (3) examination of individuals in a formal work setting to correspond to the work orientated nature of the JD-R model, (4) inclusion of at least two of the core dimensions of the JD-R model being a) job demands or job resources and b) burnout or engagement, to enable appropriate examination of the major effects outlined earlier, (5) examination of at least one additive or interaction effect of the JD-R model whether directly or indirectly via stated hypothesis to ensure the main effects that have emerged in JD-R literature are captured and (6) use of adequate scholarly apparatus to encourage quality in the studies included in the review.

The inclusion criteria were met for 62 studies, which were taken into consideration for further analysis. The studies analyzed are shown in alphabetical order in table 2.1 (p. 54) and numbered to allow for identification in the results and discussion sections below. The analytic process involved organizing results in accordance with the different additive and interaction effects. Using SPSS version 20, a Kruskal-Wallis analysis of variance test was used to assess whether the region of origin had a statistically
significant effect on the level of support for the motivational and health impairment pathways. Due to the small group sizes it was not deemed suitable to run similar statistical assessments for nation, the reversed pathways, interaction effects or methodological characteristics as the tests would lack power-efficiency (Siegel, 1957).

Table 2.1: Studies included in the systematic review (alphabetical order)

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<td>Kim and Stoner (2008)</td>
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<td>Xanthopoulou et al. (2009)</td>
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<td>61</td>
<td>Xanthopoulou et al. (2007b)</td>
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The analysis of the results was therefore primarily limited to descriptive rather than statistical methods, with depth being sacrificed for breadth. Since data collection beyond the descriptive categorization of articles was qualitative (e.g. types of theories used, conceptualization of constructs, explanatory rationale), a corresponding analysis method was required. The presentation of the findings in the following section emphasizes the geographic scope of each study, the methodology employed and the results found. Studies were categorized according to the type of effect tested being health impairment, motivation, buffer, coping or interaction.

2.2.3 Results

Some general observations can be made from the literature, as follows. Firstly, during the time specified there has been a steady increase in studies framed within the JD-R model. Secondly, the literature that has been published tends to represent sub-themes reflective of the additive and interaction effects within the model that have had a chance to build up an associated literature base. Thirdly, the additive effects of the JD-R model have been assessed more intensely but this is likely to be reflective of other effects being published only in more recent years and as such they haven’t had time to build up the same literature base. These observations will be substantiated in more detail in the remainder of this section.

Some studies used interviews for preliminary investigations, however all based their findings on quantitative data. The study sample sizes ranged from 42 to 3506, nearly all employing a mixed gender sample although five studies did not report the percentage of male and female participants and one employed only female participants. There was a
range of occupations with no particular weighting to an industry or job type. Response rates ranged from 13 % to 90 %. Five studies did not report a response rate. The participants in the studies were drawn from a range of sixteen different countries. However, a European bias regarding nationality of participants and national origin of the institutions where researchers were employed was observed particularly in the early years, with JD-R model research branching into different regional settings only more recently. As per table 2.2 (p. 58), 21 studies used participants from the Netherlands (34 %), seven used participants from Finland (11 %) and the U.S. (11 %) and five studies employed Australians (8 %). Taking a regional perspective, a total of 40 studies (64.5 %) were conducted within Europe, nine in Northern America (including Canada), five in Australasia and four each in Asia and Africa. Both country and regional perspective indicate the origin of the study.

Only three of the studies analyzed provided a cross-national comparison (37, 46, 55) and none of the studies contained theoretical advancements of the JD-R model which would consider any characteristics specific to international work settings (e.g. those presented within foreign assignments). The cross-national comparisons were based on data of participants within European countries from Spain, the Netherlands and Belgium. A further two studies drew on participants from more than one European country, however both treated the sample as one (52, 62). Apart from the intra-European comparison none of the studies were set in a cross-regional setting, for instance comparing the U.S. and Europe, the U.S. and Asia or Europe and Asia. These cross-national studies showed that although the strengths and types of associations differed across methodologies, the basic assumptions of the JD-R model were supported. A
detailed list of the regional and national origin of studies and types of effects assessed are also presented in table 2.2 (p. 58).

Regarding study design, there were 44 cross-sectional studies (71 %) and 18 longitudinal studies (29 %) included within the review. For longitudinal studies, there was a range from two to five measurement points and a range from five days to three years. For two studies, the measurement points were unknown. Out of 47 studies measuring a dimension of burnout, 42 (89 %) used a version of the Maslach Burnout Inventory (Maslach & Jackson, 1986), four (7, 13, 28, 52) (9 %) used the Oldenburg Burnout Inventory and one (53) (2 %) used the Gillespie-Numero Burnout Inventory (Gillespie & Numerof, 1984). Of 34 studies measuring a dimension of engagement, 33 (97 %) used a version of the Utrecht Work Engagement Scale and only one study (23) (3 %) used items from the Positive and Negative Occupational States Inventory (Barbier, Peters, & Hansez, 2009).

An effect is included if the authors refer to it within their hypothesis either directly (i.e. job resources will buffer the positive relationship between job demands and burnout) or indirectly (i.e. burnout mediates the relationship between job demands and performance) and the results are presented in a readable format. A distinction is made between studies showing full, partial or no support. Studies classified as fully supportive demonstrate a statistical relationship that unconditionally confirms the effect under study with regards to all the variables. For studies classified as partially supportive, statistical associations were found for some but not all of the variables assessed whereby the effects were supported only in part. For studies classified as non-supportive there was no statistical relationship found. The level of support was
Table 2.2. Regional/Country study scope showing support for the assumptions of the JD-R model.

<table>
<thead>
<tr>
<th>Region/Country</th>
<th>Total (of 62)</th>
<th>Studies showing Region/Country support for the JD-R assumptions</th>
<th>Health impairment</th>
<th>Motivational</th>
<th>Reversed health impairment</th>
<th>Reversed Motivational</th>
<th>Buffer</th>
<th>Coping</th>
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<td>P</td>
<td>N</td>
<td>F</td>
<td>P</td>
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</table>

1. The total numbers within regions/countries exceed the total number of studies assessed as some studies focus on more than one country.
2. Each number in the below columns refers to the study number found in table I.
3. One study with a European focus (No. 62) didn’t provide a national distinction but referred to European participants.
4. Study conducted across two countries, yet considered as one sample: No. 52, Germany and Switzerland.
* Studies providing cross-country comparisons: No. 37, Netherlands and Spain; No. 46, Netherlands and Spain; No. 55, Netherlands and Belgium.

F = Full support; P = Partial support; N = No support.
determined by examining correlations within each study to allow for consistency irrespective of different methodologies and statistical techniques used. Table 2.2 (p. 58) shows which studies demonstrate support for each effect across different nations and regions.

Assessing the additive effects, 42 of 43 studies found empirical support for the health impairment pathway. 28 studies (65 %) demonstrated full support, 14 (33 %) studies showed partial support, and one (2 %) study showed no support. Of the 42 studies demonstrating support, 24 were conducted within Europe, four in Australia, nine in the U.S. and Canada, three in Asia and two in South Africa. The researcher did not observe an apparent difference in the level of support regarding study design, measurement, sample, and country of origin or burnout dimensions assessed. A Kruskal-Wallis analysis of variance test indicated no statistically significant difference between studies demonstrating full support (Mean Rank = 22.07), partial support (Mean Rank = 22.50) and no support (Mean Rank = 13.00) that could be attributed to region of origin, $H$ (corrected for ties) = 0.677, $df = 2$, $p = 0.713$, Cohen’s $n^2 = 0.016$.

For the motivational pathway, 29 of 30 studies provide empirical support. 23 studies demonstrated full support (77 %), six (20 %) studies showed partial support and one (3 %) study showed no support. Of the 29 studies demonstrating support, 23 were conducted in Europe, two in Australia and four in South Africa. No notable difference was observed between studies showing no, full or partial support regarding study design, measurement, sample, country of origin or engagement dimensions assessed. A Kruskal-Wallis analysis of variance test indicated no statistical difference between studies demonstrating full support (Mean Rank = 16.41), partial support (Mean Rank =
12.50) or no support (Mean Rank = 12.50) that could be attributed to region of origin, $H$
(corrected for ties) = 2.181, $df = 2$, $p = 0.336$, Cohen’s $n^2 = 0.075$.

Only three studies examined the *reversed motivational pathway*, using longitudinal
designs and all demonstrating full support. One study was conducted in Finland and two
in the Netherlands. Similarly, only three longitudinal studies examined the *reversed
health impairment pathway* with one conducted in Australia finding full support and
two in the Netherlands finding no support. There was no notable difference between
studies demonstrating no, partial or full support that could offer an explanation for the
different findings. The number of studies assessing the reversed pathways is too little to
allow for any patterns or further explanations to be identified.

Assessing the interaction effects, 14 of 62 studies examined whether job resources
carried a *buffering effect* for the health impairment pathway. Six (43 %) studies
demonstrated full support, seven (50 %) studies showed partial support and one (7 %)
study showed no support. Regarding the *coping hypothesis*, three studies assessed
whether job resources become particularly important in the presence of high job
demands. One (33.3 %) study demonstrated full support and two (66.6 %) studies
demonstrated partial support. There was no notable difference between studies
demonstrating full, partial or no support regarding measurement, sample size or
characteristics, country of origin or burnout and engagement dimensions assessed. As
with the reversed pathways, the number of studies is too small to legitimately identify
any (regional) patterns.
2.2.4 Discussion and conclusion

As can be seen, almost all of the effects received support (albeit at different levels across nations), suggesting that the JD-R model can act as a valuable tool for predicting burnout and engagement across national contexts. As there was no apparent difference regarding methodological characteristics that could be attributed to different levels of support, explanations need to be sought elsewhere. As noted above, recent JD-R literature points at a distinction in job demands whereby hindrance and challenge demands have different relationships with burnout and engagement (Crawford et al., 2010) and the inclusion of personality-based characteristics as potential moderators of the JD-R assumptions (Xanthopoulou et al., 2007a). It is possible there are mixed findings regarding the degree of support because the distinction in job demands or a third interaction effect has not been accounted for in previous literature. Whilst out with the scope of this thesis (and also due to a limited literature base for more recent assumptions), it would be interesting to confirm or deny whether these two recent developments influence the level of support for JD-R assumptions across different national, cross-national or even international contexts.

As none of the studies included in this review incorporate empirically backed theoretical developments that consider the international work dimension, presenting results in relation to research objective two was problematic. One paper was located which placed the JD-R assumptions explicitly within an international assignment context. Lazarova et al. (2010) draw on the JD-R model and contagion theory to increase understanding of expatriate performance within the work-family interface. However, as this paper is of a conceptual and not empirical nature it was not included in
the review process as it failed to fulfill the inclusion criteria for this review of empirical studies as outlined above.

It should also be noted that since this review was conducted, Westman, Etzion and Chen (2009) drew on the JD-R models principles to assess crossover of vigor from business travelers to their spouses in a quantitative study with 275 employees and spouses. However, this study was also not included, as it did not meet the criteria outlined above. Furthermore, although other studies that have been published since 2011 on the JD-R model have not been included, this is not viewed as problematic as their findings generally support what is presented here. Due to the increasingly international character of the work context in many organizations, the lack of studies identifies a key challenge to further theoretical and empirical contributions.

A potential explanation beyond the simple claim of universal applicability could be that empirical support in previous national and (few) cross-national studies may have facilitated a simplified and unaltered extension of the JD-R model to international work contexts (e.g. international business travel). As an example the cross-national studies outlined above are based primarily on different samples in one national context and largely ignore the need for adjustment to rapidly changing environments (Salanova & Schaufeli, 2008). However, as the latter is considered as one of the critical factors of the international work context (Bhaskar-Shrinivas et al., 2005) underpinning the constant change in work characteristics it can be assumed that the model is likely to successfully respond to the international work context.
Whilst there is a lack of cross-national studies employing the JD-R model, from what does currently exist it offers confidence in its generalizability that encourages further research more specific to the international dimension. For models to be confidently used by practitioners operating internationally it is important to avoid assumptions of universal applicability. The notions behind such critical human resource management models need to be backed by empirical evidence that also demonstrates validity as an international human resource management model. This review therefore highlights that the challenges of an international workplace are still to be considered and included in a (possibly extended or modified) JD-R model. Associated future research would be advised to concentrate on samples and contexts based explicitly within the international work context, such as foreign assignees to ensure a high degree of ecological validity.

This systematic review makes additional observations that develop paths for future research in an effort to further advance the JD-R model. Firstly, the majority of studies used self-report measures potentially increasing the risk of common method bias. Secondly, there was no notable difference in study findings that could be attributed to measurement instruments for burnout and engagement, suggesting that JD-R related research should be open to using a wide array of measurement instruments. Thirdly, different levels of support for the reversed motivational pathway and health impairment pathways render it a worthwhile endeavor to assess whether loss spirals exist in the latter (Houkes, Winants and Twellaar 2008). Fourthly, 44 studies adopted a cross-sectional design, implying that (a) the results need to be interpreted with a degree of caution and (b) causality cannot be determined. Future research should add to previous efforts by adopting longitudinal designs, which allow more robust assumptions on causal mechanisms in the model.
Furthermore, the pattern of publications outlined earlier suggests that within the human resource management literature the model has captured the interest of researchers. This along with fairly conclusive results supporting the model suggests a high likelihood it will attract more attention from academics in the future (spilling over from psychology into human resource management and international human resource management), potentially employing the JD-R model as a predictor and tool for managing well-being and performance related outcomes with results being disseminated for use by practitioners. As the JD-R literature stream continues to grow, so will the identified sub-themes and could extend to incorporate blind spots relating to recently identified extensions of the model (e.g. the inclusion of personal resources and distinction in job demands) and even studies explicitly focusing on the international work context.

To summarize, aiming to systematically review research published in the first decade following the inception of the JD-R model in 2001 there was interest in finding (1) whether previous research supports the model across different national or international work contexts and (2) any developments or amendments to the model in response to the international work context that might represent emerging insights. This review found solid empirical support for the JD-R model across different national settings making it a promising tool for predicting burnout and engagement. There was surprise to find that prior work assessed has not considered the international dimension of today’s work environment and only three studies employed in this systematic review used the JD-R model in a comparative context across different countries.
Therefore, based on available data (i.e. the lack of international JD-R studies), determining if a more internationalized JD-R model would be beneficial is difficult. However, while it would also appear reasonable to recommend a reduction of job demands in an international setting and an increase in job resources available to the employees embedded in the international assignment context (although the former is potentially more challenging in international work contexts), the lack of international JD-R studies is viewed as a considerable research gap that impedes a holistic understanding of the JD-R model and how to manage burnout and engagement in different contexts. The need for such studies is highlighted by considering the increasingly multi-cultural and globally integrated world of work along with literature suggesting that cultural variation influences perceptions of and reactions to the work environment (Liu, Spector, & Shi, 2007), therefore making the effects of globalization an increasing concern for organizations (Gyorkos et al., 2012).

One way to tackle this concern is assessing the moderating role of culture in the JD-R model which could represent a potentially important theoretical extension, serving to increase it’s utility in the future and help organizations better manage burnout, engagement and associated outcomes. The lack of international JD-R studies also invites further empirical research to assess the external validity towards and any required theoretical extensions of the JD-R model for use within cross-national and particularly international work contexts, which could also represent emerging sub-themes in the literature (see section 1.2.2).
2.3 Does the international work context affect the JD-R model? A meta-analysis

Globalization requires organizations to understand how employees in and from different cultural origins respond to increasingly international work contexts. However, management concepts are often applied without considering their cultural sensitivity (Brewster et al., 2005). As discussed in section 2.2, the JD-R model is an example of one such concept where little efforts have been made to align it with the international dimension found in many organizations today. On a national level it seems plausible that working conditions characterized by increasing demands also suggest a persistent need for the presence of adequate resources to avoid undesirable psychological and physical consequences. However, research suggests that due to cultural variations, the same working conditions might be perceived differently (Taras, Kirkman, & Steel, 2010) and then are less likely to have equal effects on individual’s from/in different cultural contexts (Gyorkos et al., 2012; Spector et al., 2007).

2.3.1 Aim and initial assumptions

Thus, cultural values could play an important role in the JD-R model when it is used in international work contexts as a means of managing well-being and performance related outcomes. It is a contemporary phenomenon that employees are increasingly required to operate abroad and/or in multicultural workplaces, embracing new ways of thinking (Ming-Jer & Miller, 2010) and being forced to consider their decisions on an international scale (Pagell, Katz, & Sheu, 2005). Thus, organizations increasingly rely on concepts that are valid beyond a solely national scope and function across multiple
cultures. Previous research has not yielded a clear understanding of whether the latter is the case for the JD-R model. The meta-analytical review outlined in this section focuses on the role of cultural values for the JD-R model and assess future applicability of the model in international business practice, making it different to previous meta-analysis (e.g. Crawford et al., 2010; Nahrgang et al., 2011).

Before assessing the moderating role of cultural values in the JD-R model, it is necessary to firstly assume that the basic assumptions of the model, discussed in section 2.1.2 find empirical evidence across international work contexts. This meta-analysis focuses on the relationships between job demands/resources and burnout/engagement as these represent the most well researched aspects of the JD-R model and therefore possess an associated literature stream established enough to allow relevant statistical analysis. They also represent the foundation for all other JD-R relationships suggesting an excellent starting point for understanding the role of culture in the model. Assessing the moderating role of culture on the interaction effects (i.e. coping, buffer hypothesis) or the relationship between personal resources and burnout/engagement was not feasible as these areas represent newer aspects of the JD-R literature stream and therefore have an inadequate number of correlations that would allow a rigorous meta-analysis. Therefore, the following hypothesis are proposed:

**Hypothesis 1a:** Job resources are (i) positively correlated to engagement and (ii) negatively correlated to burnout.

**Hypothesis 1b:** Job demands are (i) negatively correlated to engagement and (ii) positively correlated to burnout.
Assuming that the JD-R models basic assumptions do work across different domestic contexts does not suggest that the international work context has no impact. The following section will analyze the role of the international environment, looking at the impact of a variation in cultural dimensions across the different national contexts in which the JD-R model has been conducted. According to Hofstede (2001, p. 10), culture refers to “the interactive aggregate of common characteristics that influence a human group’s response to the environment”, which suggests a major dimension of the international context worthy of investigating. When discussing the role of culture, for the purposes of this meta-analysis the health impairment pathway refers to the potential of job demands and resources to influence burnout (in positive and negative associations respectively). Similarly, the motivational pathway refers to the potential for job demands and resources to influence engagement (in negative and positive associations respectively).

2.3.2 Hypotheses on the impact of cultural values

The five cultural value dimensions include power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance and long-term/short-term orientation (Hofstede, 2001; Hofstede & Bond, 1988; Hofstede & Minkov, 2010). Scores associated with these cultural value dimensions are argued to illustrate cultural differences (Venaik & Brewer, 2010) that are considered critical for business functioning, can influence how employees respond to working conditions and subsequently affect work related outcomes (Liu et al., 2007; Taras et al., 2010; Taras, Steel, & Kirkman, 2011). In the extreme, scholars argue that Hofstede’s dimensions
carry stronger predictive power than personality traits or demographics for outcomes relevant to organizational contexts (e.g. organizational commitment, team-related attitudes, feedback seeking) and are strongly related to emotions, attitudes, behaviors and performance outcomes (Taras et al., 2010).

Based on these research findings, hypotheses are formed on the role of each of the cultural dimensions as a third variable affecting the strengths of relationships (Baron & Kenny, 1986) within the JD-R model. As an example, Pines et al (2002) view the varying perception of social support across different (national) cultures as a tentative explanation for conflicting results on the relationship between social support and burnout in existing literature. However, while the subsequent need for cross-cultural studies are considered to be increasingly important for research inquiry, teaching, and practice (Hult et al., 2008), only few studies provide cross-cultural insight relating to the JD-R model.

2.3.2.1 Power Distance

Power distance reflects the amount to which the less powerful individuals of a society accept and expect that power is unequally distributed (Hofstede, 2012b). Existing inequalities hold potential to affect individual and organizational outcomes (Hofstede, 1980) and research suggests that an increase in power distance is associated with a decrease in subjective well-being (Arrindell et al., 1997). More specifically, Hofstede (2012b) suggests that employees from larger power distance cultures are more likely to lack control over their work, act on instructions from superiors without question and work harder to achieve certainty, all workplace-aspects which could make them more
susceptible to burnout. The latter suggests a stronger health impairment pathway in larger power distance cultures.

The impact of power distance on the motivational pathway appears less straightforward. In order to develop hypothesis the concept of commitment within JD-R literature is drawn upon which demonstrates that a stronger motivational pathway leads to higher commitment (Boyd et al., 2011; Hakanen et al., 2006). For instance, Randall (1993) suggests that cultures with small power distance showed high commitment levels (e.g. stimulated by dedication) indicating that a small power distance could strengthen the motivational pathway. In contrast, Clugston, Howell and Dorfmann (2000) assume that larger power distance is related to high commitment by fostering dependency-based relationships, resulting in duty-bound loyalty, which ties employees to the organization (Chew & Putti, 1995). Following JD-R literature and the meaning of burnout and engagement outlined earlier, the latter findings could be an outcome of reduced professional efficacy suggesting burnout as opposed to an outcome of engagement. This would support the previous assumption for the strengthening impact of a larger power distance on the health impairment pathway.

*Hypothesis 2a:* Power distance weakens the effect of job resources on (i) engagement and (ii) burnout.

*Hypothesis 2b:* Power distance strengthens the effect of job demands on (i) burnout and (ii) engagement.
2.3.2.2 Individualism/Collectivism

Individualism can be defined as a preference for a loosely-knit social structure, where individuals are required to take care of themselves and their families only, whereas collectivism is distinguished as a more tightly-knit structure based on in-group affinity (Hofstede, 2012b). Consequently, employees from a highly collectivistic culture might place greater emphasis on pursuing group goals, team-work and improving group level engagement, all aspects of the workplace associated with improved health (Ronen & Mikulincer, 2009; Triandis et al., 1988). The individualism/collectivism dimension is thought to establish variation in how job characteristics lead to outcome variables (e.g. Spector et al., 2007).

While individualism/collectivism seems to be a prominent dimension in cross-cultural research, research suggests that the moderating role of individualism/collectivism is complex and interpretations of quantitative data could bear a potential to be overly simplistic. For example, Triandis (2000) observed that in individualistic cultures unpleasant life events are not met with sufficient social support on the one hand, suggesting higher burnout but on the other hand he assumes higher optimism in those cultures resulting in less burnout. Whilst these findings suggest a moderating role of individualism/collectivism on the relation between job characteristics and outcomes, due to complex relationships and an absence of existing empirical evidence, specific hypothesis were not formed.
2.3.2.3 Masculinity/Femininity

Masculinity refers to “a preference in society for achievement, heroism, assertiveness and material reward” whereas femininity “stands for cooperation, modesty, caring for the weak and quality of life” (Hofstede, 2012a). Norms associated with feminine cultures (e.g. the opportunity to fulfill multiple social roles without judgment) are thought to carry positive associations with a range of health outcomes (Barnett, 2004), whereas in masculine cultures employees may be more susceptible to higher stress, burnout and job dissatisfaction (Hofstede, 1980), possibly as they are less likely to openly criticize the absence of sufficient resources or increased demands to avoid appearing weak (Hofstede, 2001) and might suppress their emotions, which has been shown to account for variation in burnout scores (Maslach, 2001). Indeed, Schaufeli and Van Dierendonck (1995) found that in masculine cultures employees reported higher exhaustion and depersonalization but less admitted to feelings of reduced personal accomplishment. Furthermore, Pines et al (2002) found that Israeli students rate the importance and availability of job resources (e.g. listening and emotional support) for lowering the risk of developing burnout higher than Israeli Arab students and American students (as relatively masculine cultures compared to Israel).

Following this discussion above, the strength of the impact of job resources or demands on burnout is to some extent attributed to the masculinity/femininity dimension. Regarding engagement, research on a potentially moderating role is scarce. It is assumed that the availability of adequate resources strengthens the motivational pathway as employees in feminine cultures might stronger appreciate the perception that their employer cares and provides sufficient resources. While this assumption can
be derived from the underlying definition of this dimension, a clear rationale was not found for a moderating impact of masculinity/femininity on the demands-engagement relationship. It can be assumed that independent from masculinity/femininity, an increase in demands is argued to lead to less engagement (i.e., again, no change in the direction of this correlation) but there appears to be no convincing argument for a strengthening or weakening role of this cultural dimension for the demands-engagement relationship.

_Hypothesis 3a:_ Masculinity weakens the effect of job resources on (i) engagement and (ii) burnout.

_Hypothesis 3b:_ Masculinity strengthens the effect of job demands on burnout (but not engagement).

2.3.2.4 Uncertainty avoidance

Uncertainty avoidance refers to the extent members of a culture “feel uncomfortable with uncertainty and ambiguity” and incorporates a national approach for dealing with organizational structure, institutions and relationships (Hofstede, 2012a). Cultures high in uncertainty avoidance are expected to focus more on rules, structured activities and employee security. In those cultures, higher demands without increased resources might lead to increased fear of failure and higher levels of stress and anxiety (Hofstede, 1984) possibly manifesting as burnout. Employees from low uncertainty avoidance cultures are also considered more likely to be typified by positive well-being, achievement
motivation and optimism (Venaik & Brewer, 2010) leading to the assumption that higher uncertainty avoidance strengthens the health impairment pathway.

Hofstede (2001) predicts that individuals from higher uncertainty avoidance cultures seek greater security and stability in their professional careers and therefore tend to have longer job tenure and less turnover intention (see also Debus et al., 2012; García-Cabrera & García-Soto, 2011; Staufenbiel & König, 2010). This tendency for increased loyalty might render the resources less strong predictors of engagement in high uncertainty avoidance cultures. As these individuals display dedication to their jobs, employees from higher uncertainty avoidance cultures might have weaker motivational pathways. In low uncertainty avoidance cultures, resources would thus carry higher motivational potential which suggests a weakening impact of uncertainty avoidance on the motivational pathway.

*Hypothesis 4a:* Uncertainty avoidance weakens the effect of job resources on (i) engagement and (ii) burnout.

*Hypothesis 4b:* Uncertainty avoidance strengthens the effect of job demands on i) burnout and (ii) engagement.

**2.3.2.5 Long-term/short-term orientation**

Initially referred to as Confucian dynamism, time-related elements were identified as an addition to the initial four dimensions of variation across (national) cultures (Hofstede & Minkov, 2010; Minkov & Hofstede, 2012). Confucian long-term orientation cultures
typically are embracing virtues such as perseverance and patience (Hofstede, 2012a) making long-term orientation a widely cited framework of how people value time (Nevins, Bearden, & Money, 2007). Consequently, long-term orientation cultures value long-term employment and long-term problem solving rather than quick fixes, considering the role of situation, context and time in the workplace, making them more adaptable, with individuals who are persistent and hard working (Hofstede & Minkov, 2010).

Hacker (1992) and Klemp and McClelland (1986) demonstrated that first-rate employees often possess a long-term orientation, engaging in proactive behaviors reflecting higher degrees of personal initiative and engagement (Fay & Frese, 2001). Employees from long-term orientation cultures are likely to be more receptive to harder work in the present in anticipation of future rewards, strengthening the impact of job resources and also weakening the impact of demands. Supporting this, long-term orientation is argued to better help maintain organizational well-being (Jung, Bass, & Sosik, 1995). Conversely, managers in short term orientated cultures are likely to possess a narrow-minded focus and sensitivity for immediate outcomes of their actions (Thorne & Saunders, 2002). Based on assumptions within this literature, a weakening effect on the health impairment pathway is assumed.

_Hypothesis 5a:_ Long-term orientation strengthens the effect of job resources on (i) engagement and (ii) burnout.

_Hypothesis 5b:_ Long-term orientation weakens the effect of job demands on i) burnout and (ii) engagement.
2.3.3. Procedures, method and sample

Between February and March 2012, a computerized search utilizing EBSCO and Web of Science databases was conducted using combinations of the following terms: JD-R, job demands, job resources, burnout and engagement. This method, combined with manually searching reference sections of retrieved studies and meta-analysis yielded a total of 209 articles. A meta-analysis is justified as this review method provides a more powerful and objective means (e.g. than a single study and/or other review methods would allow) of assessing the statistical power of examined relationships in a quantifiable and objective manner, which is in line with the research aims, therefore providing a more critical assessment. Different from previous meta-analyses (e.g. Crawford et al., 2010; Nahrgang et al., 2011), this study draws solely on literature surrounding the JD-R model.

To be included in further analysis, articles had to meet the following criteria: 1) publication date between January 2001 and January 2012 (including online previews of articles); 2) scrutinized either the health impairment or motivational pathways of the JD-R model with respect to burnout or engagement, either directly or indirectly; 3) provision of adequate statistical data (e.g. correlation matrix); 4) and examination of individuals in formal work settings.

The researcher coded the following study characteristics: sample size; percentage of females; age (mean and standard deviation); country where participants were located; response rate; design; cultural value dimensions. The cultural dimensions outlined earlier were coded and associated country scores sought from Hofstede (2012c). Job
demands and resources were operationalized in accordance with the JD-R definitions, outlined in section 2.1.2. For all demands and resources, meaning, definitions and measurement instruments were checked to avoid distortion of the data. Finally the health impairment and the motivational pathways were coded as correlations between job demands or job resources and burnout or engagement, respectively.

Research grounded in the JD-R model almost exclusively used versions of the Maslach Burnout Inventory and the Utrecht Work Engagement Scale. The Maslach Burnout Inventory offered scores for burnout, operationalized as exhaustion, cynicism (depersonalization) and reduced professional efficacy. The Utrecht Work Engagement Scale offered scores for engagement, operationalized as vigor, dedication and absorption. All other measures offered a total score for ‘burnout’ e.g. Oldenburg Burnout Inventory, The Gillespie-Numerof Burnout Inventory (Gillespie & Numerof, 1984) and ‘engagement’ e.g. Oldenburg Burnout Inventory, Positive and Negative Occupational States Scale (Barbier et al., 2009). Individual composite scores were used where provided and where absent a general score for burnout and engagement was used. In studies that used the Oldenburg Burnout Inventory as measure of engagement, the ‘disengagement’ dimension was reverse coded.

In order to conduct a rigorous meta-analysis, a meta-analytic expert was consulted who carried out statistical computations, advised on selection criteria and quality of data. Pearson correlation coefficients as a measure of effect size were used taken from the text of the primary study, usually reported for the complete sample. In some cases correlations were reported on the level of subgroups e.g. separately for men and women. Subgroup data was coded to avoid information loss associated with combining indices
on study level and to retain more information for moderator tests (Hunter & Schmidt, 1990).

Trait level correlations were included but day-level correlations excluded to maintain consistency and for longitudinal designs, data was taken from the first measurement point to capture larger sample sizes and to avoid retest artifacts (Arrindell, 2001; Windle, 1954). Where more than one indicator variable of job demands or resources had been measured, correlations to obtain a single overall correlation for each sample were combined. To do so, the correlations in Fisher-z-scores were first transformed and then the Fisher-z-scores averaged, a procedure recommended for averaging Pearson correlations (Lipsey & Wilson, 2001). Where authors reported results separately for sub-constructs of burnout or engagement, results were averaged in order to get a single overall correlation for the sample.

A random effects model was used in order to combine effect sizes meta-analytically due to an interest in results that could be generalized to other studies that were not included in the meta-analytic data set (Hedges & Vevea, 1998). Random effects models are preferable to fixed effects models when the primary studies in a meta-analysis are not direct replications of each other. It should be noted that random effects models are relatively conservative having lower power and larger confidence intervals than fixed effects models (Cohn & Becker, 2003). To estimate the sampling variances of the effect sizes, formulas provided in and for computations SPSS-syntaxes provided in Lipsey and Wilson (2001) were used.
For the moderator tests, subgroups were formed of studies and these subgroups tested against each other. Countries were dichotomized corresponding to their values on each of the moderator variables (median split) resulting in two groups of countries for each variable, one with countries high and one with countries low on the respective variable (e.g. individualism versus collectivism). Then which kind of country each study in the dataset belonged\(^1\) to was checked and two sets of studies formed that were tested against each other with a subgroup moderator test, a meta-analytic analogue of analysis of variance (Hedges & Pigott, 2004).

Table 2.3 (p. 81) shows studies included in the meta-analysis. All of the studies included in the meta-analysis were also included in the systematic review. Regarding the sample of the meta-analysis, 62 independent samples from 56 studies across 6 global regions (total \(n = 40,548\)) were included for main and moderator effects. The sample size ranged from 42 to 3506 participants. Studies were scrutinized for quality against different criteria (e.g. sample size, measurement instruments used, analysis and reporting of results). As such, cases where the sample size was low (e.g. \(n = 42\)) were not perceived to be problematic as these studies met other quality criteria considered important for inclusion and any discrepancies were discussed with the statistical expert (e.g. the studies were assessed as a whole, not on a singular criteria of sample size). It was also assumed that studies were previously subjected to rigorous quality control in order to appear in a publication outlet.

\(^1\) In one case (Sonnentag, Binnewies, & Mojza, 2010), the study was conducted with a mixed sample from Germany and Switzerland. We averaged the culture scores of both countries for this sample.
Table 2.3: Studies included in the meta-analytic review

<table>
<thead>
<tr>
<th>No.</th>
<th>Reference</th>
<th>No.</th>
<th>Reference (Cont’d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bakker et al (2003a)</td>
<td>31</td>
<td>Lee (2011)</td>
</tr>
</tbody>
</table>

46 studies provided data allowing estimates for the job demands-burnout, 29 for the job demands-engagement, and 37 for the job resources-engagement and 42 for the job resources-burnout pathways. The mean percentage of female employees was 60.44 (24.92). The average age was 38.05 (8.65). Neither publication year, nor study design, percentage of women in the sample, or age showed any significant moderating effect on the associations between demands-resources and burnout-engagement. The demands-burnout correlation was found to be larger when the response rate is low ($Q_{b} = 4.39; p < .05$) albeit 3 studies did not report a response rate. Since the other three tests for
response rate were non-significant (all $p > .40$) it is argued that variations in this study characteristic are unlikely to bias the results of this meta-analysis.

### 2.3.4 Results

The mean correlations between job demands/resources and burnout/engagement are presented in table 2.4 (below). The $r$ statistic indicates the correlation value, whilst the $Q$ statistic indicates the significance of the relationship. Job resources show statistically significant associations with burnout ($r = -0.21, p < 0.001$) and engagement ($r = 0.28, p < 0.001$) supporting hypothesis 1a. Job demands show statistically significant associations with burnout ($r = 0.31, p < 0.001$) and engagement ($r = -0.08, p < 0.001$) supporting hypothesis 1b. Findings also support the idea that job resources are more important than job demands for engagement and job demands have a stronger relationship with burnout than job resources.

**Table 2.4. Meta-analytic results showing mean correlations between job demands/resources and burnout/engagement, indicating level of support for hypothesis 1a and 1b.**

<table>
<thead>
<tr>
<th>JDR-Pathway</th>
<th>$k$</th>
<th>$N$</th>
<th>$r$</th>
<th>$rcorr$</th>
<th>95% CI</th>
<th>$Q$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnout * Demands</td>
<td>45</td>
<td>28597</td>
<td>0.31</td>
<td>0.38</td>
<td>0.27−0.35</td>
<td>544.96***</td>
</tr>
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<td>Burnout * Resources</td>
<td>41</td>
<td>24120</td>
<td>-0.21</td>
<td>-0.26</td>
<td>-0.24−-0.18</td>
<td>232.09***</td>
</tr>
<tr>
<td>Engagement * Demands</td>
<td>27</td>
<td>20475</td>
<td>-0.08</td>
<td>-0.10</td>
<td>-0.12−-0.04</td>
<td>221.68***</td>
</tr>
<tr>
<td>Engagement * Resource</td>
<td>35</td>
<td>22251</td>
<td>0.28</td>
<td>0.34</td>
<td>0.24−0.33</td>
<td>452.36***</td>
</tr>
</tbody>
</table>

Note. $k =$ number of effect sizes or studies; $n =$ total sample size; $r =$ random effects average correlation; $rcorr =$ random effects average correlation corrected for unreliability; $CI =$ 95% confidence interval for $r$; $Q =$ heterogeneity test statistic; *** $p < 0.001$
All results relating to the moderating effect of culture are presented in table 2.5 (p. 84). Within table 2.5, the $Q_b$ statistic (between-group homogeneity estimate) indicates whether there is a significant moderating effect. Findings indicate the dimensions power distance, individualism/collectivism and uncertainty avoidance do not moderate any of the four demands/resources and burnout/engagement relationships. The dimensions masculinity/femininity and long-term/short-term orientation were moderators for three of the four relationships suggested in the JD-R model.

As predicted, the masculinity/femininity dimension was found to significantly moderate three out of four JD-R pathways. In line with hypothesis 3a (i) and 3a (ii) masculinity weakened the motivational pathways, being the positive association between job resources and engagement ($Q_b = 6.03$, $p < 0.05$) and negative association between job resources and burnout ($Q_b = 4.55$, $p < 0.05$). Similarly, in line with hypothesis 3b, masculinity strengthened the health impairment pathways, being the positive association between job demands and burnout ($Q_b = 5.56$, $p < 0.05$). As expected, the masculinity/femininity dimension did not moderate the demands-engagement relationship. Results therefore suggest that masculine cultures have more prominent health impairment whilst feminine cultures have stronger motivational relationships. The masculinity/femininity dimension was the strongest moderator of the demands/resources and burnout/engagement relationships.
Table 2.5. Meta-analyses of culture as moderators of the JD-R Model.

<table>
<thead>
<tr>
<th>Cul. Dim.</th>
<th>Sub-group</th>
<th>JD-R corr.</th>
<th>Qb</th>
<th>k</th>
<th>n</th>
<th>R</th>
<th>95% CI</th>
<th>Qw</th>
</tr>
</thead>
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<td>PD</td>
<td>Burnout*Demands</td>
<td>0.02 n.s.</td>
<td>11</td>
<td>5963</td>
<td>0.30</td>
<td>0.22 – 0.38</td>
<td>7.91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD high</td>
<td>34</td>
<td>22634</td>
<td>0.31</td>
<td>0.27 – 0.35</td>
<td>40.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD low</td>
<td>0.84 n.s.</td>
<td>10</td>
<td>5812</td>
<td>-0.23</td>
<td>-0.29 - -0.17</td>
<td>3.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD high</td>
<td>31</td>
<td>18308</td>
<td>-0.20</td>
<td>-0.24 - -0.16</td>
<td>49.23*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD low</td>
<td>1.57 n.s.</td>
<td>13</td>
<td>10097</td>
<td>-0.05</td>
<td>-0.11 - 0.01</td>
<td>14.22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD high</td>
<td>14</td>
<td>10378</td>
<td>-0.11</td>
<td>-0.16 - -0.05</td>
<td>9.75</td>
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<tr>
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<td>PD low</td>
<td>2.61 n.s.</td>
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<td>11117</td>
<td>0.32</td>
<td>0.26 – 0.39</td>
<td>12.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PD high</td>
<td>20</td>
<td>11134</td>
<td>0.25</td>
<td>0.19 – 0.31</td>
<td>32.95*</td>
<td></td>
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<tr>
<td>IND/ COL</td>
<td>Conversion*Demands</td>
<td>0.36 n.s.</td>
<td>33</td>
<td>21825</td>
<td>0.30</td>
<td>0.26 - 0.34</td>
<td>38.34</td>
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<tr>
<td></td>
<td>IDV</td>
<td>12</td>
<td>6772</td>
<td>0.33</td>
<td>0.25 – 0.40</td>
<td>11.33</td>
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<tr>
<td></td>
<td>PD low</td>
<td>0.09 n.s.</td>
<td>31</td>
<td>17635</td>
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<td>-0.25 - -0.17</td>
<td>28.03</td>
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<td>10</td>
<td>6485</td>
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<td>24.77**</td>
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<td>PD low</td>
<td>1.37 n.s.</td>
<td>12</td>
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<td>-0.11 – 0.02</td>
<td>6.24</td>
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<td>IDV</td>
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<td>9747</td>
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<td>0.24 – 0.38</td>
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<tr>
<td>MAS/ FEM</td>
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<td>19</td>
<td>7777</td>
<td>0.36</td>
<td>0.30 – 0.41</td>
<td>28.25^</td>
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<td></td>
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<td>26</td>
<td>20820</td>
<td>0.27</td>
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<td>20.03</td>
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<td>4.55*</td>
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<td>-0.22 - -0.12</td>
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<td>3204</td>
<td>-0.17</td>
<td>-0.24 - -0.09</td>
<td>19.97**</td>
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<td>20916</td>
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<td>-0.25 - -0.18</td>
<td>32.88</td>
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<td>Burnout*Resources</td>
<td>1.25 n.s.</td>
<td>9</td>
<td>6846</td>
<td>-0.09</td>
<td>-0.17 - -0.01</td>
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<td>0.20 – 0.36</td>
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<td>14242</td>
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<td>LTO/ STO</td>
<td>Burnout*Demands</td>
<td>4.53*</td>
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<td>19461</td>
<td>0.27</td>
<td>0.22 – 0.32</td>
<td>20.29</td>
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<td></td>
<td>LTO</td>
<td>17</td>
<td>7029</td>
<td>0.36</td>
<td>0.30 – 0.41</td>
<td>25.17^</td>
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<td>0.11 n.s.</td>
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<td>Note. JD-R corr. = Moderating correlation of cultural values dimension on the JD-R model; PD = power distance; IND = individualism; COL = collectivism; MAS = masculinity; FEM = femininity; UA = uncertainty avoidance; LTO = long-term orientation; STO = short-term orientation; $Q_b$ = between-group homogeneity estimate; $k$ = number of effect sizes; $n$ = total sample size; $r$ = random effects average correlation; $CI$ = 95% confidence interval for $r$; $Q_w$ = within-group homogeneity estimate; *** $p &lt; 0.001$; ** $p &lt; 0.01$; * $p &lt; 0.05$; $^+$ $p &lt; 0.10$.</td>
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Results also reveal that long-term/short-term orientation moderates the health impairment and motivational pathways with support being found for three out of the four JD-R relationships. As predicted in hypothesis 5a (i) and 5a (ii), long-term orientation strengthened the motivational pathway incorporating the positive association between job resources and engagement ($Q_b = 3.93, p < 0.05$) and negative association between job resources and burnout ($Q_b = 3.70, p < 0.05$). Furthermore, hypothesis 5b (i) was supported, that long-term orientation weakens the health impairment pathway being the positive association between job demands and burnout ($Q_b = 4.53, p < 0.05$). Hypothesis 5b (ii), that long-term orientation weakens the negative association between job demands and engagement representing health impairment was not supported ($Q_b = 0.11, n.s.$). The health impairment pathway (for demands and burnout only) was stronger for short-term orientation cultures whereas the motivational pathways were stronger for long-term orientation cultures for both the impact of job resources on burnout and engagement.
2.3.5 Discussion and conclusion

The current meta-analysis aimed at analyzing the effect of national cultural values on the JD-R model. Findings yield partial support for the hypotheses, suggesting a moderating role of culture. However, findings only support a moderating impact for two of the five dimensions assessed. Masculinity/femininity and long-term/short-term orientation were found to moderate the JD-R pathways while no significant effect was found for power distance, individualism/collectivism or uncertainty avoidance for any of the relationships within the JD-R-model. Beyond the culture perspective, findings provide general meta-analytic support for major assumptions within the JD-R model.

The significant results for the two dimensions, masculinity/femininity and long-term/short-term orientation indicate that a high level of resources will lead to more engagement in feminine and long-term orientation cultures than in masculine and short-term orientation cultures and therefore, having access to many resources is particularly advantageous in feminine and long-term orientation cultures due to the stronger positive association with engagement, whereas being free of demands is more important in masculine and short-term orientation cultures (i.e. due to the stronger associations with burnout). This might indicate that it is advantageous to work in feminine and long-term orientated countries if one has a challenging position in a supportive work environment i.e. a job that combines high demands with high resources. At the same time jobs that are not challenging (i.e. are characterized by few demands) and offer only weak resources are better located in masculine and short-term orientation cultures.
Hofstede (2001) argues that managers from stronger feminine cultures are more likely to offer resources centered around support, control, positive interpersonal relationships, group decision making and quality of life, which have shown main effects with a range of positive outcomes (Pomaki et al., 2010; Sugimura & Theriault, 2010; Wadsworth & Owens, 2007) including improved well-being (for a review, see Hausser et al., 2010) and engagement (Bakker & Bal, 2010; De Lange et al., 2008). In order to explain the findings it could be that the presence of these resources may lead to disproportionate degrees of engagement between feminine and masculine cultures because employees in feminine cultures are more likely to value and appreciate these types of resources, than employees in masculine cultures and thus react more positively to them.

The same rationale might also explain variation across masculine/feminine cultures regarding burnout (Cinamon & Rich, 2010; Huang, Chi-Hsun Jason Chuang, & Hao-Chieh Lin, 2003; Taris, 2006). Furthermore, compared to employees from more feminine cultures those from masculine cultures may suppress emotions and avoid displaying signs of anxiety or weakness which has been shown to account for variation in burnout scores (Maslach, 2001). Therefore, for employees from masculine cultures, as job resources possess weaker relationships with engagement a reduction of job demands is more important to avoid the need to suppress displays of emotions.

In terms of explaining the findings regarding long-term/short-term orientation, it could be that as employees from long-term orientation cultures possess a well-developed mental model of their jobs (Hacker, 1992; Klemp & McClelland, 1986) engaging in proactive behaviors (Fay & Frese, 2001) and possess trust within the workplace (Ryu & Moon, 2009) they are more likely to draw on their adaptable, hard-working nature to
persevere with utilizing the resources that exist to their full capacity even if immediate results are not granted whereas those in short-term orientation cultures are less likely to give resources a chance to mature.

Whilst a specific hypothesis was not formulated for individualism/collectivism, the absence of a moderating impact for power distance and uncertainty avoidance are not in line with initial assumptions. None of the three dimensions show any significant moderation of the associations within the JD-R model. Yet, neither these findings for individualism/collectivism nor the absence of statistical support for hypotheses on the roles of power distance and uncertainty avoidance are entirely surprising in light of existing literature. For instance, Palich, Hom and Griffeth (1995) similarly did not find moderating effects for power distance, individualism/collectivism and uncertainty avoidance on the relationships between antecedents of and actual job commitment. Furthermore, whilst Lin et al. (2012) provide empirical support that larger power distance moderates the negative association between abusive supervision (a job demand) with employee psychological health and job satisfaction, they found that a larger power distance actually reduced health impairment because individuals were able to psychologically distance themselves from job demands.

The non-significant findings might also be explained by different perceptions of variables used in empirical studies, which would distort the potential impact of culture. For instance, Pines et al (2002) show that different functions are attributed to similar forms of support across different studies and how these functions are perceived is important across cultures. Particularly the unexpected finding for the moderating role of uncertainty avoidance could lie in the variety of job resources addressed in the studies.
within the sample. The most frequently assessed resources of the studies in the sample were various forms of support and autonomy. While both could be considered as functional resources for achieving work goals, their desirability differs across cultures with different degrees of uncertainty avoidance. While the aggregation of different job demands and resources was unavoidable to allow for the meta-analysis, cultural variation in the perception of different demands and resources assessed in the studies analyzed could help to explain the findings.

Furthermore, the moderator tests were restricted to only 16 countries. As a result, the variance in the cultural dimensions, for example individualism/collectivism was probably restricted reducing the likelihood of significant moderator effects. Thus, the three dimensions that were not identified as significant moderators might be found to be moderators in a future meta-analysis that can – subject to future empirical studies on the JD-R model in currently neglected countries – include a geographically broader sample of primary studies.

Beyond cultural variation, the non-significant moderator effects of power distance, individualism/collectivism and uncertainty avoidance could be the result of the methodological decision to analyze firstly, job demands and resources as two broad all-encompassing categories and secondly, burnout and engagement as full constructs. As stated earlier, there was interest in patterns of relationships within the model so focusing on how job demands and resources per se operate was the main concern. Whilst accumulating cynicism/exhaustion/reduced professional efficacy and vigor/dedication/absorption scores may not be ideal and reduces the richness of
findings, the small number of samples per moderator test would not have provided enough power for tests of the sub-constructs (Field, 2001).

Despite the rigorous application of meta-analytic instruments and a thorough search and selection process, the quality of findings stem from the quality of the studies analyzed which affect any meta-analytic effort. For example, the majority of studies in the sample relied on self-report data and as such leaves the results susceptible to common method variance. However common-method variance need not be overrated (Spector, 2006), particularly as this study deals with individuals’ perceptions of work characteristics (as opposed to their objective state) and how they influence their assessment of burnout and engagement (Hackman & Lawler, 1971), which is an arguably adequate topic for self-report measurement techniques.

When interpreting these findings, there are also a number of criticisms of Hofstede’s approach that are worth considering. For example, while comparing cultural values can be considered critical for business (Hofstede, 1991), “many nations contain more than one sub-cultural group, so a single characterization based on a representative national sample is still misleading” (Schwartz, 1999, p. 34). This may become problematic when the nations observed are rather heterogeneous and dynamic (e.g. Erez & Earley, 1993; Newman & Nollen, 1996). This is shared with most international management research incorporating culture and – for the meta-analytic approach – the national aggregation appears to have no practical alternative.

Hofstede’s measurement approach may not be fully capturing the cultural values present in today’s workplaces, an idea that should be noted when considering the
findings of this meta-analysis. This idea is supported by McSweeney (2002) and Moulettes (2007), who note that Hofstede’s national cultural values system was developed on a narrow population (in a number of countries, n < 100), with educated middle-class individuals from one organization and therefore is founded upon unreliable data that is out of date. As such, McSweeney (2002) criticizes Hofstede for reportedly identifying a cultural values system that is uniform across entire nations regardless of the circumstances, particularly important, as the sample was relatively limited in some instances. Furthermore, criticism has been raised which suggests that Hofstede’s approach is static, pre-determined and limiting e.g. the Masculinity dimension has been viewed as limiting for certain countries (Moulettes, 2007). Therefore, Hofstede’s measurement approach may not be suited to a conceptual idea that is difficult to quantify and therefore it may not accurately capture the examined relationships (McSweeney, 2002).

To conclude, this meta-analysis assessed the moderating role of cultural values within the JD-R model. The importance of this topic emerged from the increasing application of the JD-R model across different nations in response to a globally intensified need to reduce burnout and enhance engagement without consideration for whether it adequately responds to cultural variations, as suggested in the systematic review. Attempting to provide an empirical synthesis of prior research framed within the JD-R model by exploring the moderating role of five cultural value dimensions, it was found that the masculinity/femininity and long-term/short-term orientation dimensions moderate the relationships between job demands and burnout and job resources with both burnout and engagement. Results were un-able to identify, but also to rule out a moderating role of the other three dimensions under study being power distance,
individualism/collectivism and uncertainty avoidance, which did not show any significant impact on these JD-R pathways.

Beyond culture, this study gives strong meta-analytical support for the direct pathways of the JD-R model in the first meta-analysis of its kind, giving further confidence in the application of the model for different contexts. For example, this finding suggests that in the international work context, burnout and engagement may develop in the same manner as employees from domestic contexts (e.g. job demands are the main predictors of burnout, whilst job resources are the main predictors of engagement) and suggests that the JD-R model will be able to respond to this context once empirically validated, therefore carrying practical and theoretical relevance (see section 1.2).

The results for a moderating impact of masculinity/femininity and long-term/short-term orientation should be considered when applying the JD-R model to different national settings and will be of particular relevance to international work contexts. Highlighting further practical relevance of this meta-analysis, the finding that cultural values moderate the relationships between job resources and burnout/engagement more strongly than job demands acts as a step towards further understanding JD-R mechanisms and highlights the increasing need for organizations to ensure that ample and appropriate resources are available to employees, particularly in feminine and long term orientation cultures. From a scholarly perspective, this study also suggests further primary research in currently under-explored regions or contexts (e.g. international work contexts) would be valuable.
Figure 2.2: The JD-R Model incorporating findings from the meta-analysis

Masculinity/Femininity
Long-term/Short-term orientation

Job Demands ▶ Health impairment pathway ▶ Burnout

Job Resources ▶ Motivational pathway ▶ Engagement

Masculinity/Femininity
Long-term/Short-term orientation

Linear effects
Moderating effects
2.4 International business travelers and the JD-R model

The findings presented above indicate that the global work context is a largely under-researched (see systematic review, section 2.2), yet relevant (see meta-analysis, section 2.3) aspect of the JD-R model that is worthy of focusing on, underpinning the relevance of empirical work presented in this thesis and confirming the claims presented in chapter 1. Figure 2.2 incorporates the findings from the review studies where possible, in a modified JD-R model to graphically depict how this research influences the processes within the model. Following on from the review studies, the focus of the empirical contribution of this thesis will be on the global mobility context, particularly on international business travelers as an under-researched and currently increasing strategic option for internationally operating organizations.

The emergence of newer forms of global work experiences involving employees who choose on some level to transcend geographical boundaries are important for the development of individuals and organizations who are wishing to embrace an inevitable global workplace (Shaffer et al., 2012). The international assignment literature has traditionally focused on organizational expatriates and more latterly additional types of mobility (Collings, Scullion, & Dowling, 2009; Shaffer et al., 2012; Thomas, 2002).

In general, it has demonstrated that if assignments are mismanaged, organizations are subjected to high financial loss via poor performance or early repatriation not to mention the negative consequences for the individual (Black & Gregersen, 1999; Collings et al., 2009; Stroh et al., 2005). Surprisingly, far less attention has been paid to alternative forms of assignments such as international business travelers despite that
they signify a larger portion of the international workforce than expatriates and are thought to represent a newer form of global careers with as much value and potential for loss (Welch, Welch, & Worm, 2007; Worldwide Benchmark Study, 2004).

2.4.1 Global mobility and international business travelers

All types of global mobility typically require the individual to integrate successfully into new work contexts and if organizations are to excel in today’s increasingly international business environment they are required to effectively grasp and manage the resulting impact (Bartlett, Ghoshal, & Beamish, 2007; Lee, 2005). Establishing best practice within the workplace therefore requires consideration of the predictors of performance related outcomes for those involved in global mobility (Black & Gregersen, 1999; Caligiuri, 2000). This becomes more important with a rising requirement for globally mobile talent evidenced by the emergence of international assignment portfolios, incorporating traditional expatriation along with for example, short term expatriation, international business travelers, rotational, commuter and virtual assignments (see Collings et al., 2007).

Whilst expatriation is still widely used and there is no evidence of a decline, there is evidence that alternative forms of assignments are on the rise (Mayerhofer et al., 2004; Scullion & Collings, 2006; Tahvanainen, Welch, & Worm, 2005). In fact, 54 % of organizations surveyed reported an increase in the number of international assignees in 2012 (Global Relocation Trends Survey, 2013). The emergence of a portfolio of assignments is driven by difficulty in attracting and retaining top talent (Meyskens et al., 2009), making global staffing even more difficult to manage. More specifically,
dual career issues, security threats, increased cost of relocation, convenient and cost effective air travel, increasing concern for quality of life and family represent some reasons for an increase in this portfolio (Collings et al., 2007).

In order to manage newer forms of assignments it is imperative that organizations develop human resource policies and practices that account for the different circumstances and objectives associated with each type of assignment (Collings et al., 2007). However, whilst 80 % of organizations feel that more specific policies are required (Coopers, 2005), there is limited accountability for newer forms, in particular towards international business travelers (Collings et al., 2007). This could be because human resource departments generally have little involvement in international business travelers when compared to the other assignment types, with their perceived responsibility typically falling under the remit of line managers.

Therefore the discretion of line managers which is largely based on their own perceptions/experiences of travel plays a key role as do employees themselves, where success is largely a result of personality (e.g. in playing a proactive role or how they react to the work environment) carrying implications for recruitment/selection and the need to identify individuals who possess certain personality traits that will enable them to cope better with the demands of international business travel (Mayerhofer et al., 2004; Westman, 2004). Consequently, companies are often unaware of how many international business travelers are in operation at one time, the associated return on investment and risks, making it difficult to produce appropriate guidelines or accurately estimate their value (Welch & Worm, 2006). This highlights the need for organizations to adopt a more strategic approach to the use of international business travel which
monitors and acknowledges the power of positive health and well-being, particularly as international business travelers are likely to continue to be used for critical tasks as international business expands (DeFrank et al., 2000; Welch & Worm, 2006).

In line with this, awareness has been raised in recent years of the occupational health and safety risks that surround international business travel and the need for human resource teams to proactively develop appropriate human resource policies (Campbell Quick et al., 2000; Collings et al., 2007). At present, the majority of international business traveler research has focused on the consequences of travel with little being done to aggregate meaning from the variety of potential outcomes, identify what causes positive/negative outcomes and how these develop from a theoretical perspective, therefore making this a difficult task. As noted by Welch and Worm (2006, p. 299) when discussing international business travelers: “It is important that scientific work is undertaken in this area that allows for theory development, given concerns that the field of international human resource management has tended to be empirically driven”. A major challenge is therefore to develop theory and corresponding empirical work in a way that can inform human resource strategies, policies and practices to support international business travelers. In response to this, the focus of the thesis is narrowed from the international context in general (as was seen in the two review studies) to international business travelers in an attempt to understand how burnout and engagement (i.e. representing a range of potential well-being and performance related outcomes) develop from a theoretical perspective, which should progress towards narrowing the dearth of research.
This avenue is important as organizations are expected to increasingly promote the use of international business travelers in coming years potentially at great financial investment (Brookfield Global Relocation Service, 2012). Furthermore, international business travelers are an incredibly diverse group of employees, often playing an integral component of most other types of international assignments and therefore their functioning resonates across all aspects of international business. For example, short and long-term expatriates are also likely to engage in international business travel. Similarly, commuters and those on rotational assignments travel internationally to go from one location to the next albeit this is usually between the same two locations. It is also likely that virtual assignees will occasionally travel.

Whilst empirical work on international business travelers is in an early stage of development, we do know that by nature of the job, on the whole they tend to experience greater ill health than their domestic counterparts or those involved in other types of assignments, which warrants attention in a preventative manner. This combination, where the use of international business travelers is rapidly increasing and there is ongoing lack of knowledge for how burnout and engagement develops with this group of employees dangerously places organizational investments (financial and human) at great risk and points at the time necessity to conduct relevant research.

### 2.4.2 Definitional approaches to international business travelers

International business travelers have previously been defined as “one for whom business travel is an essential component of their work” (Welch & Worm, 2006, p. 284) and/or “employees who take multiple short international business trips to various
locations without accompanying family members” (Shaffer et al., 2012, p. 1287). In this thesis, international business travelers can be defined as an employee who travels internationally for work purposes. This definition is not restricted by frequency, number of countries visited, trip length or duration. However it must involve the employee residing in temporary accommodation, without relocation and can’t be on a commuter basis between the same two locations.

Whilst some argue that international business travelers don’t come under the international assignee remit as there is no relocation involved (see Welch & Worm, 2006) this thesis, adopting the view of Collings et al (2007) considers them to be an important element of global staffing as they are increasingly used as an alternative to more costly relocation assignments and are often used in conjunction within these assignments (as outlined above), therefore resonating across international business in general.

International business travelers operate across dual or multiple work contexts and are sent to work overseas for short periods of time, residing in temporary accommodation (Collings et al., 2007; Mayerhofer et al., 2004; Meyskens et al., 2009; Shaffer et al., 2012). They are particularly useful for face-to-face interactions and working in volatile global regions where actual relocation is un-necessary or difficult (Welch & Worm, 2006). Furthermore, they are valued for conducting irregular tasks and maintaining foreign relationships especially in certain geographical regions (e.g. USA, Europe, South-East Asia) where cities are located close together and therefore require short flights (Collings et al., 2007). As a result, duration and frequency of trips can vary ranging from one day in a neighboring country, to one month spent as a ‘road warrior’
moving from country to country (Collings et al., 2007; Mayerhofer et al., 2004; Meyskens et al., 2009).

Given the nature of international business travel, individuals are frequently exposed to an assortment of demands and expected to perform well within new cultures often without appropriate training or time to adjust (Mayerhofer et al., 2004). This has been shown to lead to a range of problems such as decline in physical fitness (Neck & Cooper, 2000), increased alcohol consumption, sleep deprivation (Burkholder et al., 2010), social/emotional concerns (e.g. isolation, family concerns; Welch et al., 2007), lack of work life balance (Collings et al., 2007) all leading to an increase in stress, burnout and reduced performance (Collings et al., 2007; Striker et al., 1999). In addition, the high levels of family separation (80 % of respondents mentioned a negative impact) (Demel & Mayrhofer, 2010), disruption to routine and difficulty maintaining social circles at home (Brewster, Harris, & Petrovic, 2001; Demel & Mayrhofer, 2010) could over time lead to lack of confidence in ones ability to maintain workload, which is likely to hamper performance (Burkholder et al., 2010), theoretically believed to emerge via reduced dedication to the job causing a cynical attitude (e.g. in line with the JD-R model).

Some studies demonstrate a positive side to international business travel. For example, whilst Demel and Mayerhofer (2010) report that some international business travelers experience positive developments in their life (e.g. increased networks, reduced need to respond to family life challenges, enjoyment of travel), on the whole there are largely negative consequences related to well-being in the form of strain, fatigue, unbalanced diet, health concerns (e.g. weight gain, increased susceptibility to allergies and illnesses,
insomnia) and lack of recovery. In a qualitative study with 10 employees, Welch et al (2007) identified a range of negative (e.g. health issues, safety concerns, incessant work demands) and positive (e.g. variety, novelty, personal development, thrill of the deal) outcomes, but are not able to conclusively establish why these outcomes occur. This study outlines that trip frequency and duration could play a role, with longer yet more infrequent trips being preferred and the authors propose a conceptual model suggesting that international business travel (and it’s associated success) is a combination of perceived negative, positive (e.g. demands and resources) and personal factors along with organizational support.

Lastly, in a quantitative study with 57 international business travelers, Westman and Etzion (2002) found that job stress and burnout were actually lower after a trip, as being away from the office and home life acted as a form of respite, yet there is no conclusive evidence presented as to why this might be the case. These studies show that international business travel is not entirely negative yet at present we do not know why. Based on existing empirical evidence, on the whole it is believed that the range of demands counteracts this positive side (Welch & Worm, 2006) yet if we draw on relevant theory, there is potential for the situation to change. It therefore seems logical that human resource strategies, policies and practices should take into account factors that help individuals cope with the demands of international business travel such as appropriate levels of resources, aspects of personality and recovery time, which as discussed earlier are believed to impact performance, commitment, financial returns etc via burnout and engagement.
2.4.3 The JD-R model and international business travelers

The JD-R model is valuable for the international business traveler context as it is argued to provide a better understanding and classification of the factors that contribute to employee well-being and performance related outcomes than previous occupational health models (Lewig & Dollard, 2003; Van Veldhoven et al., 2005) and over half of empirical research published which focuses on the antecedents to engagement and a considerable amount of burnout research have adopted this demands-resources perspective (Alarcon, Edwards, & Menke, 2011; Crawford et al., 2010; Halbesleben, 2010; Park et al., 2009; Taris, 2006). Furthermore, many of the findings from current literature on international business travelers have potential to be re-framed in this perspective (e.g. Burkholder et al., 2010; Striker et al., 1999; Welch et al., 2007).

The authors of the JD-R model argue that previous job design and occupational health models “have been restricted to a given and limited set of predictor variables that may not be relevant for all job positions” (Bakker & Demerouti, 2007, p. 309) and therefore propose a model whereby the basic principles are applicable universally, but in doing so create a need to conduct exploratory and confirmatory work to establish the foundation for such principles to be applied. For a relatively new research area such as the management of burnout and engagement amongst international business travelers, it is therefore important in the first instance to gather an appreciation of international business traveler experiences to form an understanding of the most important predictors. To some degree existing literature can be drawn upon. However as we have seen with the human resource literature stream the problem with this is that a laundry list approach develops which does nothing to reduce confusion.
For example, in the human resource literature stream six areas of work-life which include workload, control (autonomy, role factors), rewards (financial, institutional or social), community (support), fairness (the degree that work decisions are perceived as fair) and values (extent of employee and organizational fit regarding values and goals) have been proposed as a set of cohesive work characteristics that hold potential to influence burnout and engagement (Bakker et al., 2011; Leiter & Maslach, 2004). Similarly, earlier job design theory has pointed towards the importance of control and support (Job demands-control-support model; Karasek, 1979) along with autonomy, skill variety, task identity, task significance and feedback from the job (Job Characteristics Model; Hackman & Oldham, 1980). Regarding aspects of the self, core self-evaluations (self-esteem, general self-efficacy, emotional stability, neuroticism and internal locus of control; Boyar & Mosley, 2007; Judge et al., 2003), the Five-Factor model personality characteristics (neuroticism, extraversion, agreeableness, conscientiousness, openness; McCrae & Costa, 1987) and psychological capital (composed of self-efficacy, hope, optimism and resilience; Luthans et al., 2007a; Luthans, Youssef, & Avolio, 2007b) all have demonstrated links to burnout and engagement (Alarcon et al., 2009; Dikkers et al., 2010; Janssen, Schaufelioe, & Houkes, 1999; Langelaan et al., 2006; Vink et al., 2011).

Adopting the principals of the JD-R model, international business travelers may be experiencing a range of problems, which make them unable to perform at an optimal level because of excessive job demands combined with prolonged exposure to and/or unavailability of job/personal resources to cope with such demands. Furthermore the international business traveler context may present a range of unique mediators or
moderators (see Baron & Kenny, 1986) that are less relevant in the domestic context and have therefore not been implemented within the model to date. At present the JD-R literature stream doesn’t lend insight into what the key predictive factors are for the international business traveler context, when such predictors are health impairing/motivational, or how they operate leaving practitioners at a loss for where to focus attention. Once we have knowledge of the what, when and how appropriate interventions can begin to form that will represent a more structured and specific human resources approach to the management of international business travelers. Given the success of the JD-R model in different domestic contexts for improving employee well-being and performance related outcomes, we can have confidence that it will help optimize positive experiences for international business travelers, yet it must be validated to avoid further risks such as those outlined above and importantly identify potential amendments that make it more relevant. These issues represent the foundation of the following two empirical studies that are presented in the following three chapters.
3 Methodology

Chapter 3 discusses the empirical approaches used in this thesis. It begins with a methodological overview, followed by a discussion of the philosophical approach, ethical considerations indicating the choices made in this thesis and lastly the methodology for the qualitative and quantitative studies.

3.1 Methodological overview

As highlighted by Bakker, Demerouti and Schaufeli (2003b), as a first step in working with the JD-R model, due to contextual differences often found it is necessary to use qualitative exploratory analysis with job incumbents who represent different aspects of the context of interest to reveal the constellation of potentially relevant demands/resources. This information can then be used on a broader scale with quantitative methods to assess JD-R assumptions. Furthermore, as noted by Hunt et al (2010, p. 655) “in order to formulate an intervention model it is necessary to understand the antecedents of sexual harassment and to examine how and why harassment occurs in some workplace situations and not in others”. Whilst this quote refers to sexual harassment in the workplace, the principles are essential for developing conceptual intervention models in other areas of research. Therefore as will be seen in the following sections, in this thesis the qualitative study is a mixture of exploratory (i.e. what are international business travelers experiencing in relation to burnout and engagement) and descriptive approaches (i.e. which demands/resources are important and can these be conceptualized according to the JD-R model) whilst the quantitative study is explanatory (i.e. testing the relationships between elements of the model and identifying theoretical amendments).
Consequently, the quantitative study essentially builds on the results from the qualitative study, using these as the foundation, in terms of what is assessed together completing the process of a first full assessment of the JD-R model in the international business traveler context. The collection and analysis of data in the systematic and objective manner outlined in this section will improve understanding of and help provide solutions to the business problems delineated in sections 1.2 and 2.4. Therefore it will likely help inform and facilitate business decision-making of the future. For example, findings could help diagnose influential factors in the development of burnout and engagement, identify opportunities for interventions and/or evaluate current programs.

Firstly, the qualitative study aims to explore international business traveler experiences with regards to the development of burnout and engagement. Subsequent objectives and associated methodological choices are:

- To identify critical predictors of burnout and engagement for international business travelers by asking individuals to discuss during semi-structured interviews the demands and/or resources that may influence the development of burnout and/or engagement (often described with exhaustion, cynical attitude, feelings of reduced efficacy, or feeling invigorated, dedicated or absorbed in their work). Please see section 3.4.2 for more detail.

- Evaluate if there are any theoretical extensions required in order for the JD-R model to more fully respond to the needs of an international business traveler. During interviews, participants were also encouraged to think of demands and/or resources that did not fall into the categories of work or personal factors (e.g.
home or social characteristics etc) and asked if there was anything important that had not been discussed. This was to establish if the JD-R model captures all relevant and important categories for this group of employees. During analysis (see section 3.4.3), any information that did not categorize according to the JD-R principles was placed into a separate coding system.

Secondly, using the identified demands/resources from the qualitative study, the quantitative study aims to assess the main propositions of the JD-R model and some of the theoretical amendments suggested in the qualitative study. Subsequent research objectives are:

- To investigate if exhaustion and/or engagement can be predicted according to the main propositions of the JD-R model for international business travelers through assessment of hypothesis 1 – 6 whereby demands/resources carry direct implications and hypothesis 9 – 10 whereby demands/resources moderate in the coping/buffer hypothesis. Regression analysis was used to analyze data in relation to each hypotheses (see section 3.5.1 and 5.1.2).

- To assess if curvilinear relationships exist between job demands and engagement and/or job resources and exhaustion for international business travelers as represented in hypothesis 7 – 8 and analyzed with regression analysis (see section 5.1.2.3).

- To investigate if recovery experiences and/or personal resources moderate the health impairment and motivational pathways for international business travelers, assessed with hypothesis 11 – 12 and 13 – 14, respectively, all of which were assessed with regression analysis (see section 5.1.2.5).
3.2 Philosophical approach

Outlining the philosophical approach is important so that the researcher and reader can reflect on the research process and taken-for-granted assumptions can be challenged. The chosen approach signifies how understanding and explanations are sought therefore guiding decisions about design and interpretation (Burrell & Morgan, 1979). As the following two empirical studies are assessing the pre-existing objective assumptions of the JD-R model in the international work context, together they adopt a largely deductive approach, largely in line with previous JD-R literature that has followed a positivist and determinist perspective as outlined in section 2.2.

The empirical work presented in chapters 3, 4 and 5 goes beyond a purely objective approach adopting a pragmatist perspective. Followers of a pragmatist approach promote the idea that a methodology is dictated by a need to respond to a particular question (Saunders, Lewis, & Thronhill, 2009; Tashakkori & Teddlie, 1998). The focus is on practical applied research, offering flexibility to choose the most appropriate research design. The use of mixed methods is therefore appropriate within a largely deductive, objective perspective, further supported by Morgan and Smircich (1980, p. 491), who note that “qualitative research is an approach rather than a particular set of techniques, and its appropriateness derives from the nature of the social phenomena to be explored”.

Therefore, in the qualitative study the idea that the work environment can be categorized into job demands/resources and these along with personal resources are particularly influential in the development of burnout and engagement is used as a
foundation for semi-structured interviews. This approaches implements a theoretical perspective to help develop ideas before research begins, adopting a realist ontological perspective assuming determinism whereby the international world of work exists external to the international business travelers understanding of it.

However, given the overall pragmatist position of the researcher, in order to respond to the qualitative research objectives, elements of a constructivist epistemology are incorporated through the use of exploratory methods focusing on how participants understand, interpret and attribute meaning to their world. Whilst the ideas presented are to a certain degree socially constructed, the researcher still assumes an objective (i.e. realist, determinist) perspective e.g. whilst participant interpretation of the environment represented by discourse around their experiences may vary between individuals, the external environment remains the critical influential factor. The only way to understand the objective environment is to try to understand it from the participant perspective.

In the quantitative study a deductive, positivist epistemology and realist ontological perspective is clearly assumed evidenced by: the use of concepts that can be operationalized in a measurable manner (i.e. by questionnaire); the use of hypothesis clearly seeking to explain causal relationships that have been developed in relation to theory, founded upon the assumption that employees attitudes, behaviors and actions are determined by the environment, which are then used to formulate further theory (see chapter 6); a highly structured design to allow for replication; and emphasis being placed on generalizing results to the broader population of international business travelers. The focus is on observation and reasoning (i.e. observing via measurement
instruments, reasoning with the JD-R model) due to the objectivity and independence of the researcher.

### 3.3 Ethical considerations

In advance of conducting empirical work, ethical approval was sought from The University of Stirling ethics committee. As the research did not involve working with vulnerable groups (e.g. children), discussion/measurement of sensitive topics (e.g. illegal behavior), the safety of participants was not threatened, research would not be intrusive into participant daily lives (e.g. they could reject a request to complete the survey, or re-schedule an interview), there was no deception (e.g. informed consent sought) and no pain caused, ethical approval was granted quickly. However ethical considerations go beyond simply achieving ethical approval, extending to incorporate the full research process and how research is conducted. For example: it was made clear anonymity and confidentiality would be protected; participants were made aware that results may be published in academic journals; and data was stored in a password-protected file. For the qualitative study, achieving trustworthiness was focused on to conduct rigorous research, which is outlined in table 3.1 (p. 112). The following sources were used as guidance for achieving trustworthiness: Denzin and Lincoln (2000), Merriam (2009), Miles and Huberman (1994), Morse et al (2002) and Sinkovics, Penz and Ghauri (2008). For the quantitative study, achieving validity and reliability was the focus to ensure rigorous research.
3.4 Study 1: Method of the qualitative study

International business travelers were interviewed in an exploratory manner to find out what they considered to be the most prominent predictors of burnout and engagement. These were explored further to identify how they led to participants feeling burned out or engaged, which helps increase understanding of any potential amendments to the JD-R model for the international business traveler work context. A qualitative approach was adopted to offer a clear and holistic perspective of participant experiences in a flexible manner, that is dynamic enough to enable an in-depth understanding and is considered suitable for an area with a scarcity of research (Draper, 2004; Merriam, 2009; Sinkovics et al., 2008).

Trustworthiness was achieved by incorporating a number of constructive verification strategies into the research process, with examples provided below and in table 3.1 (p. 112). This focused on achieving four aspects of trustworthiness as follows (see Draper, 2004; Merriam, 2009; Sinkovics et al., 2008): credibility being concerned with compatibility between the researcher and their interpretation; transferability referring to the extent that findings are significant across different samples; dependability being concerned with the extent that results are stable over time; confirmability involving demonstrating findings free from researcher bias. Whilst qualitative research is worthy in its own right and should not be described by comparing it to quantitative approaches, for the purposes of the researchers understanding in developing rigorous research, it was considered that credibility parallels validity, transferability parallels external validity, dependability parallels reliability and confirmability parallels objectivity.
Table 3.1. Strategies taken to achieve trustworthy research.

<table>
<thead>
<tr>
<th>Area of trustworthiness to be achieved</th>
<th>Steps take to achieve trustworthy research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Analysis moved beyond classification of demands and resources to a deeper level involving making inferences for model development (Miles &amp; Huberman, 1994). This also represented negative case analysis, used to enhance credibility, where the researcher looked for data that supported an alternative explanation to conceptualizing what is happening. Whilst research was primarily descriptive, the researcher thought theoretically by constantly checking emerging ideas against data to assess data ‘fit’ to the JD-R model or whether data represented a different theoretical approach. This helped to ensure a level of congruence between research question, data collection and analysis. This approach, of comparing data with different theoretical frameworks is a strategy of triangulation (Denzin &amp; Lincoln, 2000). The researcher was therefore constantly switching between a micro perspective focusing on data and macro conceptual insight, allowing any theory development to emerge as an outcome of the research that is comprehensive and well developed. Throughout the research process, the researcher was reflective remaining aware of my potential contribution to the construction of data and its interpretation, minimizing this as much as possible. Data collection was appropriate by interviewing individuals who best represent the topic area to the point of saturation and replication, judging this point through an iterative process of data collection and analysis.</td>
</tr>
<tr>
<td>Transferability</td>
<td>The researcher sought to achieve maximum variation, the process of “purposefully seeking variation or diversity in sample selection to allow for a greater range of application of the findings” (Merriam, 2009, p. 229) by obtaining diversity across occupations, geographical regions and extent of international business travel.</td>
</tr>
</tbody>
</table>
Dependability
Attempts were made to be transparent in decision-making to allow reader assessment of trustworthiness. The research protocol specified congruence between participants regarding recording of data, discussion of ethical issues and transcription.
To ensure equivalence in data collection, the researcher provided participants with a description of demands and resources in accordance with the JD-R model. This helped to guarantee participants understood the meaning of the terms ‘demands’ and ‘resources’, we were achieving methodological congruence and findings derived from conceptually similar ideas.

Confirmability
The canvassing approach of attempting to recruit from numerous nationalities was chosen as research across nationalities is thought to generate results valid for international contexts.
Use of software packages facilitates analysis of large volumes of data, enabling understanding, creativity and greater methodological rigor.

3.4.1 Sample
Participants were recruited via international networking websites and word of mouth, making this a mixture of non-probability convenience (n = 23) and snowball (n = 9) sampling. Notifications were placed on the international networking website ‘Internations’ outlining the research and asking individuals to come forward to confidentially discuss their experiences of international business travel (see appendix I, p. 278). Individuals who displayed jobs that potentially involve international business travel were also contacted directly in a cold calling approach on Internations (see appendix II, p. 279).
To be included individuals had to travel overseas on business as part of their job without family, operate across two or more work contexts and stay in temporary
accommodation. There were no restrictions on travel duration or frequency. A number of individuals who were involved with international business travel were also expatriates and as such, they were asked to respond solely regarding the travel aspect. As discussed in section 2.4.1, international business travelers represent one form of international assignee that can resonate across all other types. Therefore, the relationship between, for example, an international business traveler and an expatriate can be related or inter-dependent. They are classified as two different assignment types, with different criteria so can function independently, but equally together e.g. an expatriate can also engage in business travel but it’s not a necessary pre-requisite. For a more detailed overview of the different assignment types and their relationships, please consult Collings et al (2007), Meyskens et al (2009) and the Worldwide Benchmark Study (2004).

Due to the sampling strategy (see Patton, 1990) it was impossible to determine a response rate. As can be seen in table 3.2 (below) the sample consisted of 32 participants, with 9 females. The frequency of business trips ranged from three times per year, to 29 days per month, with the duration ranging from two nights to 29 consecutive days.

According to the literature, appropriate sample size in qualitative research is dictated by a point of saturation unique to each study (e.g. Creswell, 1998; Mason, 2010). Saturation can be determined by a number of factors such as the complexity of research aims (Charmaz, 2006), scope of the study, nature of the topic, quality of data, study design (Morse, 2000), researcher expertise (Jette, Grover, & Keck, 2003), heterogeneity
of the population, number of selection criteria, budget/resources/time available (Ritchie, Lewis, & Elam, 2003) amongst other factors (see Mason, 2010).

Table 3.2. Sample characteristics of participants in the qualitative study.

<table>
<thead>
<tr>
<th>P. No.</th>
<th>Gender</th>
<th>Married</th>
<th>Nationality</th>
<th>Residence</th>
<th>IBT regional locations</th>
<th>IBT frequency</th>
<th>IBT duration (days)</th>
<th>Interview length (minutes)</th>
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<td>16.28</td>
</tr>
</tbody>
</table>

IBT = international business traveler
Global regions: 1 = Europe, 2 = USA, 3 = Africa, 4 = Asia, 5 = Middle East, 6 = South America, 7 = Global.
M = month, Y = year
Proving saturation is difficult (Bowen, 2008), possibly as it emerges out of a feel for the data that can only be achieved if you are immersed in data collection/analysis. This is a reason why researcher reflexivity is so important in qualitative studies. For example, the point of saturation for a PhD student is likely different from someone who has worked in the field of burnout and engagement for 30 years, as they may be able to identify avenues that are worthy of pursuing due to a higher level of experience. Similarly an internal investigation of this topic within a multi-national company may be able to recruit more individuals due to internal organizational pressure or interest, rather than a PhD student who is working externally often with no real tie to the organization. Beyond a ‘feel’ for the data where consensus between participants is reached, according to some, saturation refers to the point where research becomes counter-productive and whilst new information will always emerge, there is so much data that researchers struggle to make sense of what they have (Strauss & Corbin, 1990). Therefore an element of discipline is important for the researcher in subjectively determining the importance of the new data for the overall research aims and avoiding data collection that is limitless (Mason, 2010).

As a result, guidelines on required qualitative samples for robust research are vague in particular for estimating samples prior to data collection and determining specific sample sizes can be difficult. Guest, Bunce and Johnson (2006) found only seven sources that provided guidance of sample sizes in advance of data collection but they did not specify reasons for this number. Some have suggested 15 interviews is the smallest acceptable sample size for qualitative research (Bertaux, 1981) whilst others have suggested 25 as a minimum for small projects (Charmaz, 2006) and even up to 30 interviews (Morse, 1994). Some suggest between 20 and 30 (Creswell, 1998) others
around 20 interviews to reach the point of saturation (Green & Thorogood, 2009) up to a maximum of 50 (Ritchie et al., 2003). Regarding PhD studies, in an analysis of 560 PhD qualitative studies, Mason (2010) found the mean sample size for interview studies to be 31.

Considering the above, the sample size in this study is considered appropriate, as findings had reached an acceptable point of saturation in the eyes of the researcher. It was felt that new data could emerge but this would not be as important as data already collected. Furthermore, a situation of limitless data collection wanted to be avoided which can create a situation of having too much data to make sense of and analyze in the given time frames of a PhD. Availability of participants was also a concern as it was becoming increasingly difficult to recruit individuals involved in international business travel.

### 3.4.2 Semi-structured interviews

Skype was the chosen interview technique used because it is a cost-efficient method that enabled participants to fit interviews around their busy schedules, allowed participants to be interviewed from across the globe, a high cancellation rate and last minute changes could be managed and phone conversations could be recorded. Prior to commencement of interviews the researcher spoke with a Global Mobility Manager to determine any potential issues with the types of questions that might be asked. This individual had responded immediately to early postings on international websites but did not meet the inclusion criteria. There were no amendments made to the intended line of questioning but it was highlighted that participants might need thorough
explanation of what constitutes an international business traveler, a job demand, job resource, personal resource, burnout and engagement.

32 semi-structured interviews were conducted over a three-month period lasting about 15 to 45 minutes. Despite all participants being assured of ethical considerations (e.g. confidentiality, anonymity, informed consent, data access), the majority of participants were either extremely limited with time (e.g. ‘I have 15 minutes between meetings to talk to you’) or reluctant to share personal information (e.g. industry, age) and as such demographic data can’t be reported on. Two individuals who responded to canvassing did not provide authorization for recording and therefore interviews were discontinued with a full explanation for the decision. For participants who were also involved in a different type of international assignment (e.g. expatriation, commuter) it was requested that they respond with regards to their international business travel only. However sometimes participants would talk about international business travel prior to the last year or would refer to other types of assignments. During analysis this information was omitted.

Throughout interviews the researcher remained aware of changes in the tone of voice and any reticence or annoyance within responses that might symbolize that the topic was becoming too sensitive and used this as a method of judging when to move away from an issue in avoidance of alienating a participant. The researcher refrained from guiding participants in their responses or interrupting the flow of dialogue, even in cases of digression to allow their narratives to emerge. It was emphasized to participants that there were no right or wrong answers and the researcher did not possess any expectations.
Participants were informed via email or prior phone calls on the nature of the study and that it was investigating the development of burnout and engagement. This was particularly useful for participants who were short on time as it meant the time allocated to the interview could focus on key questions and not explaining the study. Where possible, interviews began by gathering general information on trip frequency, duration and location. Example prompts to gather descriptive information included: Do you currently travel overseas with your job? If so, how frequently, what is the duration and where do you travel to? How many trips have you been on in the last year? How long have you been doing these sorts of trips/this trip?

Participants were then asked to talk about their experiences engaging in international business travel and to consider the characteristics in terms of demands and resources that were influential in the development of burnout and engagement. Example prompts to establish important antecedents include: Tell me a little about your job and overseas travel? Tell me about your lifestyle in relation to overseas work travel? What would you say are the most demanding aspects? What are the most challenging aspects, in a positive way/negative hindrances? What are the things you like/dislike the most? What are the things that help the overseas travel? On the last trip, what was the most challenging, obstacle, facilitator, resource to you? What aspects of your personality play a key role in the process?

Although flexible, to maintain flow during interviews, typical exploratory questions to understand the impact on international business travel were: What do you feel is the impact of the assignments to your work, family and personal life? Does it affect your
well-being? How about your ability to be motivated, engage and perform on the job? What strain do you experience if any? Does it impact upon your lifestyle and behaviour? Why do you think that? Why is that important to you? Prompts typically beginning with “why”, “what” or “how” were used to provide structure, encourage participants to be reflective of their experiences and help the interviewer understand what is important and why (Reynolds & Gutman, 1988).

3.4.3 Analysis

Theoretical thematic analysis was used to analyze data, in relation to the specific research questions outlined previously (Braun & Clarke, 2006). This analytic method was chosen, as it is a flexible method for identifying, analyzing and reporting themes within data, yet is useful for providing a detailed rich account. Clear and concise guidelines for conducting thematic analysis provided by Braun and Clarke (2006) were followed. As recommended, an iterative process between collecting, transcribing (verbatim) and analyzing data was engaged in to increase immersion, promoting increased sensitivity to depth and breadth of potential themes. Once data collection and transcription was complete, all transcripts were read once and notes taken that might reflect initial meanings and patterns. Semantic level themes (Boyatzis, 1998) were identified using N*Vivo 9 to organize data as it encourages systematic consistent techniques that reduce data into descriptive manageable forms (Hsieh & Shannon, 2005). Open, axial and selective coding was used as recommended by Miles and Huberman (1994) with N*Vivo 9 being used for open level coding and a personal system developed for selective and axial coding.
Initial codes were produced representing open level coding whereby interesting pieces of information within raw data that might form the basis for repeated themes were extracted. A broad approach was thought best to capture all potential codes that were later refined against participant meaning and inconsistencies addressed. At this point coding was data driven to allow any predictive categories, direct or indirect effects leading to the development of burnout or engagement to be identified. When coding, care was taken to include surrounding text that reflected the context of a particular statement. Then axial coding was undertaken which involved collating the open coded data into potential themes, which represented a more manageable format (Draper, 2004). Care was also taken to ensure a balance between depth and breadth at this point in that the researcher did not want one category per response but equally the researcher did not want the categories to be so broad that they lacked conceptual meaning.

As interviews were semi-structured it was not considered appropriate to quantify data by counting instances (Kitzinger & Willmott, 2002) instead preferring to take researcher judgments regarding the importance of a statement. Lastly the researcher engaged in selective coding which involved refining codes further by reviewing candidate themes being careful to ensure they reflected the data set, were exhaustive, mutually exclusive and conceptually congruent (Merriam, 2009). Existing literature was consulted and researcher knowledge considered when naming themes (Merriam, 2009) and determining if they fell into one of the pre-existing JD-R categories or represented a new category.
3.5 Study 2: Method of the quantitative study

A quantitative approach was felt appropriate as the researcher was interested in testing specific hypothesis relating to whether JD-R model propositions and the potential amendments identified through the qualitative study are projectable to the larger population of international business travelers. This approach is likely to work towards consensus on the aforementioned and start to identify potential cause-effect relationships that can be built upon in further research. In order to produce rigorous findings, validity and reliability are considered throughout.

Reliability (i.e. the degree to which an instrument is stable over time and will produce the same results on a different occasion) is assessed by Cronbach alpha values acting, as a necessary condition (but insufficient) for validity. Validity is considered in terms of the following, each holding potential to influence the accuracy of inferences: criterion-related validity (e.g. using measures that have been previously assessed for predictive, concurrent and face validity therefore measuring what they are supposed to and performing as intended); construct validity (e.g. the extent that the chosen measures reflect international business traveler demands/resources as discussed in the qualitative study and operationalized in the quantitative study); content validity (e.g. whether the chosen measure fully captures the area/issue under study); internal validity (e.g. the extent that the independent variable influences the dependent variable as predicted in the hypothesis, being free from confounding/external variables); and external validity (e.g. the extent that results can be generalized to the broader international business traveler population).
3.5.1 Hypothesis

As can be seen in section 1.3, the quantitative study aimed to investigate if exhaustion and engagement can be predicted according to JD-R model propositions in the international business traveler context and if findings from the qualitative study represent important theoretical amendments for a more international JD-R model. The development of hypotheses therefore emerges from discussions within sections 2.1.2 and 3.5.1.

To summarize, the JD-R model assumes that all job demands carry health impairing potential to increase exhaustion whilst all job resources carry motivational potential to increase engagement. More specifically, in the health impairment pathway, job demands will be the strongest predictors of exhaustion whilst in the motivational pathway, job resources will be the strongest predictors of engagement (see section 2.1.2.1). Furthermore, two key interaction effects exist in the model. According to the coping hypothesis, job demands strengthen the motivational pathway whilst according to the buffer hypothesis, job resources weaken the health impairment pathway (see section 2.1.2.2). In recent years, research has shown that personal resources also play an important part in the JD-R model. They are thought to possess direct motivational potential for engagement, directly reduce exhaustion and hold moderating and/or mediating potential for the health impairment and motivational pathways (see section 2.1.2.3). Lastly, representing a particularly new development in the JD-R model is the proposition that two types of job demands exist (challenge and hindrance) and a curvilinear relationship may exist between job challenge demands and engagement (see section 2.1.2.4). As can be seen in sections 2.1.2.1 to 2.1.2.4, findings around these
propositions are not entirely consistent, but this in itself underpins the necessity for further empirical work, particularly where emerging research contexts are concerned. Building on the JD-R model, as outlined in sections 2.1.2.1 to 2.1.2.4, the qualitative study suggests that a curvilinear relationship may also exist between job resources and exhaustion, and recovery experiences are particularly important for the development of exhaustion and engagement in international business travelers, potentially acting as mediators and/or moderators in the JD-R model.

In the present study, largely based on previous literature, recovery experiences are hypothesized as moderators (as opposed to mediators) in the health impairment and motivational pathways. For example, in a sample of 990 employees in Spain, Moreno-Jimenez et al (2012) showed that psychological detachment and relaxation buffered (i.e. moderated) the relationship between role conflict and work/health outcomes but mastery and control over recovery did not. Similarly, Siltaloppi, Kinnunen and Feldt (2009) found in a sample of 527 Finnish employees from various occupational sectors that psychological detachment and mastery buffered the development of exhaustion (measured as need for recovery) in situations with low job control (conceptualized as a job demand). Relaxation was also found to protect against exhaustion under conditions of high time demands.

These studies might suggest not all recovery experiences moderate each pathway e.g. mastery/control being more related to the motivational pathway, whilst psychological detachment/relaxation being more related to the health impairment pathway. However, as the role of recovery in the JD-R model is largely under-researched in general, the present study is concerned with international business travelers representing an
emerging and potentially unique literature stream and the qualitative study did not particularly suggest any patterns in the role of recovery experiences, hypothesis retained a general approach. Recovery experiences are also proposed as moderators because they represent contextual variables, it seems logical that the relationship between job demands/exhaustion and job resources/engagement may depend on recovery and theoretically recovery experiences could act as antecedents to both the work characteristics and outcomes. These are all conditions thought necessary for moderator effects to exist (see Wu & Zumbo, 2008).

Similarly, cognitive flexibility (representing a personal resource) is hypothesized to play a moderating role as moderator variables are often personality traits or innate attributes that exist prior to exposure to independent and dependent variables (Wu & Zumbo, 2008), or rather work characteristics and the development of exhaustion and/or engagement. Whilst cognitive flexibility is a trait that can change over time, in this study it exists prior to the international business traveler experiences and associated measurement and is therefore a typically observed third variable in the relationships under consideration. Furthermore, according to the JD-R model, they are thought to operate in much the same way as job resources. Therefore, cognitive flexibility would carry a moderating role on the health impairment pathway (e.g. reflective of the buffer hypothesis, section 2.1.2.2).

To recap, the qualitative study proposes a number of demands and resources that are important to international business travelers that formed the foundation of what to measure in this quantitative study (e.g. the importance of cognitive flexibility for internationally operating employees). Please note that not all findings from the
Building on the discussion above and in associated chapters, the following hypotheses are proposed.

*Hypothesis 1:* Job demands predict exhaustion.

*Hypothesis 2:* Job resources predict engagement.

*Hypothesis 3:* Personal resources predict exhaustion.

*Hypothesis 4:* Personal resources predict engagement.

*Hypothesis 5:* Job demands are the most important predictors of exhaustion.

*Hypothesis 6:* Job resources are the most important predictors of engagement.

*Hypothesis 7:* A curvilinear relationship exists between job demands and engagement.

*Hypothesis 8:* A curvilinear relationship exists between job resources and exhaustion.

*Hypothesis 9:* Job demands will strengthen the relationship between job resources and engagement.

*Hypothesis 10:* Job resources will weaken the relationship between job demands and exhaustion.

*Hypothesis 11:* Recovery experiences moderate the relationship between job demands and exhaustion.

*Hypothesis 12:* Recovery experiences moderate the relationship between job resources and engagement.
Hypothesis 13: Personal resources moderate the relationship between job demands and exhaustion.

Hypothesis 14: Personal resources moderate the relationship between job resources and engagement.

3.5.2 Sample and procedure

To recruit for the quantitative study, an advertisement was placed on Linkedin (see appendix III, p. 280) and notifications on Internations (see appendix IV, p. 281), two networking websites. Individuals from professional networking groups were invited to participate and asked to forward the survey invitation to additional networks. Human resources professionals who expressed an interest in the research were contacted directly by email (see appendix V, p. 282) and were sent a research summary (see appendix VII, p. 285). Furthermore, a main contact or administrator from networking groups that the researcher is part of (OWIT and LLORG’s) emailed the network groups to increase awareness of the research and invite participation from individuals or HR professionals representing organizations (see appendix VI, p. 284).

Warr (1990) advises including a wide range of job positions when assessing relationships between job characteristics and outcomes to increase the probability of finding variation. Hypotheses were therefore tested across two different samples for heterogeneity. Data was collected during May and June 2013 using an online questionnaire in English with a covering letter outlining the general purpose of the study (see appendices VIII, p. 289 and IX, p. 300), emphasizing confidentiality and anonymity to reduce any evaluation apprehension (see Podsakoff et al., 2003).
Participants were encouraged to answer questions honestly and were informed that there was no right or wrong answer. To be included participants had to have taken an international business trip in the last year that did not involve relation or commuting. As with the qualitative study, there were no restrictions regarding trip frequency or duration.

Sample 1. This was a non-probability snowball sample of 79 employees from 20 nationalities. Due to the sampling method it was impossible to determine a response rate or provide additional population parameters. For 54.4 %, English was their native language. For the other 45.6 %, 91.7 % were fluent in English and 8.3 % spoke English at a good level. Respondents represented 18 industry sectors, with a range in size of employing company albeit 51.9 % were from companies employing over 1000. 48.1 % of respondents were female, mean age was 42.21 (SD = 9.575), 57 % were married and 55.7 % had children. 94.9 % were of Caucasian ethnicity and 89.9 % held a Bachelor’s degree or higher. Regarding international business travel, 59.5 % had taken between 1 and 5 trips in the last year, 25.2 % had taken between 6 and 10 trips, 11.5 % had taken between 11 and 20 and 3.9 % had taken more than 21. In terms of duration of business trips, 1.3 % went on trips for one day, 40.6 % went on trips lasting 2-3 days, 34.2 % went on trips lasting 4-5 days, 7.6 % went on trips lasting 6-9 days and 15.3 % went on trips lasting between 10 and 60 days.

Sample 2. An internal human resource member from a Danish based international fast moving consumer goods organization invited employees from 9 different business units on a global scale to participate. This was a non-probability, purposive sample of 55 employees representing 20 nationalities. The organization was unable to provide
information regarding how many individuals received the questionnaire and therefore it was impossible to calculate a response rate or provide more detail on population parameters. 97.7% of the sample was fluent in English with 21.8% having English as a first language. 32.7% were female. At the organizations request an age category system was used. 18.2% were aged 20-25, 9.1% aged 31-35, 23.6% aged 36-40, 25.5% aged 41-45, 14.5% aged 46-50 and 9.1% were aged over 51. 65.5% were married and 56.4% had children. 89.1% were of Caucasian ethnicity and 96.4% had a Bachelor’s degree or higher. Regarding the extent of international business travel, of the 42 participants that reported such data 33.3% had taken between 1 and 5 trips in the last year, 19.1% had taken between 6 and 10 trips, 30.9% had taken between 11 and 20 and 16.7% had taken 21 trips or more in the last year. For these 42 participants, 5.6% went on trips lasting 1 day, 61.1% went on trips lasting 2-3 days, 25% went on trips lasting 4-5 days, 5.5% went on trips lasting 6-8 days and 2.8% went on trips lasting days.

3.5.3 Measurement of exhaustion and engagement

Building on the earlier discussion of burnout and engagement in the JD-R model (see section 2.1.2.5), theoretically if burnout and engagement are assumed to be opposites, the Oldenburg Burnout Inventory can be used to assess exhaustion/disengagement (representing burnout) and vigor/dedication (representing engagement) by reverse-coding the negatively phrased items, both sitting along energy/identification continuaums. However, given that more research is required on the dimensionality/measurement of burnout and engagement and it is therefore believed that at present they should be measured with conceptually distinct instruments (Schaufeli et al., 2002), the Utrecht Work Engagement Scale is chosen to assess
engagement and the Oldenburg Burnout Inventory is chosen as a measure of exhaustion, as being representative of burnout in the quantitative study.

The Utrecht Work Engagement Scale directly captures the definition of engagement adopted in this thesis, it is based on theoretical underpinnings consistent with psychometric properties, it’s structure has been shown to be valid and reliable in different occupational contexts and countries, including with the short version (see Demerouti et al., 2010; Schaufeli & Bakker, 2003; Schaufeli & Bakker, 2010) and it is widely used in JD-R research. Schaufeli, Bakker and Salanova (2006) recommend that whilst the Utrecht Work Engagement Scale provides scores for vigor/dedication/absorption independently, a total score for engagement should be used. This is because whilst conceptually distinct, the three dimensions of the Utrecht Work Engagement Scale are highly correlated and do not always present a clear three-factor structure (Schaufeli & Bakker, 2010; Sonnentag, 2003). This presents further reasoning for using the Utrecht Work Engagement Scale over the Oldenburg Burnout Inventory to measure engagement. Whilst the conceptual inclusion of professional efficacy in burnout is under question, research suggests that absorption is an important element of engagement and should therefore be included in its measurement (Schaufeli & Bakker, 2003). However absorption is not comprised in the energy/identification dimensions as assessed by the Oldenburg Burnout Inventory. This in itself is a criticism of the Oldenburg Burnout Inventory for measuring engagement.
All measures have been used in previous research demonstrating sufficient reliability, determined by Cronbach alpha values as outlined in section 5.1. Please refer to the associated references for each scale for further details on reliability and validity. General demographic data was collected at the start of both questionnaires and additional sample data (e.g. information on employment, international business travel) was collected mid-way through to provide psychological separation between demands and resources with the two outcome variables (see Podsakoff et al., 2003). For sample 1, the items and scoring method in each scale were presented as they appeared in the original versions of the scales. For sample 2, the wording of certain items and the response options were changed at the request of the organization. The organization preferred to use a consistent 4-point Likert scale ranging from ‘Strongly agree’ to ‘Strongly disagree’ across all scales with all items being positively phrased (aside from organizational support item 7). The questionnaires can be seen in appendices VIII, p. 289 and IX, p. 300, for samples 1 and 2 respectively.

Control variables. A number of control variables were included in the analysis of all hypotheses. These were gender, age, nationality, English language level, marital status, children, spouse employment status, education, ethnicity, international business traveler frequency and international business traveler duration. Gender, age, ethnicity and marital status were controlled for as differences have been found in the workplace and previous studies on international business travelers have considered these factors (e.g. Burkholder et al., 2010; DeFrank et al., 2000; Dupuis, Haines, & Saba, 2008; Striker et
Furthermore, marital status, the presence of children and spouse working status were included as these may impact upon an individual's exhaustion in particular, but potentially engagement (e.g. less vigor) by presenting external factors that make the business travel more difficult e.g. if an individual has children and their spouse works, yet they are called away on business trips, extra difficulties may be presented regarding child care. The level of English language was included, as many participants did not have English as their mother tongue, which may influence item interpretation. International business traveler frequency and duration was controlled for as the qualitative study identified these two factors as being potential moderators in the JD-R relationships, but without a validated measure, the researcher was unable to include them in this study.

*Work characteristics.* 11 items measuring autonomy were drawn from the ‘Independence in your work’ sub-scale of the VBBA questionnaire (van Veldhoven et al., 2002) and used to assess hypotheses 2, 6, 8, 9, 10, 12 and 14. The items can be found in the questionnaires under the description “the following questions deal with the amount of independence in your work”. An example item from the questionnaire given to sample 1 is ‘Do you have freedom in carrying out your work activities?’ and sample 2 is ‘I have freedom in carrying out my work activities’. Sample 1 responded on a 4-point Likert scale, ranging from ‘Always’ to ‘Never’. Cronbach alpha value for sample 1 was $\alpha = .903$ and sample 2 was $\alpha = .892$. Studies assessing the quality of this scale are reported in detail in the manual (Van Veldhoven et al., 2002). These studies describe
how the scale meets criterion of uni-dimensionality, reliability and validity (e.g. criterion-related, concurrent and predictive) with a range of samples.

9 items measuring workload were taken from the Job Content Questionnaire (Karasek et al., 1998) and used to assess hypotheses 1, 5, 7, 9, 10, 11 and 13. The items can be found in the questionnaires under the description “the following questions deal with your workload”. Both samples responded on a 4-point Likert scale ranging from ‘Strongly Agree’ to ‘Strongly Disagree’. An example item is ‘I have enough time to get the job done’. Cronbach’s alpha for sample 1 was $\alpha = .705$ and sample 2 was $\alpha = .717$. Previous research has provided convincing evidence for the reliability and validity of the Job Content Questionnaire (please also see discussion below on supervisor support). For example, Karasek et al (1998) reports reliabilities to be good in Japan, Canada and the United States and excellent validity ratings for the JCQ in predicting stress related disease and occupational illness, with a wide range of methodologies. Please refer to Karasek et al (1998) for further details.

Organizational support was measured with the Perceived Organizational Support Form (Eisenberger et al., 1986) and used to assess hypotheses 2, 6, 8, 9, 10, 12 and 14. The items can be found in the questionnaires under the description “the following statements represent possible opinions that you may have about working for X”. An example item is “The organization values my contribution to its well-being”. Sample 1 responded on a 7-point Likert scale and sample 2 on a 4-point Likert scale, both ranging from ‘Strongly Agree’ to ‘Strongly Disagree’. Cronbach’s alpha for sample 1 was $\alpha = .919$ and sample 2 was $\alpha = .765$. The short version of the scale was used (Eisenberger, Fasolo, & Davislamastro, 1990), which follows recommendations that “Because the original scale
is uni-dimensional and has high internal reliability, the use of shorter versions does not appear problematic. Prudence nevertheless dictates that both facets of the definition of POS (valuation of employees’ contribution and care about employees’ well-being) be represented in short versions of the questionnaire” as reported by Rhoades and Eisenberger (2002, p. 699).

Supervisor support was measured with the five-item scale from the Job Content Questionnaire (Karasek et al., 1998) and used to assess hypotheses 2, 6, 8, 9, 10, 12 and 14. The items can be found in the questionnaires under the description “the following statements deal with your relationship with your supervisor”. An example item is “My supervisor is helpful in getting the job done”. Both samples responded with a 4-point Likert scale ranging from ‘Strongly Agree’ to ‘Strongly Disagree’, with sample 1 having the option of ‘I have no supervisor’. Cronbach’s alpha for sample 1 was $\alpha = .841$ and sample 2 was $\alpha = .875$. Please see discussion above on workload and refer to Karasek et al (1998).

**Personal resources.** 12 items measuring cognitive flexibility were drawn from the ‘Cognitive Flexibility Scale’ (Martin & Rubin, 1995) and used to assess hypotheses 3, 4, 13 and 14. The items can be found in the questionnaires under the description “beliefs about your own behavior”. Sample 1 responded on a 6-point Likert scale from ‘Strongly Agree’ to ‘Strongly Disagree’. An example item is ‘I can communicate an idea in many different ways’. Cronbach’s alpha for sample 1 was $\alpha = .760$ and sample 2 was $\alpha = .841$. Martin and Rubin (1995) and Martin and Anderson (1998) demonstrate this scale to be internally reliable, with good construct and concurrent validity in five
studies with samples of students assessing cognitive flexibility against, for example, communication and assertiveness.

*Recovery experiences.* Recovery experiences were measured with a 16-item scale (Sonnentag & Fritz, 2007) measuring mastery, control, psychological detachment and relaxation and used to assess hypotheses 11 and 12. The items can be found in the questionnaires under the description “free time from work”. Please note that the final item (after work I tend to need more time than in the past in order to relax and feel better) in the sample 2 scale, shown in appendix IX (p. 300) is from the Oldenburg Burnout Inventory exhaustion scale and was moved at the organizations request. Both samples were asked to think about their free time from work and respond on a 4-point Likert scale. Example items are as follows: Mastery, ‘I do things that challenge me’; Psychological detachment, ‘I forget about work’; Relaxation, ‘I do relaxing things’ and Control, ‘I decide my own schedule’. Mean cronbach’s alpha for sample 1 was $\alpha = .808$ and sample 2 was $\alpha = .807$. Reliability and validity information for The Recovery Experience Questionnaire is presented in Sonnentag and Fritz (2007), who report good reliability and validity stemming from a cross-validation sample.

*Outcomes.* Exhaustion was measured using items from the Oldenburg Burnout Inventory (Demerouti et al., 2001; Demerouti et al., 2010; Halbesleben & Demerouti, 2005) and used to assess hypotheses , 3, 5, 8, 10, 11 and 13. An example item is “Usually, I can manage the amount of my work well”. Both samples responded on a 4-point Likert scale ranging from ‘Strongly Disagree’ to ‘Strongly Agree’. Cronbach’s alpha for sample 1 was $\alpha = .848$ and sample 2 was $\alpha = .734$. The reliability and validity
of the English version of this scale is demonstrated by Halbesleben and Demerouti (2005) with a sample of 2599 employees within the United States.

Engagement was measured using the 9 item short version of the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003) and used to assess hypotheses 2, 4, 6, 7, 9, 12 and 14. An example item is “My job inspires me”. Sample 1 responded on a 7-point Likert scale ranging from ‘Never’ to ‘Always’ and sample 2 responded on a 4-point Likert scale ranging from ‘Strongly Disagree’ to ‘Strongly Agree’. Exhaustion and engagement items can be found in the questionnaires under the description “how you feel at work”. Cronbach’s alpha for sample 1 was \( \alpha = .893 \) and sample 2 was \( \alpha = .899 \). Schaufeli and Bakker (2003) report in detail reliability and validity in the test manual for this scale, with Cronbach alpha values typically ranging between .80 and .90 and excellent validity towards its relationship with burnout and work characteristics.

### 3.5.5 Procedural limitations

There are a number of procedural limitations within the quantitative study that are worth considering before interpreting the results presented in chapter 5. The sampling strategy used for sample 1 may have compromised external validity, as it is impossible to assess if results are an accurate representation of the group under study. The use of snowball sampling may also have created a sampling bias whereby a sub-group of international business travelers formed which shared similar traits and characteristics. However, snowball sampling is particularly useful for populations that are hard to reach, which was found with this study, from the perspective of a PhD student.
The researcher went to great lengths to obtain access to international organizations (i.e. presentations at networking events, the use of contacts, ‘cold-calling’ approaches through LinkedIn) without initial success. As initial success was limited, a snowball sampling approach was adopted as a ‘back-up’, in case no international organization came on board. The researcher also thought this would help increase awareness of the research, thus increasing the likelihood that an international organization would find the research appealing. Given the small size of sample 1 \((n = 79)\) and sample 2 \((n = 55)\), it is possible that a type 1 error (i.e. detecting a significant effect when in fact there isn’t one) or type 2 error may have occurred (i.e. failing to detect a significant effect that exists). According to Tabachnick and Fidell (2006), with the analysis conducted in this study, the minimum sample size would have been 104 plus the number of independent variables (minimum of \(n = 105\)). A sample size below this increases the risk of type 1 or type 2 errors.

In sample 2, content validity and Cronbach’s alpha values may have been threatened/reduced by positively phrasing certain questionnaire items but the alternative was not gaining organizational access. Similarly, altering the Likert scales in sample 2 was not ideal as it could have increased common method variance i.e. variance in results that is attributable to measurement method over the constructs the measures signify (Meade, Watson, & Kroustalis, 2007) and/or reduced reliability (Cronbach’s alpha) values (see section 5.1.1). Again the alternative was to lose this important sample and therefore not have any data from within one international organization to analyze.

Lastly, in both samples, construct and content validity may have been weak. Findings from the qualitative study are used as a foundation for measurement choice in the
quantitative study. However, the issues described by participants may particularly relate to demands/resources (or recovery experiences) associated with international business travel as opposed to work in general. However, the instruments used in this study were of a general nature and therefore may not have captured international business traveler experiences accurately. Given that international business traveler research is in an early stage, there are no context specific measures available so it was deemed appropriate to use general workplace measures. Developing such scales is a lengthy process, out-with the scope of this thesis that would involve consulting subject matter experts and conducting a series of studies examining face and curricular validity of items and instruments. As general workplace measures are typically used within context-specific studies, this issue was not viewed as being too problematic.

3.5.6 Hypothesis testing

The statistical analysis will be carried out using SPSS version 19. Data is firstly prepared for inferential statistical procedures and descriptive analysis computed (see section 5.1.1). Hypotheses are assessed using Hierarchical Multiple Regression Analysis, following procedures by Baron and Kenny (1986) and Tabachnick and Fidell (2006).
4 Study 1: Qualitative study

Based on the method and analytical approach to the interviews, chapter 4 provides the results and discussion from the qualitative study. In response to the research aims and objectives outlined in section 1.3, the following section discusses the predictors of burnout and engagement identified for international business travelers. The next section discusses a more international JD-R model and the different aspects of this extended model before finishing with an overview of key findings. Furthermore, findings from the qualitative study also set the scene for chapter 5.

4.1 Predictors of burnout and engagement for international business travelers

This section discusses key predictors of burnout and engagement for international business travelers as identified from the interviews. The findings are broken down into demands and resources. The demand side is further broken down into two categories of job hindrance demands and job challenge demands. Resources are broken down into job resources and personal resources. Table 4.1 (p. 147) provides an overview of themes identified in the interviews.

4.1.1 Job hindrance demands

Poor quality of travel (logistics, accommodation, flights) and negative work-home interference were identified as hindrance demands due to the direct impact on health impairment. These findings are in line with previous international business traveler
research. For example, adjustment to time zones, short notice of travel, changes in sleep patterns and disruption to ones personal life (Espino et al., 2002; Mayerhofer et al., 2004; Scullion & Collings, 2006; Striker et al., 1999; Welch et al., 2007) have all been identified as critical work stressors.

Poor quality of travel was felt to be cost-inefficient due to the increased requirement for recovery time and reduction in engagement as a result of frustrations. For example, in line with findings from De Frank et al (2000) that quality of accommodation, delayed flights, and lack of quality sleep all affect an international business travelers productivity levels, participants felt that being unable to change to a different flight, restricted baggage, extra time spent at check-in, not being able to work on the flight, poor sleep, no internet to check work emails, working in difficult conditions affected their energy and dedication: “You do work in adverse condition still because it’s not your office, it’s not where you’re used to do it and it overloads you. Maybe out of 100% efficiency when you could do you probably do around 75 or 85 (%)” (participant 19); “Some of the company policies are difficult when I’m traveling so much, so we fly economy class only, with the lowest fare ticket they can buy no matter where I’m going. So, if I’m doing a round the world trip in eight days it’s all economy ... not being able to, you know, lie down on a twelve hour flight. Yeah, I absolutely can’t sleep ... if it’s a big meeting, I’ll be traveling over the weekend so at least by Monday morning I’m pretty fresh” (participant 10).

Work home interference was typically characterized by being away from children, managing a household and lack of a social life. It was more prominent for employees with children who were trying to juggle family responsibilities with work: “The issue of
traveling is obviously being away from your family. So, I do have a child and so my girlfriend needs to make sure she can stay at home and take care of him while I am away” (participant 32); “I think it’s to balance it with the childcare, to have childcare because we don’t have family here. We are both full time and he also travels” (participant 02). This finding is in line with previous literature suggesting that business travel can be more stressful for employees with children (DeFrank et al., 2000; Espino et al., 2002) in particular female employees (Westman et al., 2008) and a growing number of employees are struggling to manage conflicting work and family pressures leading to serious consequences such as depression and psychosomatic complaints made worse by a lack of resources (Bakker et al., 2011).

4.1.2 Job challenge demands

Workload was the main challenge demand identified due to it’s potential for health impairment but also learning and task accomplishment as a result of effort expended (see Van den Broeck et al., 2010). Workload has previously been identified as important in the development of burnout and engagement related symptoms both in the international business travel and the JD-R literature streams (e.g. Hakanen et al., 2005; Rothmann & Joubert, 2007). For example in a survey with 498 business travelers at the World Bank, Striker et al (1999) identified workload upon return as being a key contributor to stress.

Similar to the participants in Striker et al’s (1999) study, most participants discussed workload in a negative manner, which could be a consequence of experiencing high levels. It tended to be related to business travel and characterized by organizing the trip
schedule, travel bookings, following upon on meetings and action items after business travel, time spent on expenses in addition to catching up on work that built whilst the individual was out of the office. Most participants lacked assistance with these tasks, were faced with ineffective travel and expense tools increasing their workload, which was viewed as “unproductive and not cost-efficient” (participant 23). Furthermore, busy schedules whilst away meant “It’s always very stressful, ‘cause all the people want to see you during a very limited period of time... So I’m gonna have, let’s say around 10 to 12 meetings. (Okay.) In one day” (participant 04).

4.1.3 Job resources

Support (supervisor and organizational) and autonomy were important job resources that directly improved engagement and protected against health impairment. Supervisor support was evidenced by understanding attitudes towards weekday travel, to reduce the level of work-home interference, flexibility regarding recovery opportunities and managing expectations around increased workload as a result of the trip e.g. “I have a lot of pressure when I come back... But I’m not put under any immense pressure to erm you know ‘Why didn’t you do this yesterday’ (Yeah.) So they do understand” (participant 03); “(employer is) fine with me traveling on a week day so it’s not like I have to travel on a weekend ... not eating into your personal time” (participant 31). Surprisingly, and a possible reflection of the infant state of the international business travel literature stream, supervisor support has not been commonly assessed with international business travelers, yet it has been demonstrated as an important job resource that can help employees deal with exhaustion in the general JD-R literature stream (e.g. Bakker et al., 2007).
In line with Welch et al. (2007), who reported in their study of ten Australian and Danish international business travelers that organizational support was important for effective job performance, participants found organizational support to be important for maintaining a dedicated approach and ensuring energy can be applied to important work tasks. Organizational support incorporated assistance with travel arrangements, associated administration, provision of a company credit card and effective and flexible travel booking policies e.g. “the way that the internal system of planning the logistics of trips is very, very good. It helps me a lot” (participant 24); “I think our company does a really good job in giving us those online tools to be able to do our research and figure out where we would find it most efficient and flexible to stay” (participant 27).

For some participants however, the lack of organizational support evidenced by ineffective booking agents and poor expense tools was incredibly frustrating: “It makes it more stressful ... they will absolutely choose the lowest fares they can and yeah, some of the worst carriers that they can, because they are centered around that” (participant 10). This finding that a lack of resources can directly cause stress related health impairment is in line with previous JD-R literature (e.g. Hakanen et al., 2008b; Kinnunen et al., 2011; Schaufeli & Bakker, 2004).

Autonomy over travel schedules involved schedule management (e.g. “I’m scheduling my own travel... which is very helpful”, participant 26), when and how travel is conducted (e.g. “timing of the trip, the agenda, the length of the trip itself... helps to a large extent”, participant 31 which reduced work-home interference. For example, participant 02 noted: “I know that some organizations here they force you to take the
cheapest flight... so stop-overs in strange places, or that you have to go extremely early or extremely late. Now that of course has an impact, and we have the same but we still have a little bit of flexibility. They aren’t unreasonable with us... [makes] a huge difference. Yeah. Because you can, you can actually adapt it to the work life and also match it to your family life potentially”. This latter comment is reflective of the JD-R buffer hypothesis (see Bakker & Demerouti, 2007) where resources protect against health impairment as a result of job demands. These findings agree with Westman et al (2009), who reported that trip control was positively related to vigor for international business travelers and JD-R findings that job autonomy is beneficial for engagement (e.g. Bakker & Bal, 2010).

4.1.4 Personal resources

While personal resources can encompass traits, skills, experiences or competencies, the identification of a personality trait as the most prominent factor is in line with previous JD-R literature (e.g. Bakker et al., 2010a; Vink et al., 2011). The main personal resource identified as being important for burnout and engagement was cognitive flexibility, which helped individuals remain engaged when faced with different situations and protect against job demands due to the positive behavioral and attitudinal approach taken.

Cognitive flexibility in a general sense refers to “a person’s (a) awareness that in any given situation there are options and alternatives available, (b) willingness to be flexible and adapt to the situation, and (c) self-efficacy in being flexible” (Martin & Rubin, 1995, p. 623) but more specifically for international work refers to “the degree to which
the global work requires role incumbents to adjust their thought patterns and scripts to effectively interact with people and adapt to situational demands across cultures” (Shaffer et al., 2012, p. 1300).

Examples of participant cognitive flexibility included adapting “I’m pretty flexible person in terms of adapting culture and my eating habits ... I love traveling so trips are always welcome. So it gives you opportunity to visit a new place, meet new people and explore new culture” (participant 13), “feeling myself very easily and quickly” (participant 05) and not getting “fazed when things don’t go according to plan” (participant 16). Participant 04 noted how they were “pretty open to all- to all new things, and- and implement new- new strategies or whatever they want” and participant 30, “yes I like to travel and discover new cultures and new continents and so on and so forth. Yes I see it more positively when I can go to a new country I don’t know”.

Possessing cognitive flexibility is beneficial when appraising a situation and evaluating its level of threat, which according to transactional theory of stress is the main psychological mechanism linking stressors to outcomes (Lazarus & Folkman, 1984). Therefore, assuming both transactional theory of stress and a curvilinear relationship between challenge demands and engagement (see Janssens, 2001; Pisanti et al., 2008), if an individual possesses good cognitive flexibility they might approach cultural differences with greater self-efficacy and flexibility helping to prevent the onset of health impairment and encouraging a positive attitude.

For example, participant 12 noted that despite effort involved having to deal with cultural differences (e.g. the way business is conducted, relationships are built and
communication) was in fact a positive experience as a result of his attitude: “you have to chat to people, you try to build relationships, you try to interact with them, you try to build a bridge over cultural language differences ... You have some difficulties to communicate in a common language... getting to know people there and interact with them is challenging in a way, a positive matter ...”. This is particularly important for international business travelers who are by nature required to operate overseas and/or in multicultural environments and adapt their thinking accordingly.

4.2 A JD-R model for international business travel contexts

In general results suggest the JD-R model has potential within the international business traveler context, as participant experiences seemed to ‘fit’ somewhat with the principles and categorizations of the JD-R model (see table 4.1 below for an overview of themes identified in the interviews). All job demands were described as health impairing to some degree, whilst some despite the effort required also helped to motivate participants. Similarly, job resources were typically described as aspects of work that helped participants achieve goals, encouraging development and protecting against health impairment. However, whilst these assumptions were supported, participant experiences also suggest a number of potential amendments that might make the model more valuable for international business travelers.
Table 4.1. Overview of key themes identified for international business travelers in the interviews.

<table>
<thead>
<tr>
<th>Category</th>
<th>Finding from interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job hindrance demands</td>
<td>Poor quality of travel (e.g. logistics, accommodation, flights)</td>
</tr>
<tr>
<td></td>
<td>Negative work-home interference</td>
</tr>
<tr>
<td>Job challenge demands</td>
<td>Workload</td>
</tr>
<tr>
<td>Job resources</td>
<td>Supervisor support</td>
</tr>
<tr>
<td></td>
<td>Organizational support</td>
</tr>
<tr>
<td></td>
<td>Autonomy</td>
</tr>
<tr>
<td>Personal resources</td>
<td>Cognitive flexibility</td>
</tr>
</tbody>
</table>

Firstly, the finding that workload led to health impairment can be explained with activation theory (Gardner, 1986). Activation theory proposes that an inverted U shaped relationship exists between the effort required (e.g. workload) and performance outcomes (e.g. engagement). If the level of effort deviates from the optimum, engagement will reduce and health impairment increases. The idea of a curvilinear relationship between challenge demands and outcomes is supported in earlier studies and could help explain mixed findings regarding challenge demands and outcomes (e.g. Baer & Oldham, 2006; Janssen, 2001; Leung et al., 2011; van Ruysseveldt & van Dijke, 2011).

Recently developments investigating curvilinear relationships between demands, resources and outcomes for international business travelers were presented at the Academy of Management proceedings in 2012. Dimitrova et al (2012) showed that a curvilinear relationship exists between frequency of international business travel and career satisfaction and this relationship is moderated by supervisor support and cultural
intelligence. As it is unlikely in today’s current climate that international business travelers experience a low level of workload (or at least perhaps not the norm) it can be assumed that workload will initially lead to engagement (e.g. via a mid level) but over time (e.g. as the amount of effort increases) burnout will ensue. It is possible that the relationship is moderated by personal resources, such as cognitive flexibility in that they help determine for whom and when a particular challenge stops being engaging and becomes health impairing.

Secondly, as certain work characteristics hold potential to be health impairing or engaging depending on whether they are perceived as high or low it would be beneficial for organizations to concentrate on acquiring the right level of a more limited set of predictors adopting a quality not quantity approach e.g. “Tell me your, you know, your top three strengths and I’ll tell you your three top weaknesses” (participant 26).

Considering the curvilinear relationship outlined above, research suggesting that a lack of resources is health impairing, that ample resources buffer against negative effects of hindrance demands and challenge demands strengthen the motivational pathway (Bakker & Demerouti, 2007; Demerouti & Bakker, 2011; Wilcox & Kittler, 2011), focusing efforts on achieving the right level of challenge demands and resources is likely to maximize organizational efforts. To a certain degree such an approach presents disregard for hindrance demands. Reducing hindrance demands may only serve to reduce health impairment, whereas concentrating effort on challenge demands and resources is likely to produce multiple simultaneous benefits.
Further supporting this approach, literature suggests that certain aspects of burnout and engagement (mainly cynicism and dedication) are polar opposites, other aspects highly correlate (exhaustion and vigor) and an erosion of engagement will create burnout or vice versa (Demerouti et al., 2010; Maslach & Leiter, 1997). Therefore, concentrating efforts on the more direct engagement related aspects of the JD-R model should indirectly prevent the development of burnout amongst international business travelers an approach adopted by Hakanen and Roodt (2010). The finding that a lack of job resources caused signs of burnout suggests that a curvilinear relationship may also exist between job resources and burnout and as with engagement, this could be moderated by personal resources such as cognitive flexibility.

Thirdly, analysis suggests that recovery experiences and intensity of travel play a key role in the development of burnout and engagement for international business travelers and could represent mediators or moderators in a more internationalized JD-R model. This idea is in line with earlier research suggesting that the number of trips taken, frequency of trips and recovery time are central to vigor, exhaustion and performance (Demerouti, Bakker, & Fried, 2012; Demerouti et al., 2009; Sonnentag et al., 2012; Welch et al., 2007; Westman et al., 2008).

Regarding recovery time, the main issues that emerged were dealing with jet lag from long haul flights, impact to health, relaxation time whilst on a trip and a chance to respond to increased workload as a result of the trip. For example, participant 25 notes the following when discussing the result of a heavy workload between trips: “I was actually jet lagged for an entire month... I was tired and got quite sick. Erm, and so I was sick through all the trips and trying to power through... eventually I just had to
take a day off work... And so I think you, you tend to ignore the physical needs... some rest and sleep”. Similarly, participant 16 discusses frustrations with lack of recovery time after business trips leading to a cynical and disengaged attitude towards work: “Well, you know, you come home, the food’s out of date, the supermarkets are shut ... you’ve got a pile of washing to do, you’ve got all your mail to go through, you’ve got all your expenses and so, and it’s like, everything just piles up bad as a result of it. And to say is, if you choose to travel on the weekend, you don’t tend to get compensated for taking your time, you know?” On the contrary, participants who received adequate recovery adopted a positive approach associated with strengthening of engagement. For example, participant 31 notes: “the whole stress leading up to the trip and the stress that comes afterwards is made up for by the fact that I get to see my family”.

Despite limited research on the role of recovery for international business travelers, recovery experiences have recently been recognized within the JD-R model although their precise role remains unclear. Moreno-Jimenez et al (2012) surveyed 990 Spanish employees to assess the moderating role of recovery experiences in the relationship between a job demand (role conflict) and workplace outcomes (note that these were not burnout or engagement related). They found that psychological detachment and relaxation played a moderating role, but mastery and control did not. Kinnunen et al (2011) assessed the mediating role of recovery between job demands and resources with exhaustion and engagement in a sample of 527 Finnish employees from various jobs. They found that psychological detachment fully mediated the health impairment pathway and mastery partially mediated the motivational pathway. However, the job demands-engagement relationship was not mediated by any recovery experiences and control did not play a mediating role.
Regarding intensity of travel there was a clear difference between participants who experienced a low or high level. Its central role is characterized by participant 30, who notes the following: “if I would be traveling fifty percent of my time, err I think at some point in time I will, my body first of all will not support it and I would err feel tired and a bit de-motivated to err to be away so much. Because you realize also that when you travel, erm you have the normal business, which is on hold a bit. So when you come back you have so many messages to handle and this kind of thing...So, I think it should be well balanced. Traveling once a month is really, really something I feel positive about. Err when it becomes two or three times a month it’s just too much”.

This is substantiated by participant 13 who commented that travel becomes problematic when one engages in it a lot e.g. “you are not able to sleep properly because of your jet lag or the clock change you have a new day cycle, it becomes challenging”. When discussing low intensity of travel, participants referred to feelings of vigor and absorption, finding the travel to be a positive experience, which is thought to be a means of expressing engagement (Schaufeli et al., 2002). Participants noted the following positive aspects when discussing business travel at a low intensity: the exposure to new knowledge, “I think it’s, it’s great to get the exposure” (participant 03); the break from the usual work routine and opportunity to visit nice places, “I always look forward to trips that are in new areas or new regions or new costumers I’ve never been to... So to break from the routine is something I quite look forward to. That's the most positive thing about it” (participant 24).
Furthermore, it is thought that working in a new context can increase engagement due to a stimulating environment and opportunity for development (Salanova et al., 2010). It could be that international business travelers who experience a low intensity of travel are experiencing something similar. Drawing attention to this, participant 11 notes: “It was challenging in such a way where it was you know you’re taking in a lot of information as to what certain teams are doing and what they’re going to be focusing on in the future. And so I guess just absorbing everything and also knowing where my place is in the mix of all of that was both challenging as well as motivating. To see you know where our company is going and how I’m going to fit in to that bigger picture”.

A high intensity of travel appeared to exacerbate hindrance demands. For example, it caused a high degree of work-home interference, such as via family separation, disruption to routine, lack of social life, difficulty retaining a healthy lifestyle, playing a critical role in developing cynicism, as noted by participant 16: “you have too many of them; you get no social life. Because you’re on the road, and you can’t go to regular things... Or you go to arrange something and you keep missing stuff”. This idea was supported by participant 01, noting that with a pace of “traveling every second week” with for example, “in an eight-day period, I flew [7 flights across two continents]... it was horrendous... [I was] exhausted”, burnout quickly developed. Similarly, when discussing increased cynicism on the job, participant 18 describes how a high intensity of travel exacerbates the extent of logistical problems (e.g. availability of direct flights, visa issues, internet access and power adaptability): “Availability of direct flights... timings of flights, you know; are they convenient? Do they fit in? You know, you’re trying to minimize the amount of downtime or travel time... Hotel proximity. If
you’re staying overnight somewhere to wherever it is you’re supposed to be conducting business… Visa requirements and sometimes how long it takes to obtain visa and how easy that is”.

Whether recovery experiences and intensity of travel play mediating or moderating roles for international business travelers remains to be established and represents a valid further research avenue. It may be that their role is variable and depends on the specific nature of the demands and resources assessed. For example, work-home interference is less likely than workload to cause a change in intensity of travel (as this is determined by the job requirements) therefore potentially placing these variables as moderators for the former work characteristic and mediator for the latter. Similarly, the right support and autonomy could highly correlate with both intensity of travel and recovery experiences, placing these two important factors as mediators in the model (e.g. a supportive manager might recognize that an employee with children needs to manage her own travel schedule) yet a resource such as administration assistance is unlikely to cause a change intensity of travel and recovery experiences placing this as a moderator.

The JD-R model emphasizes the objectivity of a work context, assuming that work characteristics are universally and exclusively categorized in an a priori manner (Lepine, Podsakoff, & Lepine, 2005; Webster, Beehr, & Love, 2011). The finding that cognitive flexibility is a key personal resource is interesting. Although relatively stable, this aspect of personality can be developed within individuals and therefore may influence how an individual appraises the work context which according to transactional stress theory is considered critical in forming stress reactions (Lazarus & Folkman, 1984). Furthermore, as previous research has shown that training based stress
interventions can influence individuals appraisal of situations and whether they lead to positive or negative outcomes (see Webster et al., 2011), focusing on key moderators which affect appraisal could be a worthwhile avenue. Therefore, it would be worth considering if the appraisal process plays a greater role in the JD-R model than originally thought.

4.3 Overview of key findings

The two research questions focused on identifying critical antecedents to burnout and engagement and identifying any potential amendments to the JD-R model that would facilitate its use in the international business traveler context. Results indicate that key hindrance demands are poor quality of travel and work home interference, workload was the main challenge demand identified, support (supervisor and organizational) and autonomy were the key resources and cognitive flexibility was a critical personal resource. Four of the predictors identified (work home interference, workload, support, autonomy) were in line with domestic human resource and JD-R literature. Neither cognitive flexibility, recovery experiences nor intensity of travel have been typically associated with the development of burnout and engagement in domestic contexts and therefore may represent unique aspects of an international business traveler (or international) JD-R model.

Whilst the key assumptions of the JD-R model appear to be relevant for the international business traveler context, these findings show that the model may benefit from amendments that help to focus the JD-R model in a manner that directs future researchers and practitioner interventions. Firstly, findings suggest curvilinear
relationships may exist for the job challenge-engagement and job resources-burnout relationships that may help explain why and when job challenge demands and job resources are motivational and/or health impairing. Secondly, this would imply that focusing attention on a smaller range of predictors that act as challenges and resources may be the most beneficial approach. Thirdly, intensity of travel and recovery time may represent important mediators or moderators within an international JD-R model. Fourthly, cognitive flexibility may act as a critical part of an international JD-R model in that it moderates the health impairment or motivational pathways as well as carrying direct implications for burnout and engagement. Further investigation of the above, particularly the intensity of travel, recovery experiences and cognitive flexibility could determine whether a clear distinction between a domestic and international JD-R model exists and if so it’s precise nature.
Chapter 5 begins with an overview of the data preparation, descriptive analysis and analysis of each hypothesis. Next, findings are discussed in relation to previous literature and explanations provided. Lastly, an overview of key findings is presented.

5.1 Results

This section details the steps taken to prepare data for inferential statistical analysis and the descriptive analysis.

5.1.1 Data preparation and descriptive analysis

The statistical analysis was carried out using SPSS version 19. Reliability analysis using Cronbach’s alpha coefficients (Clark & Watson, 1995) were conducted on items prior to reverse coding (i.e. in the form they were presented to participants). Initial analysis showed the workload ($\alpha = .333$) and exhaustion ($\alpha = .534$) scales from sample 2 to possess low Cronbach alpha values.

Due to an interest in identifying items that accounted for a low level of variance, which could be extracted to increase overall scale reliability, yet without theory regarding which items should be extracted an approach that accounted for unique, common and error variance was required. As such, Principal Components Analysis was considered the most appropriate method to inspect the internal structure of data and therefore check
for potential reduction of dimensionality of data in the first instance (Allen & K., 2010; Brown, 2009b).

Based on recommendations (e.g. Brown, 2009a; Tabachnick & Fidell, 2006) a direct oblimin oblique rotation was conducted as it can result in higher eigenvalues (i.e. the amount of variance accounted for by each variable) and is considered a standard approach to use. The majority of correlations were above .32 (a case that would suggest overlap in variance among components), yet this is theoretically expected of scales trying to measure closely related components of one construct. As the validity of these scales has been established in prior studies and were designed to measure an overall construct, this was not viewed as being problematic. Similarly, whilst not all items across the two scales were perfectly normally distributed, given the robust nature of Principal Components Analysis these deviations were not viewed as problematic particularly as linear relationships were identified, KMO was above .6 and Bartlett’s showed significance, indicating suitability for analysis (Allen & K., 2010).

For workload, examination for low communality values of items (i.e. that may indicate the item should be removed) revealed items 4 and 9 would be best removed, although the values were not considerably less than other items. Upon removing items 4 and 9, reliability was .288, so it actually reduced. As the Principal Components Analysis component matrix did not suggest any particular item to be removed which would improve reliability, trial and error was used. Through trial and error, when the negatively phrased items (items 6, 8 and 9) from the scale were removed, reliability improved dramatically to .717. Two components were identified using the criteria of
For exhaustion, the Principal Components Analysis communalities suggested item 2, then 4 and 5 should be removed (showing lowest communality values). Reliability improved to .671. However, in order to improve reliability values further and as trial and error had been successful for workload items, trial and error was applied here. The individual alterations in reliability, by removing items 2, 4 and 5 were calculated. Removing item 4 only resulted in the best alpha value of .734, so all other items were retained. Two components were identified, using the criteria of retaining components with Eigenvalues exceeding 1, accounting for a total variance of 57 %.

Following this, all of the Cronbach \( \alpha \) values apart from absorption in sample 1 and relaxation in sample 2 exceed .70, which is generally the recommended minimum value for sufficient reliability, with around .90 being ideal (Allen & K., 2010; George & Mallery, 2003). As the alpha values of absorption and relaxation in the respective samples are only slightly below this recommended value and some authors claim that alpha values above .60 are still acceptable (Bowling, 2002), data reduction was not engaged in further.

Where applicable, items were reverse coded and data checked for univariate outliers, violations of normality, linearity and homoscedasticity of residuals as a means of preparing the data for analysis. Data was interpreted using visual indicators (i.e. histogram, stem and leaf plots, Q-Q plots) and the rule of thumb that data is normally distributed if the skewness and kurtosis statistic value is roughly less than twice the
associated standard error (see McQueen & Knussen, 2006). Please refer to table 5.1 for Skewness and kurtosis data and appendix X, p. 310 and XI, p. 316 for visual indicators. Checks were carried out on original variables, transformed variables and squared variables where appropriate. Some concerns were found regarding violations of normality.

Table 5.1: Skewness, kurtosis and associated standard error to provide indication of data normality in sample’s 1 and 2 respectively.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Skewness</th>
<th>Standard error</th>
<th>Kurtosis</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>.267 / .234</td>
<td>.271 / .322</td>
<td>-.518 / -1.077</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Workload</td>
<td>.429 / .247</td>
<td>.271 / .322</td>
<td>.245 / -.392</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Organizational support</td>
<td>-.652 / -.347</td>
<td>.271 / .322</td>
<td>.903 / .477</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Supervisor support</td>
<td>.651 / .385</td>
<td>.271 / .322</td>
<td>-.837 / .377</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Cognitive flexibility</td>
<td>-.321 / -.426</td>
<td>.271 / .322</td>
<td>.629 / -.136</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Recovery - Mastery</td>
<td>.292 / -.462</td>
<td>.271 / .322</td>
<td>-.125 / .507</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Recovery - Control</td>
<td>.282 / -.203</td>
<td>.271 / .322</td>
<td>.05 / -.318</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Recovery - Psychological detachment</td>
<td>.065 / -.549</td>
<td>.271 / .322</td>
<td>-.362 / 1.364</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Recovery - Relaxation</td>
<td>.395 / -.031</td>
<td>.271 / .322</td>
<td>.286 / .217</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>-.443 / .146</td>
<td>.271 / .322</td>
<td>.622 / -.163</td>
<td>.535 / .634</td>
</tr>
<tr>
<td>Engagement</td>
<td>-.055 / .030</td>
<td>.271 / .322</td>
<td>-.634 / -.492</td>
<td>.535 / .634</td>
</tr>
</tbody>
</table>

In sample 1, supervisor support and autonomy possessed violations of normality. As both scales were positively skewed, a log transformation was conducted on supervisor support (as the skewness was large) and square root transformation on autonomy (as the skewness was moderate), the latter resulting in success. The transformed variables possessed minor violations. However, as the data was relatively clustered around the normal Q-Q plot, possessed an equal spread in the detrended normal Q-Q plot and the
skewness statistics were not far off the acceptable range, the variables were deemed suitable for inferential statistics.

In sample 2, supervisor support and exhaustion possessed violations of normality. A square root transformation was conducted on supervisor support (as the skewness was moderate) and a reflected square root transformation on exhaustion both creating new variables, which possessed normality. Regarding exhaustion, as there was a negative skew, the distribution was reflected by adding a constant of 1 to the highest score prior to transformation.

Further analysis was conducted on the transformed variables. The maximum Mahalanobis distance did not exceed the critical $\chi^2$ suggesting multi-variate outliers were not a problem. All tolerances for the independent variables onto engagement or exhaustion were greater than .1 and VIF scores less than 10 suggesting multi-collinearity was not a problem.

Tables 5.2 (p. 162) and 5.3 (p. 162) show the descriptive analysis (i.e. mean values, standard deviations, Cronbach $\alpha$ values and inter-correlations) of the study variables for samples 1 and 2 respectively. Correlations were checked against un-transformed variables with no major differences found. The Pearson correlation values across all variables was well below .9 suggesting that common method bias was not an issue and most of the correlations were below .5, suggesting that the variables did not overlap (Hakanen et al., 2005).
In sample 1, the correlations between relaxation and psychological detachment \( r = .590 \) and relaxation and control over recovery \( r = .585 \) were above .5. In sample 2, correlations between organizational support and supervisor support (control over recovery, \( r = .629 \)) and engagement and exhaustion \( r = -.530 \) were above .5. Therefore, there was some overlap between these variables but this was not perceived to be problematic as they are still well below .9. In particular, theoretically we might expect high correlations between exhaustion and engagement (see sections 2.1.2.5 and 3.5.3).

Considering guidelines from Podsakoff et al. (2003), common method bias (i.e. being the degree to which correlations are inflated due to a methods effect) could have occurred in sample 2 from re-phrasing items in a positive manner or by using a consistent Likert scale system. Other potential causes of common method bias were not viewed as problematic in either sample due to implementing procedural remedies relating to questionnaire design and methodology (see Podsakoff et al., 2003). Nevertheless, descriptive statistics and partial Pearson correlation analysis were computed to provide an overview of associations (see tables 5.2 and 5.3, p. 162). The correlation matrix was examined for extremely high correlations \( r > .9 \) between all variables (i.e. including those not considered in the above regression related assessment of multi-collinearity) to check if common method bias was an issue, which it was not found to be the case.

As can be seen in sample 1, significant Pearson correlation coefficient’s \( r \) were found for the relationships between: engagement and autonomy \( r = .436, p < .001 \); cognitive flexibility with mastery over recovery \( r = .305, p < .05 \) and control over recovery \( r = \).
Table 5.2. Means, standard deviations (SDs), and correlations between the study variables in sample 1.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>WL</th>
<th>AU</th>
<th>OS</th>
<th>SS</th>
<th>CF</th>
<th>REM</th>
<th>REPD</th>
<th>RER</th>
<th>REC</th>
<th>EXH</th>
<th>ENG</th>
</tr>
</thead>
<tbody>
<tr>
<td>WL</td>
<td>17.727</td>
<td>2.725</td>
<td>.705</td>
<td>17.946</td>
<td>4.616</td>
<td>-.166</td>
<td>.903</td>
<td>3.028</td>
<td>3.950</td>
<td>.027</td>
<td>.106</td>
<td>.084</td>
<td>.190</td>
</tr>
<tr>
<td>AU</td>
<td>16.891</td>
<td>4.072</td>
<td>.203</td>
<td>.104</td>
<td>.919</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OS</td>
<td>3.028</td>
<td>.468</td>
<td>.115</td>
<td>.199</td>
<td>.005</td>
<td>.841</td>
<td></td>
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</tr>
<tr>
<td>SS</td>
<td>21.636</td>
<td>3.950</td>
<td>.179</td>
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WL = workload, AU = autonomy, OS = organizational support, SS = supervisor support, CF = cognitive flexibility, REM = recovery mastery, REPD = recovery psychological detachment, RER = recovery relaxation, REC = recovery control, EXH = exhaustion, ENG = engagement.

* p < .05. ** p < .01. *** p < .001.

Table 5.3. Means, standard deviations (SDs), and correlations between the study variables in sample 2.

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</table>

WL = workload, AU = autonomy, OS = organizational support, SS = supervisor support, CF = cognitive flexibility, REM = recovery mastery, REPD = recovery psychological detachment, RER = recovery relaxation, REC = recovery control, EXH = exhaustion, ENG = engagement.

* p < .05. ** p < .01. *** p < .001.
.271, \( p < .05 \)) and control over recovery \( (r = .385, p < .01) \); relaxation with psychological detachment \( (r = .590, p < .001) \) and control over recovery \( (r = .585, p < .001) \); and psychological detachment and control over recovery \( (r = .388, p < .01) \). Exhaustion, workload, organizational support and supervisor support did not correlate with any variable. Please also refer to table 5.2 (p. 162).

In sample, 2, significant Pearson correlation coefficient’s \( (r) \) were found between:

engagement and workload \( (r = .480, p < .01) \); engagement and autonomy \( (r = .457, p < .01) \); engagement and organizational support \( (r = .429, p < .01) \); engagement and supervisor support \( (r = .380, p < .05) \); engagement and cognitive flexibility \( (r = .490, p < .01) \); engagement and exhaustion \( (r = -.530, p < .001) \); exhaustion and organizational support \( (r = -.434, p < .01) \); exhaustion and supervisor support \( (r = -.469, p < .01) \); exhaustion and cognitive flexibility \( (r = -.363, p < .01) \); workload and cognitive flexibility \( (r = -.322, p < .05) \); workload and psychological detachment \( (r = .392, p < .01) \); autonomy and cognitive flexibility \( (r = .349, p < .05) \); organizational support and supervisor support \( (r = .629, p < .001) \); supervisor support and relaxation \( (r = .310, p < .05) \); cognitive flexibility and mastery over recovery \( (r = .329, p < .05) \); relaxation and control over recovery \( (r = .337, p < .05) \). Please also refer to table 5.3 (p. 162).

5.1.2 Analysis of hypothesis

This section describes the analysis of each hypothesis beginning with an overview of preliminary considerations, followed by an outline of each hierarchical multiple regression analysis and associated results. Results relating to hypothesis 1-6 regarding
demands/resources as predictors of exhaustion and engagement are presented (tables 5.4, p. 168 and 5.5, p. 169 respectively), followed by hypothesis 7 and 8 relating to the curvilinear relationships between job demands and engagement, job resources and exhaustion (tables 5.6, p. 173 and 5.7, p. 174 respectively). Next, results relating to hypothesis 9 and 10 relating to the coping and buffer hypothesis are presented (tables 5.8, p. 177 and 5.9, p. 178 respectively), before the moderating role of recovery experiences (hypothesis 11 and 12, tables 5.10, p. 180 and 5.11, p. 181 respectively) and cognitive flexibility (hypothesis 13 and 14, tables 5.12, p. 187 and 5.13, p. 188 respectively) in the health impairment and motivational pathways.

Guidelines provided by Tabachnick and Fidell (2006) were used when conducting and interpreting hierarchical multiple regression analysis. As was outlined in section 3.5.5 and later discussed in more detail in section 6.2, according to Tabachnick and Fidell (2006), the sample sizes in this study are below the acceptable level, thus increasing the risk of type 1 (i.e. detecting a significant effect when in fact there isn’t one) and type 2 (i.e. failing to detect a significant effect that exists) errors and this possibility should be considered when considering the results outlined below.

5.1.2.1 Preliminary considerations

Hierarchical multiple regression analysis was used to assess the predictive value of demands/resources, curvilinear and moderating effects as per hypothesis 1-14. Tables are presented for each analysis which include Standardized Beta Coefficients ($\beta$; to compare the impact of predictors within the models), $R$ (multiple correlation between the independent variable and set of independent variables in the model), $R^2$;
representing the proportion of variance in the outcome that can be explained by the independent variable alone, or in combination), adjusted $R$ squared (Adj. $R^2$; provides a more accurate estimation of the true relationship regarding variance accounted for), change in $R$ squared ($\Delta R^2$; the change in variance accounted for by the introduction of a new predictor), change in $F$ ($\Delta F$; the change regarding how well the model fits the data) and degrees of freedom ($df$; the number of values that are free to vary).

Continuous moderator and independent variables were first centered around their means (Wu & Zumbo, 2008). Centering is defined as “subtracting the mean (a constant) from each score, $X$, yielding a centered score … and places the intercept at the mean of all variables” (Robinson & Schumacker, 2009, p. 6). Centering was used as continuous variables don’t possess a meaningful zero point making the interpretation of the main and interaction effects meaningless, it removes problems of non-essential multicollinearity between the predictor and moderator variables (although this wasn’t really an issue with this data) and it has been demonstrated that centering variables increases interpretation of main effects (Wu & Zumbo, 2008). It is therefore preferred when conducting this type of analysis as it does not alter the significance of the interaction effect but safeguards against the aforementioned (Wu & Zumbo, 2008).

To test hypothesis 1-6 that relate to demands/resources as predictors of exhaustion/engagement, the control variables were entered at step 1 and the demands/resources at step 2 each in an individual model (e.g. using 5 different hierarchical multiple regression analysis) in order to assess the individual predictive utility. $R^2$ and adjusted $R^2$ are examined to determine which variables influence outcomes the most. For the curvilinear effects, the control variables were introduced in
step 1 followed by the independent variable in step 2 and the independent variable
squared in step 3. To assess the nature of any curvilinear relationships the regression
curve estimation function is used. For the moderator effects, the control variables were
introduced in step 1 followed by the independent variable in step 2, the moderating
variable at step 3 and the product term (i.e. independent variable x moderator variable)
at step 4. The curvilinear and moderator effects are shown to exist if there is a
significant change in $F (\Delta F)$, which suggests an improvement in model predictability at
the final step.

A post-hoc power analysis was conducted using the software G*Power 2 (Faul et al.,
2009; Faul et al., 2007). The two sample sizes of 79 and 55 were entered independently
for the statistical power analysis. The alpha level used was $p < .05$ and recommended
effect sizes (i.e. magnitude or size of an effect) were: small ($f^2 = .02$), medium ($f^2 = .15$)
and large ($f^2 = .35$) (Cohen, 1988). ‘F tests’ family was chosen, along with ‘Linear
multiple regression: Fixed model, $R^2$ deviation from zero’. The statistical power results
from the post-hoc analysis for one independent variable (as carried out in all regression
analysis) is as follows: sample 1, small = .237, medium = .925, large = .999; sample 2,
small = .178, medium = .805, large = .991. The statistical power (Cohen, 1988) is met
across both samples with a large effect size and is nearly met with a medium sample
size.

5.1.2.2 Demands and resources as predictors of exhaustion and engagement

A series of hierarchical multiple regression analysis were used to estimate whether job
demands predict exhaustion (hypothesis 1), job resources predict engagement
(hypothesis 2), personal resources predict exhaustion and engagement (hypothesis 3 and 4 respectively) and whether job demands are the most important predictors of exhaustion and job resources are the most important predictors of engagement (hypothesis 5 and 6 respectively). Tables 5.4 (p. 168) and 5.5 (p. 169) display the standardized regression coefficients ($\beta$), change in $R^2$ ($\Delta R^2$), $R$, $R^2$, and adjusted $R^2$, change in $F$ ($\Delta F$) and degrees of freedom (df) after entry of each step and model for exhaustion and engagement respectively.

Regarding the predictors of exhaustion, in sample 1 none of the final models including the introduction of demands/resources showed significant $R^2$ or $\Delta F$ values. Sample 1 data showed: workload, $R^2 = .420$, $\Delta F_{inc} (1, 23) = .955$, $p = .339$; autonomy, $R^2 = .398$, $\Delta F_{inc} (1, 23) = .059$, $p = .810$; organizational support, $R^2 = .399$, $\Delta F_{inc} (1, 23) = .107$, $p = .747$; supervisor support, $R^2 = .403$, $\Delta F_{inc} (1, 23) = .257$, $p = .257$; cognitive flexibility, $R^2 = .459$, $\Delta F_{inc} (1, 23) = 2.649$, $p = .117$. Examination of the $\beta$ values suggests that an increase in all job demands/resources will result in an increase in exhaustion, whilst cognitive flexibility reduces exhaustion. These results suggest that the demands/resources assessed did not account for any significant variance in exhaustion and the variables did not show any predictive utility for exhaustion in sample 1.

In sample 2, all of the demands/resources accounted significantly for some variance in exhaustion and all of the demands/resources apart from workload presented data that fits the overall model well. The data showed: workload, $R^2 = .513$, $\Delta F_{inc} (1, 30) = .521$, $p = .476$; autonomy, $R^2 = .577$, $\Delta F_{inc} (1, 30) = 5.126$, $p < .05$; organizational support, $R^2 = .617$, $\Delta F_{inc} (1, 30) = 8.841$, $p < .01$; supervisor support, $R^2 = .656$, $\Delta F_{inc} (1, 30) =
Table 5.4. Demands and resources as predictors of exhaustion for samples 1 and 2.

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<tr>
<th>Independent variables</th>
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<th>Sample 2 (n=55)</th>
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WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support. CF = Cognitive flexibility. 
β = Standardized coefficient Beta. ΔR² = Change in R Squared. ΔF = Change in F value. df = degrees of freedom. 
*** p < .001. ** p < .01. * p < .05.
Table 5.5. Demands and resources as predictors of engagement for samples 1 and 2.

<table>
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<th>Independent variables</th>
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<th>Sample 2 (n=55)</th>
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WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support. CF = Cognitive flexibility.

β = Standardized coefficient Beta. ΔR² = Change in R Squared. ΔF = Change in F value. df = degrees of freedom.

*** p < .001. ** p < .01. * p < .05.
13.149, p < .01; cognitive flexibility, $R^2 = .585$, $\Delta F_{inc} (1, 30) = 5.801, p < .05$. More specifically, as can be seen in table 5.4 (p. 168), the $\beta$ value for workload with exhaustion suggests a positive relationship and the $\beta$ values for resources with exhaustion suggest a negative relationship (i.e. as a resource increases, exhaustion decreases).

Furthermore, whilst the introduction of workload does show a significant $R^2$ value, the $\Delta R^2$ value is not significant ($\Delta R^2 = .008$, n.s) and the adjusted $R^2$ value actually decreases by .11. Therefore, workload is not a significant predictor of exhaustion in sample 2. However, all of the resources show significant $\Delta R^2$ values (with $p < .05$ for autonomy and cognitive flexibility and $p < .01$ for organizational support and supervisor support) and $R^2$ values (with $p < .01$ for autonomy, organizational support and cognitive flexibility and $p < .001$ for supervisor support). Plus, the adjusted $R^2$ values actually increase with the introduction of the resources in each model with autonomy showing an increase of .79, organizational support an increase of .135, supervisor support an increase of .189 and cognitive flexibility an increase of .90. Therefore, in sample 2 all resources significantly predict exhaustion and based on the $\beta$ values, $R^2$ values and adjusted $R^2$ values, supervisor support is the most significant predictor of exhaustion, followed by organizational support, then cognitive flexibility and lastly, autonomy.

Regarding demands/resources as predictors of engagement, in sample 1 the data showed: workload, $R^2 = .344$, $\Delta F_{inc} (1, 23) = 1.734, p = .201$; autonomy, $R^2 = .442$, $\Delta F_{inc} (1, 23) = 6.046, p < .05$; organizational support, $R^2 = .305$, $\Delta F_{inc} (1, 23) = .343, p = .564$; supervisor support, $R^2 = .315$, $\Delta F_{inc} (1, 23) = .671, p = .421$; cognitive flexibility, $R^2 = .333$, $\Delta F_{inc} (1, 23) = 1.323, p = .262$. As can be seen in table 5.5 (p.
169), the $\beta$ values for workload and supervisor support suggest a negative relationship with engagement (i.e. an increase in either will result in a decrease in engagement), whilst the $\beta$ values for autonomy, organizational support and cognitive flexibility suggest a positive relationship with engagement, where an increase in any of these resources results in an increase in engagement. Furthermore, none of the $R^2$ values were significant and the only significant $\Delta R^2$ value was for the introduction of autonomy ($\Delta R^2 = .147, p < .05$), which also had a significant $\Delta F$ value.

In sample 2, all of the resources accounted significantly for some variance in engagement and all of the resources presented data that fits the overall model well. Workload did not account for any variance in engagement and did not present data that fits the model well. The data showed: workload, $R^2 = .421, \Delta F_{inc} (1, 30) = 3.734, p = .063$; autonomy, $R^2 = .516, \Delta F_{inc} (1, 30) = 10.360, p < .01$; organizational support, $R^2 = .479, \Delta F_{inc} (1, 30) = 7.470, p < .05$; supervisor support, $R^2 = .487, \Delta F_{inc} (1, 30) = 8.085, p < .01$; cognitive flexibility, $R^2 = 474, \Delta F_{inc} (1, 30) = 7.149, p < .05$. More specifically, as can be seen in table 5.5 (p. 169), the $\beta$ value for workload with engagement suggests a negative relationship and the $\beta$ values for resources with engagement suggest a positive relationship (i.e. as a resource increases, engagement increases). Furthermore, the adjusted $R^2$ values increased with the introduction of each job resource and the $\Delta R^2$ values were significant at each step, with $p < .05$ for organizational support and cognitive flexibility and $p < .01$ for autonomy and supervisor support. As can be seen the adjusted $R^2$ values increased by .204 for autonomy, .152 for organizational support, .164 for supervisor support and .164 for cognitive flexibility and all of the $R^2$ values for resources were significant at $p < .05$. Based on this and the $\beta$ values between the
models, autonomy is the most significant predictor of engagement, followed by supervisor support, then organizational support and lastly, cognitive flexibility.

Therefore, hypothesis 1 that job demands predict exhaustion is not supported in either sample. The hypothesis that job resources predict engagement (hypothesis 2) is supported in samples 1 (autonomy only) and 2, whilst personal resources predict exhaustion and engagement (hypothesis 3 and 4) are supported in sample 2. Hypothesis 5, that job demands are the most important predictors of exhaustion was not supported in either sample. Hypothesis 6, that job resources are the most important predictors of engagement was supported in both samples.

5.1.2.3 Curvilinear relationships between job demands and engagement, job resources and exhaustion

Hierarchical Multiple Regression Analysis was used to test the assumption that a curvilinear relationship exists between workload and engagement (hypothesis 7) and job resources and exhaustion (hypothesis 8). Step 1 introduced the control variables, step 2 introduced the job demand or resource and step 3 the job demand or resource squared. Tables 5.6 (p. 173) and 5.7 (p. 174) display the standardized regression coefficients ($\beta$), change in $R^2$ ($\Delta R^2$), $R$, $R^2$, and adjusted $R^2$, change in $F$ ($\Delta F$) and degrees of freedom ($df$) after entry of all steps for job demands-engagement and job resources-exhaustion relationships respectively.
Table 5.6. Curvilinear relationship between workload and engagement for samples 1 and 2.

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<th>Sample 2 (n=55)</th>
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**Step 2**

| WL | -1.317 | .049 | .587 | .344 | .002 | 1.734 (1, 23) | -.1932 | .072 | .649 | .421 | .189 | 3.734 (1, 3) |

**Step 3**

| WL*WL | .008 | .000 | .587 | .344 | -.043 | .002 (1, 22) | .001 | .050 | .422 | .163 | .057 (1, 29) |

WL = Workload.
$\beta$ = Standardized coefficient Beta. $\Delta R^2$ = Change in R Squared. $\Delta F$ = Change in F value. df = degrees of freedom.
*** $p < .001$. ** $p < .01$. * $p < .05$. 

173
Table 5.7. Curvilinear relationship between job resources and exhaustion in samples 1 and 2.

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WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support.

\( \beta \) = Standardized coefficient Beta. \( \Delta R^2 \) = Change in R Squared. \( \Delta F \) = Change in F value. \( df \) = degrees of freedom.

*** \( p < .001 \). ** \( p < .01 \). * \( p < .05 \).
Regarding the curvilinear relationship between workload and engagement, in sample 1 the final step of the model showed $R^2 = .344$, $\Delta F_{inc} (1, 22) = .002$, $p = .969$. In sample 2, the final step of the model showed $R^2 = .422$, $\Delta F_{inc} (1, 29) = .057$, $p = .813$. As can be seen from table 5.6 (p. 173), there are no significant $R^2$ or $\Delta R^2$ values that would suggest the introduction of workload squared (final step of the models) accounts for any more variance than the control variables or workload. More specifically, as the $\Delta F$ values do not exceed critical $F$ and are non-significant, the final step of the models do not indicate a curvilinear relationship. These results suggest that the relationship between workload and engagement is linear in both samples and thus hypothesis 7 is not supported in either sample.

Regarding the curvilinear relationship between job resources and exhaustion, the final steps of the three models in sample 1 showed: autonomy, $R^2 = .706$, $\Delta F_{inc} (1, 22) = 4.390$, $p < .05 (.048)$; organizational support, $R^2 = .415$, $\Delta F_{inc} (1, 22) = .587$, $p = .452$; supervisor support, $R^2 = .405$, $\Delta F_{inc} (1, 22) = .076$, $p = .785$. In sample 2, the final steps of the three models showed: autonomy, $R^2 = .577$, $\Delta F_{inc} (1, 29) = 002$, $p = .969$; organizational support, $R^2 = .617$, $\Delta F_{inc} (1, 29) = .002$, $p = .963$; supervisor support, $R^2 = .000$, $\Delta F_{inc} (1, 29) = .013$, $p = .911$. As can be seen in table 5.7 (p. 174), the F change values show a non-significant probability, the introduction of the variable squared (i.e. final step of the model) is not significantly improving the $R^2$ values of any resources apart from autonomy in sample 1. A regression curve estimation showed a U-shaped curvilinear relationship between autonomy and exhaustion, indicating that high and low levels of autonomy are more likely to lead to exhaustion than mid levels. These results show that the relationships between: organizational support and exhaustion in both samples; supervisor support and exhaustion in both samples; and autonomy and
exhaustion in sample 2 are linear. Therefore hypothesis 8 is partly supported with a U shaped relationship between autonomy and exhaustion in sample 1 only.

5.1.2.4 Job demands and resources as moderators in the JD-R model

Hierarchical Multiple Regression Analysis was used to assess the moderating role of job demands (workload) and job resources (autonomy, organizational support, supervisor support) within the JD-R model as per the following hypothesis: job demands will strengthen the relationship between job resources and engagement (hypothesis 9); job resources (autonomy, organizational support and supervisor support) will weaken the relationship between job demands and exhaustion (hypothesis 10). Tables 5.8 (p. 177) and 5.9 (p. 178) display the standardized regression coefficients ($\beta$), change in $R^2$ ($\Delta R^2$), $R$, $R^2$, and adjusted $R^2$, change in $F$ ($\Delta F$) and degrees of freedom ($df$) after entry of all steps for hypothesis 9 and 10 respectively.

Regarding the moderating role of workload on the relationships between job resources and engagement (hypothesis 9), the final model using the product term with each individual job resource showed the following in sample 1: autonomy $R^2 = .460$, $\Delta F_{inc} (1, 21) = .219$, $p = .644$; organizational support $R^2 = .361$, $\Delta F_{inc} (1, 21) = .029$, $p = .866$; supervisor support $R^2 = .398$, $\Delta F_{inc} (1, 21) = .831$, $p = .372$ and in sample 2: autonomy $R^2 = .588$, $\Delta F_{inc} (1, 28) = .087$, $p = .770$; organizational support $R^2 = .553$, $\Delta F_{inc} (1, 28) = .847$, $p = .365$. 


Table 5.8. Interaction of workload on the motivational pathway (coping hypothesis) for samples 1 and 2.

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**Step 2**

| AU                    | .544      | .147*         | .665| .442  | .150    | 6.046* (1, 23) | .494**     | .167**     | .718  | .516* | .322    | 10.360** (1, 30) |
| WL                   | -.126     | .012          | .674| .454  | .131    | -.319*   | .071*      | .766  | .587** | .401    | 4.975* (1, 29) |
| **Step 4**            |           |               |     |       |         |         |           |               |     |       |         |         |
| WL*AU                | .103      | .006          | .678| .460  | .100    | 2.081 (1, 22) | .35*       | .001      | .744  | .553* | .330    | .046 (1, 28)    |

**Step 2**

| OS                   | .166      | .010          | .552| .305  | .057    | .343 (1, 23) | .472*      | .130*      | .692  | .479* | .270    | 7.470* (1, 30) |
| WL                   | -.254     | .055          | .600| .361  | -.018   | 1.891 (1, 22) | -.325*     | .074*      | .743  | .553* | .352    | 4.797* (1, 29) |
| **Step 4**            |           |               |     |       |         |         |           |               |     |       |         |         |
| WL*OS                | .038      | .001          | .601| .361  | .065    | .029 (1, 21) | .035      | .001      | .744  | .553* | .330    | .046 (1, 28)    |

**Step 2**

| SS                   | -.202     | .020          | .561| .315  | -.043   | .671 (1, 23) | .450**     | .138**     | .698  | .487* | .282    | 8.085** (1, 30) |
| WL                   | -.265     | .059          | .612| .374  | .004    | 2.081 (1, 22) | -.343*     | .082*      | .754  | .568** | .375    | 5.478* (1, 29) |
| **Step 4**            |           |               |     |       |         |         |           |               |     |       |         |         |
| WL*SS                | -.182     | .024          | .631| .398  | -.004   | .831 (1, 21) | .142      | .013      | .762  | .581* | .372    | .847 (1, 28)    |

WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support.
\(\beta\) = Standardized coefficient Beta. \(\Delta R^2\) = Change in R Squared. \(\Delta F\) = Change in F value. \(df\) = degrees of freedom.
*** \(p < .001\). ** \(p < .01\). * \(p < .05\).
Table 5.9. Interaction of job resources on the health impairment pathway (buffer hypothesis) for samples 1 and 2.

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WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support.
\( \beta \) = Standardized coefficient Beta. \( \Delta R^2 \) = Change in R Squared. \( \Delta F \) = Change in F value. \( df \) = degrees of freedom.
*** \( p < .001 \). ** \( p < .01 \). * \( p < .05 \).
Regarding the moderating role of job resources on the relationship between workload and exhaustion (hypothesis 10), the final model showed in sample 1: autonomy $R^2 = .429$, $\Delta F_{\text{inc}} (1, 21) = .315$, $p = .848$; organizational support $R^2 = .476$, $\Delta F_{\text{inc}} (1, 21) = 2.189$, $p = .154$; supervisor support $R^2 = .446$, $\Delta F_{\text{inc}} (1, 21) = .554$, $p = .465$ and in sample 2: autonomy $R^2 = .018$, $\Delta F_{\text{inc}} (1, 28) = 1.828$, $p = .267$; organizational support $R^2 = .626$, $\Delta F_{\text{inc}} (1, 28) = .084$, $p = .774$; supervisor support $R^2 = .661$, $\Delta F_{\text{inc}} (1, 28) = .010$, $p = .922$.

As can be seen from tables 5.8 (p. 177) and 5.9 (p. 178) respectively, there are no significant changes in $R^2$ whereby the introduction of the product terms would explain more of engagement or exhaustion than each step individually. Furthermore, as the $\Delta F$ values do not exceed critical $F$ and are non-significant, the models including the product terms are not significantly improving $R^2$ at the point of entry. Therefore, workload does not strengthen the relationship between job resources and engagement and job resources do not weaken the relationship between workload and exhaustion. Thus hypothesis 9 and 10 are not supported in either sample.

5.1.2.5 Recovery experiences as moderators in the health impairment and motivational pathways

Hierarchical Multiple Regression Analysis was also used to assess the moderating role of recovery experiences in the health impairment and motivational pathways within the JD-R model as per the following hypothesis: recovery experiences (mastery, psychological detachment, relaxation, control) moderate the relationship between job demands and exhaustion (hypothesis 11) and recovery experiences (mastery,
Table 5.10. Moderating effect of recovery experiences in the relationship between workload and exhaustion in samples 1 and 2.

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WL = Workload. REM = Mastery over recovery. REPD = Psychology detachment. RER = Relaxation. REC = Control over recovery.

β = Standardized coefficient Beta. ΔR² = Change in R Squared. ΔF = Change in F value. df = degrees of freedom.

*** p < .001. ** p < .01. * p < .05.
Table 5.11: Moderating effect of recovery experiences in the relationship between job resources and engagement in samples 1 and 2.

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<td>Step 3</td>
<td>REM</td>
<td>.367</td>
</tr>
<tr>
<td>Step 4</td>
<td>SS*REM</td>
<td>.180</td>
</tr>
<tr>
<td>Step 3</td>
<td>REPD</td>
<td>-.089</td>
</tr>
<tr>
<td>Step 4</td>
<td>SS*REPD</td>
<td>.275</td>
</tr>
<tr>
<td>Step 3</td>
<td>RER</td>
<td>.119</td>
</tr>
<tr>
<td>Step 4</td>
<td>SS*RER</td>
<td>.318</td>
</tr>
<tr>
<td>Step 3</td>
<td>REC</td>
<td>.262</td>
</tr>
<tr>
<td>Step 4</td>
<td>SS*REC</td>
<td>-.111</td>
</tr>
</tbody>
</table>

WL = Workload. AU = Autonomy. OS = Organizational support. SS = Supervisor support. REM = Mastery over recovery. REPD = Psychology detachment. RER = Relaxation. REC = Control over recovery.

$\beta$ = Standardized coefficient Beta. $\Delta R^2$ = Change in R Squared. $\Delta F$ = Change in F value. $df$ = degrees of freedom.

*** $p < .001$. ** $p < .01$. * $p < .05$. **
psychological detachment, relaxation, control) moderate the relationship between job resources (autonomy, organizational support, supervisor support) and engagement (hypothesis 12). Tables 5.10 (p. 180) and 5.11 (p. 181) display the standardized regression coefficients ($\beta$), change in $R^2$ ($\Delta R^2$), $R$, $R^2$, and adjusted $R^2$, change in $F$ ($\Delta F$) and degrees of freedom ($df$) after entry of all steps for hypothesis 11 and 12 respectively.

Regarding the moderating role of recovery experiences on the relationship between workload and exhaustion (hypothesis 11), the data showed for sample 1: Workload*mastery, $R^2 = .494, \Delta F_{inc} (1, 21) = .855, p = .366$; Workload*psychological detachment, $R^2 = .491, \Delta F_{inc} (1, 21) = 2.482, p = .130$; Workload*relaxation, $R^2 = .480, \Delta F_{inc} (1, 21) = 1.791, p = .195$; Workload*control, $R^2 = .425, \Delta F_{inc} (1, 21) = 002, p = .968$. For sample 2, data showed: Workload*mastery, $R^2 = .627, \Delta F_{inc} (1, 28) = 1.520, p = .228$; Workload*psychological detachment, $R^2 = .556, \Delta F_{inc} (1, 28) = 2.613, p = .256$; Workload*relaxation, $R^2 = .536, \Delta F_{inc} (1, 28) = 1.344, p = .256$; Workload*control, $R^2 = .577, \Delta F_{inc} (1, 28) = 3.329, p = .079$.

As can be seen in table 5.10 (p. 180), for sample 1, there are no significant changes in $R^2$ whereby the introduction of the product terms would explain more of exhaustion than each step individually. Furthermore, as the $\Delta F$ values do not exceed critical $F$ and are non-significant, the models including the product terms are not significantly improving $R^2$ at the point of entry. For sample 2, the only models that significantly fit the data were step 1 introducing control variables ($\Delta F = 2.872, p < .05$) and the introduction of mastery whilst controlling for control variables and workload ($\Delta F = 6.885, p < .05$). Significant $R^2$ values were found for all of the predictors or
combinations of predictors with significance levels either at $p < .05$ or $p < .01$ suggesting that the final step does account for variance in exhaustion. Examination of the adjusted $R^2$ values suggests the true variance improved with the final step of the models for workload with mastery, psychological detachment and recovery. However, as the $\Delta F$ values were non-significant with the introduction of the product term, these moderating effects are not supported. Therefore, hypothesis 11 that recovery experiences moderate the relationship between workload and exhaustion is not supported in either sample.

Regarding the moderating role of recovery experiences on the relationships between job resources and engagement (hypothesis 12), the final models using the product term with each individual job resource and type of recovery experience showed the following in sample 1. For autonomy: Autonomy*mastery, $R^2 = .561, \Delta F_{inc} (1, 21) = .481, p = .076$; Autonomy*psychological detachment, $R^2 = .454, \Delta F_{inc} (1, 21) = .214, p = .648$; Autonomy*relaxation, $R^2 = .484, \Delta F_{inc} (1, 21) = 1.224, p = .281$; Autonomy*control, $R^2 = .472, \Delta F_{inc} (1, 21) = .561, p = .462$. For organizational support: Organizational support*mastery, $R^2 = .453, \Delta F_{inc} (1, 21) = .921, p = .348$; Organizational support*psychological detachment, $R^2 = .315, \Delta F_{inc} (1, 21) = .064, p = .802$; Organizational support*relaxation, $R^2 = .324, \Delta F_{inc} (1, 21) = .212, p = .650$; Organizational support*control, $R^2 = .364, \Delta F_{inc} (1, 21) = .241, p = .628$. For supervisor support: Supervisor support*mastery, $R^2 = .429, \Delta F_{inc} (1, 21) = .823, p = .375$; Supervisor support*psychological detachment, $R^2 = .380, \Delta F_{inc} (1, 21) = 2.015, p = .170$; Supervisor support*relaxation, $R^2 = .375, \Delta F_{inc} (1, 21) = 1.854, p = .188$; Supervisor support*control, $R^2 = .353, \Delta F_{inc} (1, 21) = .189, p = .668$. 
As can be seen in table 5.11 (p. 181), for sample 1 there are no significant $R^2$ values across any of the combinations of interactions suggesting that the control variables, individual resources, recovery experiences or product terms don’t account for any variance in engagement. There are significant $\Delta F$ values for autonomy at step 2 ($\Delta F = 6.046, p < .05$) whilst controlling for the control variables and mastery at step 3 ($\Delta F = 4.765, p < .05$) whilst controlling for organizational support and the control variables. However, as there were no significant $\Delta F$ values with the introduction of the product terms, the moderating effects are not shown to occur. Therefore, hypothesis 12, that recovery experiences moderate the relationship between job resource and engagement is not supported in sample 1.

Regarding the moderating role of recovery experiences on the relationships between job resources and engagement (hypothesis 12), the final models using the product term with each individual job resource and type of recovery experience showed the following in sample 2. For autonomy: Autonomy*mastery, $R^2 = .558, \Delta F_{inc} (1, 28) = .088, p = .769$; Autonomy*psychological detachment, $R^2 = .543, \Delta F_{inc} (1, 28) = .452, p = .648$; Autonomy*relaxation, $R^2 = .537, \Delta F_{inc} (1, 28) = .411, p = .527$; Autonomy*control, $R^2 = .568, \Delta F_{inc} (1, 28) = 2.726, p = .110$. For organizational support: Organizational support*mastery, $R^2 = .514, \Delta F_{inc} (1, 28) = .449, p = .508$; Organizational support*psychological detachment, $R^2 = .561, \Delta F_{inc} (1, 28) = 3.072, p = .091$; Organizational support*relaxation, $R^2 = .481, \Delta F_{inc} (1, 28) = .096, p = .759$; Organizational support*control, $R^2 = .487, \Delta F_{inc} (1, 28) = .421, p = .522$. For supervisor support: Supervisor support*mastery, $R^2 = .502, \Delta F_{inc} (1, 28) = .229, p = .636$; Supervisor support*psychological detachment, $R^2 = .531, \Delta F_{inc} (1, 28) = 1.081, p =
.307; Supervisor support*relaxation, $R^2 = .492$, $\Delta F_{inc} (1, 28) = .081$, $p = .777$; Supervisor support*control, $R^2 = .495$, $\Delta F_{inc} (1, 28) = .421$, $p = .522$.

As can be seen from table 5.11 (p. 181), in sample 2, there are significant $R^2$ values with the introduction of product terms at step 4, all showing $p < .05$ for the following: autonomy with all recovery experiences; organizational support with mastery; organizational support with psychological detachment; and supervisor support with psychological detachment. However, as the $\Delta R^2$ values with the introduction of the product terms are non-significant and in some cases the adjusted $R^2$ values actually decrease, the final steps don’t account for any more variance in engagement than previous steps. All of the significant $\Delta F$ values are at step 2 with job resources (autonomy, $\Delta F = 10.360$, $p < .01$; organizational support, $\Delta F = 7.470$, $p < .05$; supervisor support, $\Delta F = 8.805$, $p < .01$) suggesting that the introduction of these resources, whilst controlling for the control variables presents a model that fits the data. However, none of the product term introductions lead to significant $\Delta F$ values. Therefore, hypothesis 12, that recovery experiences moderate the relationship between job resource and engagement is also not supported in sample 2.

5.1.2.6 Personal resources as moderators in the health impairment and motivational pathways

Hierarchical Multiple Regression Analysis was also used to assess the moderating role of cognitive flexibility in the health impairment and motivational pathways within the JD-R model as per the following hypothesis: personal resources moderate the relationship between job demands and exhaustion (hypothesis 13) and personal
Table 5.12: Moderating role of cognitive flexibility in the health impairment pathway in samples 1 and 2.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Sample 1 ($n=79$)</th>
<th>Sample 2 ($n=55$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td><strong>Step 1</strong> Control variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
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<td>.024</td>
</tr>
<tr>
<td>Age</td>
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</tr>
<tr>
<td>Nationality</td>
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<tr>
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<tr>
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</tr>
<tr>
<td>Presence of children</td>
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<td></td>
</tr>
<tr>
<td>Spouse employment status</td>
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<td></td>
</tr>
<tr>
<td>Education</td>
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<td></td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
</tr>
<tr>
<td>IBT frequency</td>
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<td></td>
</tr>
<tr>
<td>IBT duration</td>
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<td></td>
</tr>
<tr>
<td><strong>Step 2</strong> WL</td>
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<td>.024</td>
</tr>
<tr>
<td><strong>Step 3</strong> CF</td>
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<td>.063</td>
</tr>
<tr>
<td><strong>Step 4</strong> WL*CF</td>
<td>.217</td>
<td>.022</td>
</tr>
</tbody>
</table>

AU = Autonomy. OS = Organizational support. SS = Supervisor support. WL = Workload. CF = Cognitive flexibility
$\beta$ = Standardized coefficient Beta. $\Delta R^2$ = Change in $R$ Squared. $\Delta F$ = Change in F value. df = degrees of freedom.

*** p < .001. ** p < .01. * p < .05.
Table 5.13: Moderating role of cognitive flexibility in the motivational pathway in samples 1 and 2.

<table>
<thead>
<tr>
<th></th>
<th>Sample 1 (n=79)</th>
<th>Sample 2 (n=55)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>ΔR²</td>
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<tr>
<td><strong>Step 1</strong></td>
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<td></td>
</tr>
<tr>
<td>Control variables</td>
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<td></td>
</tr>
<tr>
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<td>.543</td>
</tr>
<tr>
<td>Age</td>
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<td>-.347</td>
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<tr>
<td>Nationality</td>
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<tr>
<td>English language level</td>
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<td>Ethnicity</td>
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<td>-.143</td>
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<td>IBT frequency</td>
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<td>IBT duration</td>
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<td></td>
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<tr>
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<td>.000</td>
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<td></td>
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<td>.010</td>
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<td><strong>Step 3</strong></td>
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<td></td>
</tr>
<tr>
<td>CF</td>
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<td>.033</td>
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<td></td>
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<tr>
<td>OS*CF</td>
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<td>.026</td>
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<td><strong>Step 2</strong></td>
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<td></td>
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<tr>
<td>SS</td>
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<td>.020</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
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<td></td>
</tr>
<tr>
<td>CF</td>
<td>.182</td>
<td>.024</td>
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<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS*CF</td>
<td>.260</td>
<td>.048</td>
</tr>
</tbody>
</table>

AU = Autonomy. OS = Organizational support. SS = Supervisor support. WL = Workload. CF = Cognitive flexibility

β = Standardized coefficient Beta. ΔR² = Change in R Squared. ΔF = Change in F value. df = degrees of freedom.

*** p < .001. ** p < .01. * p < .05.
resources moderate the relationship between job resources (autonomy, organizational support, supervisor support) and engagement (hypothesis 14). Tables 5.12 (p. 187) and 5.13 (p. 188) display the standardized regression coefficients ($\beta$), change in $R^2$ ($\Delta R^2$), $R$, $R^2$, and adjusted $R^2$, change in $F$ ($\Delta F$) and degrees of freedom ($df$) after entry of all steps for hypothesis 13 and 14 respectively. Regarding the moderating role of cognitive flexibility on the relationship between workload and exhaustion (hypothesis 13), the data showed for sample 1: $R^2 = .505$, $\Delta F_{inc} (1, 21) = .919$, $p = .349$ and for sample 2: $R^2 = .617$, $\Delta F_{inc} (1, 28) = .963$, $p = .335$. In sample 1, there are no significant $R^2$ or $\Delta F$ values indicating that workload, cognitive flexibility or their product term don’t account for any significant level of variance in exhaustion and also that the models don’t fit the data well. In sample 2, there are significant $R^2$ values for workload (.513, $p < .05$), cognitive flexibility (.604, $p < .01$) and their product term (.617, $p < .01$) suggesting that each of these account for a good level of variance in exhaustion (all above 50%). However, as the $\Delta F$ values at step 4 in both samples are non-significant, hypothesis 13 is not supported.

Regarding the moderating role of cognitive flexibility in the relationship between job resources (autonomy, organizational support, supervisor support) and engagement (hypothesis 14), the data showed the following for sample 1 with: autonomy, $R^2 = .447$, $\Delta F_{inc} (1, 21) = .008$, $p = .931$; organizational support, $R^2 = .364$, $\Delta F_{inc} (1, 21) = .857$, $p = .365$; supervisor support, $R^2 = .386$, $\Delta F_{inc} (1, 21) = 1.635$, $p = .215$ and sample 2 with: autonomy, $R^2 = .572$, $\Delta F_{inc} (1, 28) = .188$, $p = .668$; organizational support, $R^2 = .614$, $\Delta F_{inc} (1, 28) = .042$, $p = .839$; supervisor support, $R^2 = .569$, $\Delta F_{inc} (1, 28) = .001$, $p = .971$. 
As can be seen in table 5.13 (p. 188), there were no significant $R^2$ or $\Delta F$ values indicating that job resources, cognitive flexibility or their product terms didn’t account for any significant level of variance in engagement and also that the models don’t fit the data well. In sample 2, the $R^2$ values were significant with the introduction of each job resource, cognitive flexibility and their product terms with $p < .05$ or $p < .01$. However, whilst these were significant, by examining the $\Delta R^2$ values and adjusted $R^2$ values (which actually decrease with the introduction of the product term), it is likely that any variance was carried over from the previous steps. Supporting this, none of the $\Delta F$ values with the introduction of the product terms resulted in a significant fit of the data to the model. Therefore, in both samples, hypothesis 14, that cognitive flexibility moderates the relationship between job resources (autonomy, organizational support, supervisor support) and engagement is not supported.

5.2 Discussion of results

This quantitative study aimed to assess the main propositions of the JD-R model (see section 2.1.2) and some of the theoretical amendments suggested in the qualitative study (see section 4.2), with two different samples of international business travelers. The research objectives were: to investigate if exhaustion and engagement can be predicted according to the main propositions of the JD-R model; to assess if curvilinear relationships exist between job demands and engagement or job resources and exhaustion; to investigate if recovery experiences and/or personal resources moderate the health impairment and motivational pathways. The associated hypothesis and their support can be seen in table 5.14 (p. 191). Figure 5.1 (p. 201) also shows an updated version of the JD-R model, incorporating the significant findings.
### Table 5.14. Overview of hypothesis and support.

<table>
<thead>
<tr>
<th>Hypotheses number</th>
<th>Hypotheses statement</th>
<th>Supported in sample 1</th>
<th>Supported in sample 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demands and resources as predictors of exhaustion and engagement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H1</td>
<td>Job demands predict exhaustion.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H2</td>
<td>Job resources predict engagement.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>H3</td>
<td>Personal resources predict exhaustion.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>H4</td>
<td>Personal resources predict engagement.</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>H5</td>
<td>Job demands are the most important predictors of exhaustion.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H6</td>
<td>Job resources are the most important predictors of engagement.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>The curvilinear relationship between job demands and engagement, job resources and exhaustion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H7</td>
<td>A curvilinear relationship exists between job demands and engagement.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H8</td>
<td>A curvilinear relationship exists between job resources and exhaustion.</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Moderating role of job demands and resources in the health impairment and motivational pathways</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H9</td>
<td>Job demands will strengthen the relationship between job resources and engagement (coping hypothesis)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H10</td>
<td>Job resources will weaken the relationship between job demands and exhaustion (buffer hypothesis)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>The moderating role of recovery experiences in the health impairment and motivational pathways</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H11</td>
<td>Recovery experiences moderate the relationship between job demands and exhaustion.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H12</td>
<td>Recovery experiences moderate the relationship between job resources and engagement.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>The moderating role of personal resources in the relationships between job demands/resources and exhaustion/engagement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H13</td>
<td>Personal resources moderate the relationship between job demands and exhaustion.</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>H14</td>
<td>Personal resources moderate the relationship between job resources and engagement.</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Regarding demands/resources as predictors of exhaustion and engagement, results showed that in sample 1 none of the demands/resources previously identified as being important predicted these two outcome variables. In sample 2 all of the resources predicted both exhaustion and engagement but workload did not. Furthermore, the value of each resource for predicting outcome variables differed between the two samples as indicated by the $R^2$ values. Regarding curvilinear effects, only the relationship between autonomy and exhaustion in sample 1 was shown to be significant in a U shaped curve. None of the moderator effects regarding the coping hypothesis, buffer hypothesis, recovery experiences or cognitive flexibility were shown to be significant in either
sample. In addition to the discussion below, the lack of support for various hypotheses could be a result of methodological errors, which are discussed in section 6.2.

The finding that workload does not predict exhaustion in either sample was surprising as workload has been shown to influence exhaustion in previous research. However, as was outlined in section 2.1.2, whilst the majority of JD-R research has supported the health impairment pathway (i.e. that job demands are the most important predictors of burnout and its dimensions such as exhaustion), findings have not been entirely consistent e.g. Brenninkmeijer et al (2010) found that workload was not significantly correlated with burnout. It is worth noting that the lack of support for the health impairment pathway in this study could have been due to the measurement of a challenge as opposed to a hindrance demand. If the study had measured important international business traveler hindrance demands that are believed to be purely health impairing, such as work-family interference (as identified in the qualitative study) support for the health impairment pathway may have been found. Given the sheer level of support for the relationship between job demands and exhaustion elsewhere (or other components of burnout as shown in section 2.1.2.5), this hypothesis is worth investigating in further studies with international business travelers. This could help establish if there is organizational value for focusing on job demands and in particular workload in the pursuit of optimal employee functioning.

As was noted in section 2.1.2.4, challenge demands such as workload are health impairing (therefore thought to lead to exhaustion) yet are also thought to carry positive associations with engagement (see Crawford et al., 2010). Surprisingly, workload did not predict engagement in a linear or curvilinear relationship, which supports earlier
findings that certain job demands are irrelevant for engagement and would suggest that organizations should not be concerned with the level of workload if they are focusing on increasing engagement.

However, there is a growing body of literature suggesting curvilinear relationships exist between challenge demands and outcomes indicating these relationships are worth investigating further in the international business traveler context. For example, representing one recent development in a study with international business travelers, Dimitrova et al (2012) show a curvilinear relationship between international business traveler frequency (conceptualized as a job challenge demand) and career satisfaction. With regards to linear relationships in a longitudinal study with 199 nurses Lin et al (2009) show that workload was positively related to vigor and negatively to exhaustion. Furthermore, in a study with 714 Dutch employees Xanthopoulou et al (2007b) found that a high level of workload was significantly positively related to engagement.

Whilst workload did not predict exhaustion or engagement, as predicted job and personal resources did but only in sample 2 (aside from the curvilinear relationship in sample 1 between autonomy and exhaustion – see below). The finding that in sample 2, job resources were the most important predictors of engagement (autonomy, followed by supervisor support, then organizational support all showing positive relationships) supports the motivational pathway of the JD-R model. Similarly, the finding that in sample 2 cognitive flexibility was an important predictor of engagement yet less so than job resources is also in line with the JD-R model (see section 2.1.2.3). Therefore based on findings from sample 2, international business travelers experiencing high levels of job resources are more likely to experience high levels of engagement. Those with high
levels of cognitive flexibility are also likely to experience engagement. These results point at the importance of job and personal resources for maintaining engagement amongst international business travelers and support the idea that job resources are important in their own right (Hakanen et al., 2011).

Job and personal resources were also found to significantly predict exhaustion in a linear manner in sample 2, which is in line with previous findings regarding the potential of job resources for reducing burnout (Akhtar & Lee, 2010; Bakker & Demerouti, 2007). Results suggest all resources carry negative relationships with exhaustion. In particular, if organizations want to reduce exhaustion amongst international business travelers, they would be advised to increase supervisor support first then organizational support, followed by employee cognitive flexibility (e.g. through appropriate training) and lastly autonomy. Care should be taken regarding autonomy as in sample 1 a curvilinear relationship was found whereby a particularly low or high level of autonomy could actually increase exhaustion amongst international business travelers. Before organizations can be fully informed of the predictive value of demands/resources for exhaustion and engagement more research is required amongst international business travelers to either confirm or dispute these findings, particularly as the findings between the two samples are largely inconsistent. The differences could be due to methodological errors as discussed in section 6.2 or they could show how exhaustion and engagement develop for this group.

Regarding the moderating potential of job demands/resources, whilst job resources were found to reduce exhaustion (at least in sample 2), they were not found to weaken the health impairment pathway. Similarly, whilst job resources were found to increase
engagement this relationship was not enhanced by the presence of workload. Therefore the buffer and coping hypotheses were not supported in this study which could be due to the use of workload as a job demand which may actually be more in tune with a job resource (e.g. see discussion above and on challenge demands, section 2.1.2.4). Supporting this, as is outlined in section 2.1.2.2, whilst Xanthopoulou et al (2007b) found support for interaction effects within the JD-R model almost one quarter of interaction effects were non-significant and less strong moderating effects were found where workload was concerned. Similarly, other researchers (e.g. Hakanen et al., 2005) have found interaction effects to exist only where certain work characteristics are concerned. This finding points at the potential to investigate the idea of matching within the JD-R model in future research (see section 6.3.1).

Cognitive flexibility was not found to moderate the health impairment or motivational pathways. It could be that a mediation effect exists particularly regarding the motivation pathway. Findings from Xanthopoulou et al (2007a) suggest that personal resources mediate the health impairment (although they propose in their publication that personal resources moderate the health impairment pathway) and motivational pathways an idea supported with findings from Bakker et al (2010), Tims et al (2011) and Vink et al (2011).

For individuals to be cognitively flexible, they must be motivated (Martin & Rubin, 1995). Therefore, as job resources are thought to be motivational, cognitive flexibility may be a mediator within the motivational pathway, as it will emerge out of available resources in the relationship job resources-cognitive flexibility-engagement. For mediation to occur, the independent and mediator variables must be correlated, whereas
for moderation to occur the independent and moderator variables should be uncorrelated (Wu & Zumbo, 2008). In sample 1, as cognitive flexibility was uncorrelated with the work characteristics one would expect a moderation effect is more likely than a mediation effect with both exhaustion and engagement. In sample 2, for the same reason, as cognitive flexibility was uncorrelated with organizational support and supervisor support, one would also expect a moderating effect. However, in sample 2, cognitive flexibility significantly correlated with workload and autonomy meaning there is potential for it to be mediator in the health impairment pathway or motivational pathway (with regards to autonomy in the latter).

The importance of cognitive flexibility for the international business traveler context is worth investigating further (see section 6.3.1). Firstly, the qualitative study strongly suggested this personal resource to be valuable for international business travelers (see section 4.1.4). Secondly, research suggests cognitive flexibility is a particularly important trait for international business travelers. For example, Kim and Omizo (2005) propose that cognitive flexibility represents an important aspect of personality for those involved in multi-cultural situations as it can reflect one’s ability to deal with potential conflicts. Similarly, Harrison, Wilson, Pine, and Chan (1990) advise that high levels of cognitive flexibility are beneficial for people who operate across dual cultures as they learn to manage multiple and sometimes conflicting situations. This is likely to be because as people adapt their behaviors they undergo changes to their social cognitions which increases their awareness of alternative and choices, essentially helping them to manage situations better as they believe they can adapt to different environments (Martin & Anderson, 1998). These studies indicate that cognitive flexibility is a personality trait that can be modified with training, which would make it particularly
suitable to prepare employees for international business travel or even general employment in an international work context.

Contrary to expectations, recovery experiences did not moderate either the health impairment or motivational pathways of the JD-R model. This is surprising because the qualitative study clearly points at the importance of recovery experiences for international business travelers (see section 4.2). It is also surprising as previous literature on recovery suggests it is important in the development of burnout and engagement related outcomes (see section 3.5.1). Furthermore, these results are unexpected as Sonnentag and Fritz (2007) suggest psychological detachment and relaxation are particularly related to workload (e.g. time pressure, quantitative workload) an idea supported by considering the Effort-Reward Imbalance model, which suggests that rewards (e.g. recovery time) will buffer against the negative consequences of too much effort (e.g. workload) (see section 2.1.1.4).

In this sense, one may have expected to detect a moderating effect of psychological detachment or relaxation more so with the use of workload as a job demand. The results therefore point at methodological over theoretical limitations, which are discussed in sections 3.5.5 and 6.2. The finding that mastery and control over recovery experiences did not moderate the health impairment pathway is in line with Sonnentag and Fritz (2007) who suggest that these two aspects of recovery are not related to job demands. They suggest that mastery and control over recovery may be particularly related to the motivational pathway because these concepts relate more to pursuit of challenging experiences and learning opportunities not related to work and the degree of choice an
individual has about what, when and how they spend their free time which are all motivational based.

It could be that recovery experiences mediate the JD-R pathways. As mediators are typically aspects of life that have potential to be manipulated (Wu & Zumbo, 2008) and recovery experiences are something that can be manipulated through appropriate job design, this idea seems a logical answer to the findings. Furthermore, this seems rational as “a mediator should be a responsive variable that changes within a person” (Wu & Zumbo, 2008, p. 373). For example, the extent or presence of job demands (e.g. workload) may affect the amount of relaxation and detachment an individual is granted, which in turn affects exhaustion. Similarly, the amount of autonomy or support in a job may influence the extent of mastery or control (e.g. the use of flexi-time) over recovery experiences affecting engagement. Lastly, as recovery experiences are not constant but changing they may be more suited as mediators over moderators in the JD-R model but this remains to be established and could depend on each particular context.

In sample 1, recovery experiences did not correlate with any work characteristic. Therefore, in this study conditions were not met for a mediating role of recovery suggesting that lack of support may be due to methodological errors (see sections 3.5.5 and 6.2). In sample 2, significant correlations were found for the following variables: workload and psychological detachment; relaxation and supervisor support; control over recovery and supervisor support; control over recovery and organizational support. This suggests that recovery experiences may have acted as mediators where these variables are concerned. If this were the case, it may support the suggestion from Sonnentag and Fritz (2007) that psychological detachment is particularly related to
workload along with mastery and control over recovery experiences being particularly related to job resources.

Supporting the idea that recovery experiences may actually mediate the JD-R pathways, Kinnunen et al (2011) propose a job demands-resources-recovery (JDRR) model. They found in their study with 527 employees from a variety of jobs within five different Finnish organizations that psychological detachment fully mediated the relationship between job demands (relating to workload) and exhaustion (measured as fatigue at work) and mastery partially mediated the relationship between job resources and engagement. Relaxation and control were not found to mediate either JD-R pathways. Kinnunen et al (2011) suggest further research to establish the value of recovery experiences in the JD-R model is a worthwhile avenue, a view supported by the researcher of this thesis particularly with regards to international business travelers (see section 6.3.1).

5.3 Overview of key findings

To conclude, chapter 5 presented and discussed results from the quantitative study with two different samples. It aimed to assess: demands/resources as predictors of exhaustion and engagement; curvilinear relationships between job demands and engagement, job resources and exhaustion; the JD-R coping and buffer hypothesis; moderating effects of recovery experiences and cognitive flexibility in the health impairment and motivational pathways. There were significant findings regarding the value of job and personal resources for predicting engagement and exhaustion in a linear manner (sample 2 only) and a U shaped curvilinear relationship between autonomy and exhaustion (sample 1
only), which are shown in figure 5.1 (p. 201). Alone these findings may suggest the JD-R model is not valuable for the international business traveler context. However, before the model is considered redundant, more research is required in light of a number of methodological errors (also see section 3.5.5 and 6.2).
Figure 5.1: The JD-R Model as per the regression analysis
6 Conclusions

Chapter 6 provides overall conclusions from the thesis. It begins with a general discussion of each study and then summarizes the thesis as a whole (section 6.1). Next, an overview of limitations from each study and the thesis as a whole are presented (section 6.2). Following this, both scholarly and practitioner implications are discussed, the former as future research directions (sections 6.3.1 and 6.3.2). Lastly, contributions of each study and the overall thesis are presented (section 6.3.3).

6.1 Essence of findings

As was outlined in sections 1.1. and 1.2, rapid globalization and increased international business competition means organizations are becoming increasingly interested in achieving optimal employee functioning of their international staff to retain a competitive edge. The management of burnout and engagement through the JD-R model has been established as a valuable method for achieving positive results in a range of domestic contexts. However, the JD-R model has been applied over the last decade in research and practice without consideration for whether it captures the international dimension experienced by so many employees today.

This is particularly important for international business travellers who are prone to burnout (e.g. exhaustion); yet represent some of the most key staff undertaking critical business tasks. Furthermore, the management of international business travellers to date appears to have been laissez-faire where strategy, policies and procedures are concerned. In response to this and recognition that international business travellers are
likely to be used at a higher rate in the future there has been recognition recently of the
distinct requirement for scholarly research on international business travellers that can
filter through to organizations. Therefore, this thesis conducted two review studies of
the JD-R model and the international work context in general, followed by two
empirical studies where the focus narrowed to international business travellers. These
studies are discussed below.

Firstly, a systematic review was conducted which provided a methodical and critical
assessment of JD-R literature. The main objectives were to: examine the use of the JD-
R model in empirical research in particular the extent to which the model has found
empirical support in different domestic and cross-national settings; identify any efforts
that account for the international work context in the JD-R model and in that absence,
any developments or amendments to the model that may allow or foster its use in
international contexts as discussed in existing literature.

This review demonstrated convincing support for the JD-R model in different national
contexts and discussed how the model has been generally used in the literature. An
absence of studies employing the JD-R model in cross-national settings was found and
none of the studies that met inclusion criteria had explicitly considered the international
character of today’s work environment or had clearly associated the JD-R model with
the international human resource management literature. As burnout and engagement
are considered relevant long-term consequences of human resource management policy,
they play central roles in the international human resource management literature and
evidence suggests the principles within the JD-R model are highly applicable to the
international work context this review implies that research on the external validity of
the JD-R model towards the international work context is critical to enhance the knowledge base of scholars and practitioners.

Secondly, as the systematic review suggested the JD-R model holds potential for use within the international context; literature suggests cultural values can influence how individuals from different international contexts respond to the work environment; and despite application across different cultural contexts, previous research has not yielded a clear understanding of whether the JD-R model effectively responds to cultural variations in the workplace, a meta-analysis was conducted on 63 independent samples drawn from JD-R literature.

The meta-analyses aimed to assess the role of cultural values in the relationships between job demands/resources and burnout/engagement within JD-R literature and further assess the future utility of the model in international business. More specifically, this meta-analysis was interested in: analyzing level of support for the relationship between job demands/resources and burnout/engagement; and investigating whether the five national cultural dimensions moderated these relationships.

Results revealed masculinity/femininity to be the strongest moderator. Femininity and long-term orientation strengthened the motivational potential of job resources (i.e. positive job resources-engagement, negative job resources-burnout associations), whilst masculinity and short-term orientation strengthened the health impairing potential of job demands for burnout. No moderating effect was found for power distance, individualism/collectivism and uncertainty avoidance. Results suggest that employees from or within different cultural contexts respond to the same level of demands and resources differently. Therefore, knowledge of a culturally sensitive JD-R model could
prove useful for firms who are able to allocate work across different cultural contexts or for multi-cultural teams to harvest certain value systems and practices depending on their requirements.

To empirically assess the utility and robustness of the JD-R model towards the international work context, a qualitative study was conducted with 32 international business travellers as a third stage of the thesis. The qualitative study aimed to identify critical predictors of burnout and engagement and evaluate if there were any theoretical extensions required in order to more fully respond to the needs of an international business travellers. In doing so it was considered whether participant experiences ‘fit’ with the current version of the JD-R model. The intention was not to limit the flexibility of the JD-R model but merely assess the boundaries of its application regarding a particular context, therefore seeking to strike a balance whilst providing a ‘recipe’ for its use in the international work context that is methodologically sound and can be built upon in future research.

International business travellers were interviewed about their experiences of conducting international work and the development of burnout and engagement. Thematic analysis identified important hindrance and challenge job demands, job resources and personal resources many of which do in fact resonate with popular domestic approaches to important antecedents. Results also suggested a curvilinear relationship between challenge demands and outcomes, key mediators and/or moderators for an internationalized JD-R model suggesting the JD-R model is more complex than originally assumed. Overall, the results support the use of the JD-R model with international business travellers but suggest it would benefit from increased specificity.
Fourthly, a quantitative study is conducted which aimed to assess the main propositions of the JD-R model in the international business traveller context and some theoretical amendments suggested in the qualitative study, which further assesses the models robustness in the international context and completes the overall thesis research process. More specifically it investigated: if exhaustion and engagement can be predicted according to JD-R propositions in the international business traveller context using the demands/resources previously identified as critical antecedents of exhaustion and engagement in both the international context (primarily from the qualitative study) and domestic work context; if a curvilinear relationship exists between job demands and engagement, job resources and exhaustion; if recovery experiences and/or cognitive flexibility moderate the health impairment and motivational pathways. The survey was administered with 2 samples of international business travellers: a sample of 79 employees from 20 different nationalities and 18 employment sectors, recruited through international networking groups; and a sample of 55 employees from a Danish based international fast moving consumer goods company, representing 20 different nationalities.

In sample 1, job and personal resources (i.e. autonomy, organizational support, supervisor support, cognitive flexibility) were not shown to be important for the development of exhaustion or engagement. In sample 2, results showed that job and personal resources are important for reducing exhaustion and increasing engagement but only by direct linear relationships. In sample 2, job resources also did not weaken the health impairment pathway. In both samples, workload was not found to influence exhaustion or engagement and also did not strengthen the motivational pathway. A curvilinear U shaped relationship was shown to exist between autonomy and exhaustion in sample 1 only, suggesting that individuals experiencing particularly low or high
levels of autonomy may also experience high levels of exhaustion. No other curvilinear relationships were identified in either sample. Recovery experiences and cognitive flexibility also did not appear to moderate the health impairment or motivational pathways in either sample. If these results are considered alone, they do not support the use of the JD-R model in the international business traveller context aside from assumptions regarding the importance of job resources for managing exhaustion and engagement. However, given the methodological errors as outlined in sections 3.5.5 and 6.2, these findings certainly do not disregard the use of or the extension of the JD-R model towards the international work context but merely point at a distinct requirement for more research.

As a whole, in light of the issues outlined in section 1.2, this thesis aimed to evaluate the robustness of the JD-R model for managing burnout and engagement in the international work context. Findings suggest an extended internationalized JD-R model may better respond to the needs of international organizations. As is the case with any theoretical extension a range of empirical work is required to either confirm or dispute hypothesis and progress beyond conceptual extensions. This is something that can only be achieved over time and goes beyond the scope of this thesis. Therefore, as is discussed in section 6.3.1 and touched on below, more research is required of the JD-R model in the international work context. Future research could be based upon the conceptualized international JD-R model resulting from this thesis, which can be seen in figure 6.1 (p. 208). This figure represents future research directions and includes all potential relationships identified in this thesis that are worthy of investigating. As can be seen, there are four types of relationships being linear, curvilinear, moderating or mediating.
Figure 6.1: The conceptualized international JD-R Model to be used for future research directions

Job Demands
(Challenge)

Job Demands
(Hinderance)

Job Resources

Intensity of travel
Recovery experiences
Cognitive flexibility
Cultural values

Intensity of travel
Recovery experiences
Cognitive flexibility
Cultural values

Burnout

Engagement

Linear effects
Curvilinear effects
Moderating effects
Mediating effects
An extended JD-R model towards the international work context may include the moderating role of national culture (i.e. masculinity/femininity and long-term/short-term orientation) that could help organizations predict how employees may react to the presence of work characteristics. Similarly, it could help identify what work characteristics are important in different international contexts and therefore should form the basis for strategy and interventions. An internationalized JD-R model may also benefit from including cognitive flexibility. Cognitive flexibility is identified in this thesis as an important personal resource for employees operating internationally and may carry direct relationships with burnout and engagement, mediating and/or moderating the JD-R relationships.

Specifically regarding international business travellers, an internationalized JD-R model would be best to include the frequency and duration of travel (conceptualized together as intensity of travel), which may mediate and/or moderate the main relationships between work characteristics and outcomes. Also particularly important for international business travellers is the role of recovery in the JD-R relationships, which was also identified as being a potential mediator and/or moderator. Understanding the role of recovery experiences in the JD-R model and what type of recovery experience is most important under certain conditions could increase understanding of how to manage burnout and engagement when demands/resources can’t be altered. Similarly, understanding the impact that international business traveller intensity of travel has on the relationships between work characteristics and outcomes is important as in some cases it may enhance positive outcomes, some weaken. These mediators and/or moderators may provide organizations with a simplified strategic approach in that they could focus on altering one or two aspects of the workplace to achieve multiple benefits.
Lastly, this thesis points at the potential curvilinear relationships between challenge demands and engagement along with job resources and burnout, which could help identify at what prevalence certain work characteristics lead to burnout and engagement. This might also be useful for organizational strategy as by nature it could help streamline the number of work characteristics interventions should focus on and instead concentrate on obtaining the right level of work characteristics. It may also help explain why job demands are not always health impairing and job resources are not always motivating.

6.2 Limitations

Despite efforts to provide a rigorously conducted systematic review following accepted standards (e.g. see Macpherson & Jones, 2010; Thorpe et al., 2005), there are some limitations. Firstly, a distinction is not drawn between studies that assess the JD-R model additive or interaction effects in a direct or indirect manner. This may carry implications regarding the level of support for the JD-R effects and represents an opportunity for further research. However, this was not a primary objective of the research. Secondly, only studies published in English were included, which has already been discussed in section 2.2. Thirdly, only research published in academic journals was included in the review and as a result, unpublished findings and ‘grey’ papers have been omitted. Alternatively, this could be considered a strength as it suggests the research included in the review has been subjected to rigorous quality control and is therefore considered to contain important findings.
Independent of the viewpoints on the publication of a study as a criterion of academic quality (a discussion that lies far beyond the scope of this thesis), the argument of authors from other systematic reviews (Kittler, 2011) are followed and saturation assumed or at least a degree of decreasing marginal utility, allowing the assumption that the inclusion of further studies would not dramatically alter the results as unpublished variant findings (e.g. conference papers) or foreign language studies are at least likely to appear in some of the studies assessed and this was not the case. Lastly, as the review only included studies between 2001 and 2011, studies published between 2011 and the submission date of this thesis were not included. However, it is not felt that the inclusion of further domestically based studies would dramatically alter the results and as the authors could locate a limited number of studies that consider the international dimension, it is not felt that the direction of this thesis would have been altered.

It was beyond the scope of the meta-analysis to systematically include differences in economic and political variables in addition to the cultural perspective taken. For example, the moderating role of wage levels, unemployment rates or political and economic stability, which might interfere with employees’ perception of work characteristics and impact on work-related outcomes such as burnout and engagement could be scrutinized, although this represents a further research opportunity. Furthermore, while this study focuses on a moderating impact of a national aggregate (culture), it does not consider variations within cultures or different types of culture (e.g. organizational culture), which also represent potential moderators in the JD-R model.
Similarly, all job demands/resources are grouped into one category. The researcher acknowledges that job demands/resources can vary quite a bit and placing them all into one category (in particular with regards to hindrances/challenges) may not be considered ideal. For example, Crawford et al (2010) and Nahrgang et al (2011) showed that different kinds of work characteristics can influence results. It could therefore be that the moderating effects were due to different kinds of demands/resources. However, the approach taken is perceived as satisfactory as the JD-R model also does not specify individual demands/resources. Therefore, it seemed there was an element of match between the model and the methodological approach taken. As the literature search was restricted to JD-R studies and did not include published work, a bias may have been created that failed to detect results related to other theory.

A potential weakness of the qualitative study is the inability to generalize to the broader community of international workers, yet this was not the intention of the study. As there is no conclusive evidence available regarding demographic characteristics of international business travelers in the literature and the sample were reluctant to provide such details it is impossible to assess if the findings are representative of the international business traveler community. It would have been preferred that data was collected from within the same company to reduce the influence of external factors but no company was willing allocate time of their employees for this research. Therefore, a more heterogeneous sample was preferred over no sample. However, a heterogeneous sample may actually be beneficial in an area with a scarcity of research as it presents different views and opinions that can later be substantiated.
Different results may have also been found if the JD-R framework had not been used as the foundation for the semi-structured interview schedules. However, participants were asked if there was anything else not discussed that they considered important in the prediction of burnout and engagement, which reduces this bias. Given the recruitment strategy, it should be noted that all participants volunteered and therefore may have either been experiencing a degree of burnout (and wanted to ‘let off steam’ or simply share their experiences that were likely weighted in a negative manner), experiencing engagement (therefore presenting a bias by focusing more on job resources) or participants could be individuals who seek opportunities to improve their working conditions therefore presenting higher in motivation related constructs, which could bias findings. Lastly, recruitment occurred very rapidly. The researcher placed some ‘feelers’ on the Internet and immediately had potential participants making contact before ample time had been allowed to prepare. Given that this was a PhD and recruitment is notoriously hard, these opportunities had to be taken whilst they presented themselves. More background reading and interview preparation would have been preferred to enhance the quality of interviews. However, given that the sample size is very sufficient and the point of saturation was reached, this was not viewed as being problematic.

The quantitative study possesses limitations but many are common to a cross-sectional design. The use of cross-sectional data means that causality can’t be determined. However, causality can only be determined by experimental and to some extent longitudinal designs, the use of which were out-with the resources and time scope of this PhD. This is not viewed as being too problematic as a large amount of JD-R research has made considerable contributions with the use of cross-sectional designs.
e.g. Demerouti et al (2001) used a cross-sectional design in their paper introducing the JD-R model. Nevertheless, a longitudinal study would have been preferable specifically regarding the moderating role of recovery and/or cognitive flexibility because these benefits really only emerge over time. However, this represents an area for further research (also see section 6.3.1).

The use of self-report data introduced the possibility of common method variance i.e. variance in results that is attributable to measurement method over the constructs the measures signify (Meade et al., 2007). However, self-report data is one of the most commonly used forms of measuring employee behaviors and attitudes and many research contributions have been made with this method. This threat to validity and reliability is not viewed as being too problematic as previous research suggests that common method variance actually attenuates interaction effects, not amplifies them (Barling, Rogers, & Kelloway, 1995) and some suggest that it is not as problematic as assumed (e.g. Semmer, Zapf, & Greif, 1996). Nevertheless, future research would benefit from introducing other-reports, objective measurements and using instruments in their original form where possible.

In sample 2, the Principal Components Analysis results were confusing and use of trial and error to improve reliability of the exhaustion and workload scales was not ideal as it may have reduced construct validity. This could be seen as a weakness as it increases the risk of common method variance but the alternative was to omit these measures and therefore not be able to assess any job demand or exhaustion, which would prevent an assessment of a number of JD-R pathways and limit potential contributions of the thesis.
The methodological choices may have led to type 1 errors (i.e. detecting a significant effect when in fact there isn’t one) regarding demands/resources as predictors of exhaustion and engagement. Alternatively, they may have led to type 2 errors regarding curvilinear and moderating relationships. The possibility of a type 2 error regarding curvilinear and moderating effects becomes even greater when considering the small size of sample 2 ($n = 55$) (see above explanation relating to sample 1), which could be considered low for the analysis conducted therefore potentially reducing statistical power and restricting external validity of findings. In sample 2, it is considered more likely that a type 2 error has occurred (over a type 1 error) and therefore it is recommended that more research is conducted investigating the curvilinear and moderator effects in larger samples of international business travelers using a similar sampling strategy as was used in sample 2 to improve external validity.

Limitations also exist regarding the use of regression analysis to detect curvilinear and moderator effects. According to Tabachnick and Fidell (2006), regression equations are particularly sensitive to the variables used and work best when then the independent and dependent variables are strongly correlated, yet with the different independent variables being uncorrelated. Examination of tables 5.2 and 5.3 (p. 162) show the correlations in this study may not lend well to regression analysis. Similarly, according to Tabachnick and Fidell (2006, p. 122) “the relationship between an unmeasured IV and a measured IV can change the estimates of the regression coefficients; if the relationship is positive, the coefficient for the measured IV is overestimated; if negative, underestimated”. Therefore, whilst a number of control variables were used it is possible that important
variables affecting the regression coefficients were not included e.g. quality of travel as detected in the qualitative study.

Understanding all of the important variables in these relationships can only be determined by further exploratory work with international business travelers to determine important predictors of exhaustion and engagement. In saying that however, it should be considered that it is rare (and almost unfeasible) for a study of this kind to assess all potentially important independent variables meaning that the use of regression analysis will always run the risk of changing estimates of regression coefficients. Building on this, it should also be noted that regression analysis does not actually detect a causal effect (although this is often implied in published empirical work) only revealing information on the relationships between variables. Relationships detected through regression analysis could stem from other sources including unmeasured variables Tabachnick and Fidell (2006). Nevertheless, as research results accumulate that support each other the probability of causality increases. In this sense, the results regarding the predictive validity of job resources, outlined in section 5.2.2.2, increase the probability that causality exists.

The thesis as a whole also possesses some limitations. There was incongruence between studies but addressing each of these was out-with the scope of the PhD and therefore represents future research opportunities to ensure a more internationalized JD-R model that can be used appropriately in the management of burnout and engagement. For example, the empirical work did not assess the role of culture (i.e. masculinity/femininity and long-term/short-term orientation particularly) as identified in the meta-analysis. This is because the qualitative study was conducted
simultaneously to the meta-analysis (therefore was not included in interviews) and it seemed logical that the quantitative study followed on directly from the qualitative findings.

Similarly, the qualitative study identified quality of travel and work-home interference as important hindrance demands and intensity of travel as an important potential moderator, none of which were assessed quantitatively. This is because the researcher was unable to find suitable measures (i.e. previously validated) of quality or intensity of travel and developing a scale was out-with the remaining time frame of the PhD. Work-home interference was not included as the participating organization made it clear from the outset that this type of information was too negative and may create negative thinking in the organization which they wanted to avoid. This construct was therefore not measured in either sample to ensure the companies participation and congruence between the two questionnaires.

6.3 Future research, implications for practice and contributions

The findings from this thesis present a number of empirically related directions for future research along with theoretical and practical implications, which will be discussed below.

6.3.1 Directions for future research

The thesis suggests a number of directions for future research that can be pursued through appropriate empirical work, some of which have been touched upon already
e.g. further research relating to the importance of recovery experience, cognitive flexibility and curvilinear relationships were discussed in section 5.2. On the whole, examining the relationships within the conceptual international JD-R model (see figure 6.1, p. 208) would be valuable in the future management of burnout and engagement amongst international business travellers and potentially employees involved in other types of international work.

With regards to the meta-analysis, it is suggested that extending the JD-R model to systematically incorporate cultural values as important moderating variables is an important avenue for further research. To the researcher’s knowledge there have been little efforts to move towards a culturally sensitive JD-R model. Furthermore, the meta-analysis suggests that conducting JD-R studies within under-explored national contexts (particularly inviting studies in African or South American contexts) would be valuable for assessing the validity of the model on a global scale.

It was evident from the qualitative study that international business traveller frequency and duration, conceptualized as intensity of travel is important for the development of burnout and engagement amongst international business travellers. However, it is unclear whether intensity of travel moderates or mediates the JD-R pathways. To be a moderator, it would have to be a contextual variable that precedes both job demands/resources and burnout and engagement and be uncorrelated with job demands/resources (the latter a prerequisite for moderating effect; Wu & Zumbo, 2008). This assumes more of an observational stance, where intensity of travel exists as something external that changes the strength or direction of the JD-R pathways therefore helping businesses to understand for whom and when health impairment or motivation may occur. In line with the JD-R models buffer and coping hypothesis,
intensity of travel as a moderator could also act as a job demand/resource each moderating the motivational/health impairment pathways respectively.

On the other hand, as a mediating variable intensity of travel would need to correlate with demands/resources (a prerequisite for mediating effects; Wu & Zumbo, 2008), acting as a dependent variable to demands/resources (therefore depending on the extent and type of demands/resources) and an independent variable to burnout and engagement. It would therefore help to explain how and why there is a causal relationship and presents as a variable that can be manipulated (e.g. through appropriate job design).

It could be that a combination of the two exists but as a first step in order to assess the role of intensity of travel an appropriate measurement tool would need to be developed. In doing so, it would be advisable to present intensity of travel as two separate components so future research can assess the different relationship of frequency and duration e.g. Welch et al (2007) found that frequency and duration are important for business travellers, but longer infrequent trips are favourable over shorter frequent trips. Using qualitative methods to initially gain greater understanding of international business traveller experiences specifically regarding intensity of travel with the idea of developing a measurement tool that can be used in research but also in practice as a monitor tool would be a good starting place. The importance of this research is emphasized by the inclusion of physical mobility into a recently developed taxonomy of global work dimensions that affect employee attitudes (Shaffer et al., 2012).

Whilst the JD-R model assumes that any demand/resource can interact in the prediction of burnout and engagement it also encourages a degree of specificity to achieve stronger
results although the latter idea has not been picked up to any degree in the JD-R literature (Bakker et al., 2007; Xanthopoulou et al., 2007b). Given the mixed results found in the quantitative study and previous acknowledgement that the level of support for the health impairment and motivational pathways often depend on the variables assessed (Akkermans et al., 2009) it is worth considering that different results may have been found if demands/resources assessed in this thesis possessed greater compatibility.

Some researchers suggest that matching job demands/resources on whether they are cognitive, emotional or physical is likely to result in strongest predictions of well-being (De Jonge & Dormann, 2003; De Jonge et al., 2008; de Jonge et al., 2012). The same could apply to cognitive flexibility. In fact, whilst Bakker and colleagues don’t outwardly promote the idea of matching they do state, “the task of the practitioner or the organization is to find the proper job resource that can (effectively) buffer the effect of the specific job demand” (Bakker et al., 2005a, p. 179). In doing so, they are indirectly supporting the idea that particular combinations of demands/resources will interact in a stronger manner within the JD-R model. Therefore, the theoretical and practical significance of the model could be enhanced with a better understanding of matching in the management of burnout and engagement for international business travellers, although this idea is not conceptualised in figure 6.1 (p. 208).

Given that the nature of international business travel means individuals are away from their home lives it could be that for this group of employees, home demands/resources are important. Whilst the home life has been considered in some JD-R research, studies have generally shown limited evidence for their role despite that previous research out-with the JD-R realm has found associations between home characteristics and burnout and engagement.
For example, Peeters et al (2005) found with a study of 1000 employees that quantitative, emotional and psychological home demands were positively related to burnout (exhaustion and cynicism) even after controlling for job demands. Furthermore, Bakker, Demerouti and Scrufuli (2005b) found that home demands/resources did impact upon burnout (particularly exhaustion) albeit to a lesser degree than job demands/resources. Considering that work-home interference was an identified hindrance demand in the qualitative study, it could be that for international business travellers home demands/resources are more important than originally thought and specifically for this context. Investigation of their role may help better explain the development of burnout and engagement for international business travellers and could represent a context specific theoretical extension to the JD-R model.

In a similar vein, this research could investigate the role of gender, marital status and family differences as these could be important moderators in the international business travellers context more so than in the domestic context e.g. do home demands lead to more exhaustion for married women with children? Particularly, the importance of understanding gender differences and avoiding assumptions that research on gender is a complete issue especially regarding emerging areas of organizational management (e.g. such as management of well-being and performance outcomes for international business travellers), is implied by prominent researchers in gender studies (see for example Broadbridge & Hearn, 2008; Broadbridge & Simpson, 2011; Fielden & Davidson, 2001). Again, these ideas are not conceptualised in the proposed international JD-R model shown in figure 6.1 (p. 208) but are worth considering in the future of JD-R and particularly international business traveller research.
Lastly, it would have been interesting to compare these findings with different types of international workers to see if they are specific to international business travelers or the international dimension of work e.g. to determine if cognitive flexibility is important for all individuals involved in international work. However, this type of study is out-with the scope of the PhD and would likely require involvement from a major multi-national organization to ensure appropriate methodological strategy. This does represent a good avenue to build upon in future work particularly with the findings from the two review studies.

**6.3.2 Implications for practice**

Despite that a number of JD-R propositions were not supported in the quantitative study, due to the associated methodological limitations (see sections 3.5.5 and 6.2) combined with the results from the two review studies and qualitative study the author believes as a whole the findings from this thesis imply that the JD-R model holds potential as a valuable tool for managing burnout and engagement in the international work context and certainly with international business travelers. However, as was discussed above more research is required before these propositions are implemented in practice. Nevertheless, some preliminary recommendations can be made.

Based on findings from the review studies the JD-R model can be used as intended across different national contexts with confidence and would be well suited with international organizations wanting to use one approach company wide for managing burnout and engagement or related outcomes as it can respond to different national contexts. In line with this, organizations should expect the type of job characteristics
considered important and their impact to be perceived differently by employees from different cultural contexts. For example, employees’ levels of burnout and engagement appear less negatively affected by high demands in more feminine and/or long-term oriented cultures. Therefore, multinational organizations operating across different cultures could benefit from allocating highly demanding jobs to these cultures. Furthermore, teams could work towards adopting characteristics associated with feminine and/or long-term orientated cultures as a means of increasing engagement through appropriate training.

Based on findings from the two empirical studies, organizations interested in reducing burnout and increasing engagement should make efforts to improve the quality of travel (i.e. logistics, accommodation, flights) and reduce the amount of work-home interference or workload for those involved in international business travel. Issues of work-home interference may be particularly important for female employees and those with children. Regarding workload, assisting employees with travel arrangements, completing expenses and the use of a company credit card could be valid and cost-effective options. For example, it seems logical for an administrator who has a lower salary than a manager to spend time completing these tasks so the international business traveler can focus on catching up on work after a trip. Similarly, the use of a company credit card would reduce the need to spend time completing expense forms. However, care should be taken in gaining the right balance of these demands and potential options discussed with employees. It may be for example that administration help with expenses, or colleague assistance to reduce the amount that workload builds whilst on a trip actually creates more work. Whilst these job demands should be considered by
organizations the exact nature of responding to them ought to be discussed with employees in each context.

Furthermore, ensuring that international business travelers have the right amount of organizational support (see above regarding options for dealing with workload), supervisor support and autonomy in their jobs is crucial for preventing burnout and increasing engagement. Flexibility regarding travel (e.g. when and how to travel, timing of flights, not being forced to take the cheapest flight at unsociable hours) and expectations around increased workload as a result of the trip were identified as important and cost-effective methods for helping employees manage their lives and international business travel. If organizations are interested in managing the work context, they would be best served to concentrate on implementing the right amount of resources with less emphasis on reducing job demands as this will have multiple benefits e.g. resources directly reduce exhaustion and directly increase engagement and if burnout/engagement are polar opposites, focusing on engagement only will indirectly reduce burnout.

However, if curvilinear relationships do exist between job demands and engagement and/or job resources and exhaustion, then organizations would need to ensure they achieved the right level of demands and resources. For example, for employees who lack discipline, particularly high levels of autonomy may actually create strain relating to deadlines. Similarly, particularly high levels of supervisor support in the form of flexibility towards employee working hours may actually make it difficult for them to work as a team e.g. allowing working from home or flexi-time may mean colleagues can’t co-ordinate over projects. An understanding of these relationships could help form
policies, procedures or interventions based upon a smaller number of work characteristics that work towards achieving the right levels of these. Such a quality not quantity approach would help to make organizational approaches aimed at reducing burnout and enhancing engagement more streamlined, efficient and therefore cost-effective.

For individuals who are going to be involved in international business travel (or potentially any international work) either recruiting those high in cognitive flexibility or offering training to improve cognitive flexibility would be beneficial. By doing so, theoretically employees will be better prepared to deal with cultural differences therefore not perceiving differences as demanding and essentially taking them in their stride. This would mean the attention and efforts of international business travelers could be directed on the task at hand and they are more likely to achieve positive working relationships with colleagues or clients from other cultures. At present the author is unaware of training programs designed to improve cognitive flexibility of employees or of measurement tools specifically targeted at organizations meaning there is scope for such an instrument and/or program to be developed.

Practitioners are also advised to consider an international business travelers need for recovery. This could be in the form of time to recover from jet lag, long haul flights, relaxation time whilst on a business trip or time to catch up on tasks when returning home (e.g. laundry, shopping). Similarly it could relate to the activities pursued, when and how or the amount of time the individual has to switch off from work (e.g. encouraging them to switch off work telecommunications in the evening where possible). Being considerate of recovery for those involved in international business
travel could make the difference between an employees perception of the trip as being negative or positive which will filter down into their approach to daily work. It may be that for jobs with high levels of demands or where avoiding health impairment is a concern, providing employees with opportunities to relax both physically and mentally along with encouraging them to detach psychologically from work may be most beneficial. For jobs involving more resources than demands or where employee motivation is a concern, encouraging employees to decide what activities to pursue in their leisure time, when or how along with encouraging pursuit of activities that are challenging yet provide learning opportunities is advisable. Until more research is available on the role of recovery for international business travelers being flexible and discussing viable options for recovery with employees on an informal basis may be the best approach.

Lastly, practitioners are advised to strike the right balance of trips in terms of frequency and duration. It seems that that a low frequency/duration of trips actually increases engagement and is perceived as being positive but there appears to be a tipping point where business travel leads to burnout and starts to be viewed as negative. It is important for organizations to understand that too much international business travel will not only lead to burnout in the employee, but is likely to carry further implications e.g. reputation of the company, difficulty retaining top talent. This tipping point will be different for each employee and again until more research is conducted practitioners are best advised to speak to employees.
6.3.3 Overall contributions

This thesis makes a number of contributions, some of which were discussed in sections 6.3.1 and 6.3.2 relating to future research directions and practical implications respectively. Building on this, firstly the contributions relating to each study are outlined followed by the contributions of the thesis as a whole.

The systematic review may provide a foundation to commence discourse regarding where the literature stream stands in relation to external validity towards the international work context, the latter becoming increasingly important as managers and organizations are forced to operate on a global scale (Pagell et al., 2005). Moreover, as suggested in section 1.2.1 given the expected onset of an increasingly international business world, practitioners are likely to look towards human resource management models that have been verified in a scholarly manner as opposed to assumed to be able to respond to the international imperative. In accordance, the systematic review represents a foundation for necessary empirical research that can provide practitioners with the confidence to universally apply the JD-R model for managing employees within different national, cross-national and international work contexts. This will also help to further draw links between the human resource management and international human resource management literature streams allowing both to strengthen in a mutual manner.

The meta-analysis shows that, depending on the national context (characterized by different levels of masculinity/femininity or long-term/short-term orientation), managers could expect the impact of resources and demands to be perceived differently by employees within different cultural contexts, or from different cultural contexts.
whom are not fully adjusted to the newer foreign cultural contexts. These findings are valuable to both the scholarly dialogue and the application of the JD-R model by practitioners and highlight the need to consider national culture in future organizational strategy. The cultural impact on both the health-impairment and motivational pathways could be particularly relevant to larger international firms who are able to allocate work across different national contexts. As not all firms are able to alter geographical locations of business operations, the presence of an increasing number of multi-cultural teams also presents an opportunity for work teams to harvest certain value systems and practices. For example, results suggest that teams could work towards adopting characteristics associated with feminine and long-term orientation cultures (e.g. work-life balance, planning for the future with good pension availability) as a means of enhancing the amount of job resources available and thus engagement and conversely, minimizing those characteristics associated with masculine, short-term orientation cultures (e.g. assertiveness, focusing on immediate results) to help to reduce burnout if high demands are unavoidable.

The qualitative study contributes to the existing literature stream by providing empirical insight into whether different approaches are required in the management of burnout and engagement for domestic and internationally operating staff. In doing so it avoids a laundry list approach by identifying important predictors of burnout and engagement for international business travellers and assesses the requirement for a theoretical extension to the JD-R model, bridging the gap between two increasingly popular literature streams by positioning the JD-R model in the international business traveller context and highlighting a valuable further research avenue. Unlike uni-dimensional approaches of the past, this study offers a comprehensive approach, examining both positive and negative antecedents and outcomes and contributes to existing literature by providing a
more complete understanding of international business traveller experiences. The qualitative study also identifies the value of the JD-R model for the international business traveller context and suggests amendments for greater specificity.

More specifically, the qualitative study suggests that curvilinear relationships may exist not only between job demands and engagement but also between job resources and exhaustion. The study therefore represents an important step in understanding why job demands can sometimes possess motivational aspects and why job resources can sometimes be health impairing. Understanding of these relationships may also help explain mixed findings in JD-R literature as outlined in section 2.1.2, could represent an important theoretical extension and may help organizational strategies become more streamlined as was discussed in section 6.3.2.

Furthermore, it identifies cognitive flexibility as an important personality trait for internationally operating employees, which carries practical implications as outlined in section 6.3.2. Theoretically this supports the JD-R idea that personal resources are important in the development of burnout and engagement but also indicates the importance of focusing on the right personal resource for a particular context to get the most out of interventions. These findings also point at the importance of recovery experiences for international business travellers and of gaining the right balance of intensity of travel, as discussed in sections 4.2 and 6.3.2.

The quantitative study contributes to the existing literature stream by suggesting the JD-R model may not be an appropriate theoretical approach for the management of burnout and engagement with international business travellers. To some degree, the findings presented in chapter 5 (aside from those relating to the importance of resources)
contradict those presented in chapter 4 and existing literature (see chapter 2) but in doing so strongly highlight the timely requirement for valid and reliable research on international business travellers representing a jumping off point for future research regarding the conceptual model presented in figure 6.1 (p. 208).

From a practitioner perspective until more empirical work is conducted that either confirms or refutes the use of the JD-R model in the international work context, organizations should be cautious when applying associated principles to the management of international business travellers. In saying that, a degree of confidence can be assumed regarding the importance of job resources for both burnout and engagement (see section 6.3.2). Considering that organizations may have been applying JD-R related interventions to international business travellers in the past without consideration for whether it captures their experiences, the quantitative findings make a contribution by raising awareness and insight that different approaches may be required for domestic staff and international business travellers and/or potentially other types of internationally operating employees.

As a whole, the main contributions of this thesis are: increased awareness that the JD-R model may not be suitable for the international business traveler (or even international) work context and different approaches may be required that form the foundation of strategy, policy, procedure and interventions; the development of a conceptual international JD-R model (figure 6.1, p. 208) which may represent an approach that does capture the international business traveler context; and further identification of the distinct need for timely research on international business travelers. As with any research discipline, insight emerges over time with the accumulation of different empirical studies and therefore this thesis sets the scene for scholarly approaches that
can inform practitioners of the future. To summarize, this thesis possesses theoretical, empirical and practical contributions and as such is argued to be of value not only for the scholarly community and global mobility staff (in particular international business travelers) but also organizations who are active in the international business environment but perhaps via remote means such as globally mobile work-spaces.
Bibliography


Enacted uncertainty avoidance and the social safety net as country-level
moderators in the job insecurity-job attitudes link. Journal of Applied
Psychology, 97(3), 690-698.


DeFrank, R. S., Konopaske, R., & Ivancevich, J. M. (2000). Executive travel stress:

aspirations and implications. Thunderbird International Business Review, 52(4),
301-311.

for future research. SA Journal of Industrial Psychology, 37(2), 974-983.

Demerouti, E., Bakker, A., & Fried, Y. (2012). Work orientations in the job demands-
resources model. Journal of Managerial Psychology, 27(6), 567-575.

related effort during non-work time. Research in Occupational Stress and Well-
Being, 7, 85-123.

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job
demands-resources model of burnout. Journal of Applied Psychology, 86(3),
499-512.

validity of two burnout instruments: A multitrait-multimethod analysis.
European Journal of Psychological Assessment, 19(1), 12-23.


Dollard, M. F., & Bakker, A. B. (2010). Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee


Taras, V., Kirkman, B. L., & Steel, P. (2010). Examining the Impact of Culture's Consequences: A Three-Decade, Multilevel, Meta-Analytic Review of


Appendices

Appendix I. Notification placed on Internations networking website to recruit for the qualitative study

Hi,

I was wondering if anyone would give up between 10 and 30 minutes of their time for an informal chat (confidential and anonymous of course). I am looking to speak with individuals who go overseas with their jobs, whether on a traditional expatriate basis, a short term relocation or frequent overseas business trips. I can telephone you at any time that is convenient to you.

I am a researcher, based near Geneva who specializes in job design, talent management, positive organizational psychology and international assignments. I am conducting an international research project investigating how international business assignments can be (re-) designed to achieve more positive outcomes with respect to reduced burnout, enhanced engagement and performance related issues. I want to find out about the realities that you face and hear your story!

If you do have a few moments, it would be great to phone you, but also if you know of anyone else who might be willing to speak with me, that would be great. Please pass on my details! I can also telephone at a time that is convenient to the individual. Any help appreciated!

Reply to this message or send me a private message and I can then give you my email address.

Best wishes

Lucy
Appendix II. Example email to individuals on Internations networking website to recruit for the qualitative study

Dear [individual’s name]

[Email normally follows some online conversation where I have introduced myself]

I am conducting an international research project investigating how international business assignments can be (re-) designed to achieve more positive outcomes with respect to reduced burnout, enhanced engagement and performance related issues. As a first stage, I am trying to create an up to date understanding of the realities facing individuals who engage in international business travel. As you will be aware, with demographic changes, increase in cheap and easy air travel and technological advances, business travel is constantly evolving. As a result, we need to know what we are dealing with and subsequently establish the impact – to be able to provide up to date information to HR professionals.

I am therefore looking to speak with people over the phone who go overseas with their jobs. If you do, it would be great to phone you, but also if you know of anyone else who might be willing to speak with me, that would be great. The conversations are confidential and remain anonymous. I will endeavor to keep them short and to give you an idea, previous interviews have lasted anything from 10 – 30 minutes. I can also telephone at a time that is convenient to the individual. Any help appreciated!
Appendix III. Advertisement on Linkedin to recruit for the quantitative study

Employee Engagement has evidently become a hot topic in recent years and is widely accepted as being critical for organizational effectiveness.

However, findings suggest that HR employee engagement strategies for domestic and globally operating staff should be based on a different set of predictors and interactions.

This calls for research to establish where differences lie, helping to ensure organizations get the most out of their HR strategies and globally mobile employees are happy, stress-free and effective.

If you would like to be part of cutting edge research into managing employee engagement within an international work context, please email me on lucy.wilcox@stir.ac.uk for more information. Thank you.
Appendix IV. Notification on Internations to recruit for the quantitative study

Do you have a spare ten minutes? If you do, please read on!

I am at the final stage of my PhD and need your help to make the last 2 years worth it! 4 separate interview studies have led to the development of this online survey looking at critical work and personal factors for creating a climate of work engagement through job (re)design.

It's importance? Overall findings will be published (individual participation is completely anonymous and confidential) and feed into future interventions, wellness audits, career planning, development, workshops all designed to make you a HAPPIER employee, who is therefore, more engaged at work.

To take part, simply click on this link:
http://www.survey.bris.ac.uk/stirling/engagement

If you are aware of anyone else who might have time to participate, please also forward this link. Anyone who is employed can take part.

If you think your employing organization would like to take part in return for a short analysis detailing the state of engagement compared to global norms and recommendations on how to improve the climate of work engagement specific to your company, please get in touch. I will arrange for a departmental or organizational specific version of the questionnaire to be emailed to you or a contact within your company.

If you have any questions, please don't hesitate to get in touch.

Many thanks.

Lucy
Appendix V. Example email content sent to HR professionals who have expressed an interest in the quantitative study, but would like to know more about the research

Over the last two years, I have conducted research to identify the most important predictors of employee engagement, specifically for internationally operating employees. The intention of this research has been to avoid a laundry list approach towards the management of employee engagement and ensure practitioners know where to focus efforts in light of the current economic climate and associated demands so HR teams can maximize efforts.

As I am sure you are aware, while employee engagement is widely accepted as being critical for organizational success, it has not yet convincingly spilled over to the international work context. Thus, HR strategy directed at internationally operating employees is typically based on findings developed in purely domestic contexts (or from HR strategic research). As my findings to date suggest that engagement for domestic and globally operating employees develops from a different set of predictors (e.g. cultural and recovery considerations for those who are globally mobile), such an approach is potentially hampering effectiveness. Therefore, this research is addressing a highly significant topic for the case of international employees and once completed, will be considered cutting edge. However, to take this research forward and ensure high practitioner impact, it is important to assess whether these findings hold on a larger scale, by administering a survey across a department or organization.

If you are interested in discussing this research, please get in touch. At minimum, all that would be required from your end is to email staff encouraging participation in a survey that takes 10 minutes to complete. I could therefore provide an analysis, feedback and recommendations. If desired, I would also be happy to liaise with you to discuss anything in particular you would like to find out to maximize the value of the findings. I am happy for the level of involvement to be dictated by you and your own schedule. Please note that of course, any involvement is entirely confidential and anonymous.
If you have any questions or would like to discuss this research further, please don’t hesitate to get in touch.
Appendix VI. Example email content that was forwarded to networking groups (e.g. LLORG’s, OWIT) on my behalf to recruit for the quantitative study

I am interested in collaborating with an organization to investigate how to create or enhance work engagement within an international work context. In return, I am willing to work as a free consultant on this matter, providing analysis, feedback and recommendations. All that would be required is for a member of the HR team to send out a group email encouraging employees to participate. If desired, I would also be happy to meet with a member of the HR team to discuss any additional objectives they might have and the possibility of incorporating these into a company specific version of the questionnaire. I have attached a research summary, which provides more details.

In addition to the above, I am also interested in responses from individuals not attached to an organization who is collaborating, to create a 'snowball, random sample' and have therefore created a general version of the survey. If you are unable to assist with a collaboration, but would still like to participate, please complete the general version when you have a moment. This can be accessed by going to: http://www.survey.bris.ac.uk/stirling/engagement. If there are any problems accessing the link, please re-type it into your browser. This link can be sent on to any individual you know of who might be interested in taking part, inside or outside your employing organization.
Appendix VII. Research summary to increase organizational participation in the quantitative study

RESEARCH SUMMARY

Creating a Climate of Work Engagement

Lucy Wilcox
Markus Kittler
Geoffrey Matthews

For further information, please email: Lucy.Wilcox@stir.ac.uk
**Business context**

Firms today are actively engaged in international business activities, or are at least passively affected by an internationalized environment. To remain competitive, companies and their employees must function at a high level across a range of evolving work contexts, which might involve one or a mixture of the following: relocation, international business travel, international commuting, virtual teams, or domestically based employees who have responsibilities and/or interactions with colleagues in a different country. Yet attracting and retaining desired human capital for internationally operating roles is a global concern. Appropriate work design focusing on increasing work engagement is a valuable strategy to ensure critical jobs are filled by high performing individuals.

Typically, engagement is characterized by a positive approach to work, whereby the employee is experiencing vigor, dedication and absorption. High engagement also typically means avoidance of stress syndromes such as emotional exhaustion, cynicism and feelings of reduced professional efficacy, resulting from chronic exposure to emotional and interpersonal job stressors. Engagement is deemed critical in the development of important outcomes such as retention and performance. However, there has been minimal focus on its management amongst individuals involved in international work, despite growing evidence of the desperate need to develop strategies that help employees perform well within these evolving work contexts. The key to successful management is developing an understanding of the occupational and personal factors that help create a climate of work engagement. Thus, this research is addressing a highly significant topic for the case of international employees and once completed, will be considered cutting edge research.

**Research purpose**

Through a meta-analytic review of the literature and a series of interviews with globally based expatriates, international business travelers and international commuters, we identified personal and workplace characteristics that were considered important in the development of engagement related outcomes and assessed these in light of prominent work design theory. The predictors deemed as being the most important are: workload, control, support (organizational and supervisor), cultural values, recovery experiences and cognitive flexibility.

We are now interested in determining whether these findings hold on a larger scale and can therefore be used in the development of more specific interventions, wellness audits, workshops, job (re) design strategies, leadership practices, career planning and development. The results will indicate any patterns, determine which factors are most predictive and point towards their specific role in the development of engagement.

**The benefits of taking part**

In supporting this research, we are happy to provide an analysis in line with the aims outlined above. The analysis will therefore make practical recommendations along two broad areas, specific to your employees: 1) the current state of engagement and 2) important contextual, work and personal predictors of engagement.
As responses are anonymous and confidential, information and recommendations will be based on collective results. However, provided there are an adequate number of responses, we can also examine differences across countries, teams, job type and gender etc, offering comparisons to global norms where possible. For example: groups at risk of becoming health impaired can be identified, so your HR team becomes aware of employees that might need attention and what contextual, work and personal factors to focus on; groups reporting higher levels of engagement could be investigated to determine what motivational factors are in place, that are transferable; the role of cognitive flexibility\(^2\) could be identified to help determine the value of related selection and training strategies. Please see the final page for more details and a sample list of items to be included in the questionnaire.

We are aware that many of the challenges of a modern workplace are unavoidable and therefore aim to make recommendations in line with contextual, work and personal factors that can be managed, without compromising the value of an individuals job or the organizations purpose. The information we provide can therefore be important for future HR strategy or interventions focusing on creating a climate of work engagement.

**Where you can get involved**

The questionnaire can also be amended at this stage to incorporate any additional items that you feel are either important in the development of work engagement or you would like to incorporate for your own HR purposes. We are happy to work with your HR strategy and amend our research objectives, so that you can receive the best possible analysis. All that we ask is for a member of the HR team to discuss your own goals with us and send a group email across the organization encouraging employees to give up 10-15 minutes of their time to complete an online questionnaire. The questionnaire link can be included in the email. Please note that taking part in this research and provision of the analysis is free.

**Thank you for your time**

We thank you in advance for your consideration. If you would like to discuss this research opportunity further, please don’t hesitate to make contact.

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\(^2\) **Cognitive flexibility:** It is a personality trait deemed critical for international work and refers to an individual’s ability to adapt behavior and thoughts to effectively respond to any given situation.
Sample items to be included in the questionnaire

*Please note that items can be added to the questionnaire as outlined above. Employees are typically asked to rate their level of agreement or disagreement with a series of statements or indicate the extent that they feel a particular way.

Demographic and contextual factors

Gender
Age
English language skills
Education level
Ethnic group
Job function

Work, organizational and personal factors

Do you have influence in the planning of your work activities?
Do you resolve problems arising in your work yourself?
I am not asked to do an excessive amount of work.
Waiting on work from other people or departments often slows me down on my job.
The organization fails to appreciate any extra effort from me.
The organization takes pride in my accomplishments at work.
My supervisor pays attention to what I am saying.
My supervisor is successful in getting people to work together.
I can communicate an idea in many different ways.
I have many possible ways of behaving in any given situation.
I forget about work.
I do things that challenge me.

Engagement variables

I always find new and interesting aspects in my work.
There are days when I feel tired before I arrive at work.
At my work, I feel bursting with energy.
At my job, I feel strong and vigorous.
Appendix VIII. Sample 1 questionnaire

Welcome page

Welcome and thank you for taking the time to share your experiences. The research aims to identify how work engagement and burnout develop as a result of individual differences, work and non-work factors for international business travelers. Results will be published in widely read outlets and used to improve researcher and practitioner understanding of how the workplace and jobs can be (re)designed to create the best possible future for employees. Your input is therefore very important and highly valued.

This questionnaire will take 10-15 minutes to complete and the information you provide will be of long-lasting benefit to you, your peers and those of the future. Please only take part if you travel internationally for business purposes. By continuing with this survey, you are providing your consent. Your responses will be treated as confidential and anonymous. Please encourage others to participate in this research. The survey can be accessed by going to the following link:

http://www.survey.bris.ac.uk/stirling/engagement

If you feel that managing burnout and engagement is of interest to your department or organization, please get in touch. I would be delighted to act as an unpaid consultant on the matter, providing analysis, feedback and recommendations which will advise on a number of areas that can help to create a climate of work engagement for your employees. If you have any questions, please send me an email at Lucy.Wilcox@stir.ac.uk.

Thank you.
Section 1: Please tell us about you

1. Have you taken an international business trip in the last year? Please answer 'Yes' if your international business trip was for work purposes, but did not involve relocation or routine travel to the same location.
   - Yes (please proceed to question 2)
   - No (please proceed to the end of the questionnaire)

2. Are you male or female?
   - Yes
   - No

3. What age are you?
   - Open ended response

4. What is your country of birth?
   - Open ended response

5. Is English your native language?
   - Yes (please proceed to question 7).
   - No (please proceed to question 6)

6. At what level are your English language skills?
   - Fluent
   - Good
   - Poor
   - Very poor

7. What is your marital or relationship status?
   - Married
   - Widowed
   - Divorced
   - Separated
   - Single
Living with a partner
In a relationship, but don’t live together

8. Does your spouse or partner work?
   Yes, full time
   Yes, part time
   No
   Not applicable

9. Do you have children?
   Yes (please proceed to question 9. a)
   No (please proceed to question 10)

9.a. How many children do you have?

9.b. Do your children live in the same household as you?
   Yes
   No

10. What is your highest level of education?
If your educational degree is not listed, please choose the equivalent level, or specify the degree and details.
   Doctorate
   Masters
   Bachelors
   High school diploma
   Other (please specify)

11. What is your ethnic group?
   White/Caucasian
   Mixed/multiple
   Asian
   Black
   Arab
Hispanic
Other (please specify)

Section 2: What is your job like?

1. Please indicate the industry that best reflects the work that you do.
   Participants choose from a pull-down menu adapted from the New York Times
   (http://jobmarket.nytimes.com/jobs/category/)

2. Please indicate the size of your employing company
   Less than 10
   11-50
   51-250
   251-1000
   More than 1000

3. What date did you begin employment in your current job?
   If you can’t recall the exact date, please estimate.
   Participants chose from a calendar.

4. The following questions deal with the amount of independence in your work. Please
   respond by choosing the option that best reflects how you feel.
   1 = Always
   2 = Often
   3 = Sometimes
   4 = Never
   Please select.
   1  2  3  4

   Do you have freedom in carrying out your work activities?
   Do you have influence in the planning of your work activities?
   Do you have an influence on the pace of work?
   Can you decide how your work is executed on your own?
   Can you interrupt your work for a short time if you find it necessary
to do so?
Can you decide the order in which you carry out your work on your own?
Can you participate in the decision about when something must be completed?
Can you personally decide how much time you need for a specific activity?
Do you resolve problems arising in your work yourself?
Can you organize your work yourself?
Can you decide on the content of your work activities yourself?

5. The following statements deal with your workload. Please respond by choosing the option that best represents your agreement or disagreement with each statement.
1 = Strongly agree
2 = Agree
3 = Disagree
4 = Strongly disagree

Please select.

1 2 3 4

My job requires working very fast.
My job requires working very hard.
I am not asked to do an excessive amount of work.
I have enough time to get the job done.
I am free from conflicting demands that others make.
My job requires long periods of intense concentration on the task.
My tasks are often interrupted before they can be completed, requiring attention at a later time.
My job is very hectic.
Waiting on work from other people or departments often slows me down on my job.
6. The following statements represent possible opinions that YOU may have about working for your organization. Please respond by choosing the option that best represents your agreement or disagreement with each statement.

1 = Strongly agree
2 = Moderately agree
3 = Slightly agree
4 = Neither agree nor disagree
5 = Slightly disagree
6 = Moderately disagree
7 = Strongly disagree

Please select.

The organization values my contribution to its well-being.
The organization fails to appreciate any extra effort from me.
The organization would ignore any complaint from me.
The organization really cares about my well-being.
Even if I did the best job possible, the organization would fail to notice.
The organization cares about my general satisfaction at work.
The organization shows very little concern for me.
The organization takes pride in my accomplishments at work.

7. The following statements deal with your relationship with your supervisor. Please respond by choosing the option that best represents your agreement or disagreement with each statement.

1 = Strongly agree
2 = Agree
3 = Disagree
4 = Strongly disagree
5 = I have no supervisor

My supervisor is concerned about the welfare of those under him.
My supervisor pays attention to what I am saying.
I am exposed to hostility or conflict from my supervisor.
My supervisor is helpful in getting the job done.
My supervisor is successful in getting people to work together.

Section 3: The nature of your international business travel

When answering the following questions, please think in terms of your current job.

1. Which regions of the world do you travel to on business?
   Open ended response.

2. Is there one country that makes up a large part of your international business travel?
   Please specify.

3. How many countries would you typically travel to in one business trip?
   Open ended response.

4. How many international business trips did you take in the last year?
   Open ended response.

5. What is the average duration of a business trip in days?
   Open ended response.

6. When did you start using international business travel as part of your career?
   If you can not recall the exact date, please estimate.
   Participants chose with a calendar.
Section 4: What are you like?

1. The following statements deal with your beliefs about your own behavior. Please respond by choosing the option that best represents your agreement or disagreement with each statement.

1 = Strongly agree
2 = Agree
3 = Slightly agree
4 = Slightly disagree
5 = Disagree
6 = Strongly disagree

Please select.

I can communicate an idea in many different ways.
I avoid new and unusual situations.
I feel like I never get to make decisions.
I can find workable solutions to seemingly unsolvable problems.
I seldom have choices when deciding how to behave.
I am willing to work at creative solutions to problems.
In any given situation, I am able to act appropriately.
My behavior is a result of conscious decisions that I make.
I have many possible ways of behaving in any given situation.
I have difficulty using my knowledge on a given topic in real life situations.
I am willing to listen and consider alternatives for handling a problem.
I have the self-confidence necessary to try different ways of behaving.
2. The following statements deal with your free time from work. Please respond by choosing the option that best represents your agreement or disagreement with each statement.

1 = Strongly agree
2 = Agree
3 = Neither agree nor disagree
4 = Disagree
5 = Strongly disagree

Please select.

I learn new things.
I forget about work.
I use the time to relax.
I distance myself from work.
I get a break from the demands of work.
I determine for myself how I will spend my time.
I kick back and relax.
I do something to broaden my horizons.
I take time for leisure.
I seek out intellectual challenges.
I do relaxing things.
I do things that challenge me.
I feel like I can decide for myself what to do.
I decide my own schedule.
I don’t think about work at all.
I take care of things the way that I want them done.

Section 5: How do you feel?

1. The following statements deal with how you feel at work. Please read each statement carefully and indicate the extent that you feel this way about your job.

1 = Strongly agree
2 = Agree
3 = Disagree
4 = Strongly disagree

There are days when I feel tired before I arrive at work.
After work, I tend to need more time than in the past in order to relax and feel better.
I can tolerate the pressure of my work very well.
During my work, I often feel emotionally drained.
After working, I have enough energy for my leisure activities.
After my work, I usually feel worn out and weary.
Usually, I can manage the amount of my work well.
When I work, I usually feel energized.

2. The following statements deal with how you feel at work. Please read each statement carefully and indicate the extent that you feel this way about your job.
1 = Always
2 = Very often
3 = Often
4 = Sometimes
5 = Rarely
6 = Almost never
7 = Never

At my work, I feel bursting with energy.
At my job, I feel strong and vigorous.
I am enthusiastic about my job.
My job inspires me.
When I get up in the morning, I feel like going to work.
I feel happy when I am working intensely.
I am proud of the work that I do.
I am immersed in my work.
I get carried away when I’m working.

Closing page

Your responses have been submitted and we thank you for taking part in this research.
Appendix IX. Sample 2 questionnaire

Welcome page

Welcome and thank you for taking the time to share your experiences. The research aims to identify how work engagement and burnout develop as a result of individual differences, work and non-work factors for international business travelers. Results will be published in widely read outlets and used to improve researcher and practitioner understanding of how the workplace and jobs can be (re)designed to create the best possible future for employees. Your input is therefore very important and highly valued. Furthermore, Company X will receive a bespoke report containing findings and recommendations to improve work engagement in your office.

The questionnaire will take 10 -- 15 minutes to complete. Please only take part if you travel internationally for business purposes. It is not possible to return to a page once it has been completed or save the responses to finish at a later stage. Therefore, please think carefully before responding so that your views are accurately represented and ensure that you have the time needed to complete the questionnaire. Once you now click 'continue', you will be directed to the first section of the survey.

All data collected in this survey will be held anonymously and securely and treated as confidential. No personal data is asked for or retained. Cookies, personal data stored by your Web browser, are not used in this survey. By continuing with this survey, you are providing your consent.
Section 1: Please tell us about you

Please be assured that your responses are treated as confidential and anonymous. You will not be identified in any way.

1. Have you taken an international business trip in the last year? Please answer 'Yes' if your international business trip was for work purposes, but did not involve relocation or routine travel to the same location.
   Yes (please proceed to question 2)
   No (please proceed to the end of the questionnaire)

2. Are you male or female?
   Yes
   No

3. What is your country of birth?
   Open ended response.

4. What is your nationality according the passport most frequently used?
   Open ended response.

5. Is English your native language?
   Yes (please proceed to question 7).
   No (please proceed to question 6.)

6. At what level are your English language skills?
   Fluent
   Good
   Poor
   Very poor

7. What is your marital or relationship status?
   Married
   Widowed
Divorced
Separated
Single
Living with a partner
In a relationship, but don’t live together

8. Does your spouse or partner work?
   Yes, full time
   Yes, part time
   No
   Not applicable

9. Do you have children who live in the same household as you?
   Yes
   No

10. What is your highest level of education?
    If your educational degree is not listed, please choose the equivalent level, or specify the degree and details.
    Doctorate
    Masters
    Bachelors
    High school diploma
    Other (please specify)

11. What is your ethnic group?
    White/Caucasian
    Mixed/multiple
    Asian
    Black
    Arab
    Hispanic
    Other (please specify)
Section 2: What is your job like?

1. Which business unit do you work in?
   Options were presented from a pull-down menu and used for organizational feedback.

2. What date did you begin employment in your current job role?
   If you can’t recall the exact date, please estimate.
   Participants chose from a calendar.

3. The following statements deal with the amount of independence in your work.
   Please respond by choosing the option that best reflects how you feel.

   4 = Strongly agree
   3 = Agree
   2 = Disagree
   1 = Strongly disagree

   I have freedom in carrying out my work activities.
   I have influence in the planning of my work activities.
   I have influence on the pace of my work.
   I decide how my work is executed.
   I can interrupt my work for a short time if I need to.
   I decide the order in which I carry out my work.
   I participate in decisions about when something must be completed.
   I personally decide how much time I need for a specific activity.
   I resolve problems arising in my work.
   I organize my work myself.
   I decide on the content of my work activities.
4. The following statements deal with your workload.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree

3 = Agree

2 = Disagree

1 = Strongly disagree

Please select.

1  2  3  4

1. My job does not require working very fast.
2. My job does not require working very hard.
3. I am rarely asked to do an excessive amount of work.
4. I have enough time to get the job done.
5. I am free from conflicting demands that others make.
6. My job requires long periods of intense concentration on the task.
7. I am able to complete my tasks without interruption.
8. My job is very hectic.
9. Waiting on work from other people or departments often slows me down on my job.

5. The following statements represent possible opinions that YOU may have about working for Company X.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree

3 = Agree
2 = Disagree

1 = Strongly disagree

Please select.

Company X values my contribution to its performance.
Company X appreciates any extra effort from me.
Company X would listen to any complaint from me.
Company X really cares about my well-being.
Company X notices when I do the best job possible.
Company X cares about my general satisfaction at work.
Company X shows very little concern for me.
Company X takes pride in my accomplishments at work.

6. The following statements deal with your relationship with your supervisor.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree

3 = Agree

2 = Disagree

1 = Strongly disagree

Please select.

My supervisor is concerned about the welfare of those under him.
My supervisor pays attention to what I am saying.
My supervisor is friendly towards me.
My supervisor is helpful in getting the job done.
My supervisor is successful in getting people to work together.
Section 3: The nature of your international business travel?

When answering the following questions, please think in terms of your current job.

1. Which regions of the world do you travel to on business?

2. Is there one country that makes up a large part of your international business travel? Please specify.

3. How many countries would you typically travel to in one business trip?

4. How many international business trips did you take in the last year?

5. What is the average duration of a business trip in days?

6. When did you start using international business travel as part of your career? *If you cannot recall the exact date, please estimate.

Section 4: What are you like?

1. The following statements deal with your beliefs about your own behavior.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree

3 = Agree

2 = Disagree

1 = Strongly disagree

Please select.

1  2  3  4

I can communicate an idea in many different ways.
I welcome new and unusual situations.
I feel like I always get to make decisions.
I can find workable solutions to seemingly unsolvable problems.
I often have choices when deciding how to behave.
I am willing to work at creative solutions to problems.
In any given situation, I am able to act appropriately.
My behavior is a result of conscious decisions that I make.
I have many possible ways of behaving in any given situation.
I am easily able to use my knowledge on a given topic in real life situations.
I am willing to listen and consider alternatives for handling a problem.
I have the self-confidence necessary to try different ways of behaving.

2. The following statements deal with your free time from work.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree
3 = Agree
2 = Disagree
1 = Strongly disagree

Please select.

I learn new things.
I forget about work.
I use the time to relax.
I distance myself from work.
I get a break from the demands of work.
I determine how I will spend my time.
I kick back and relax.
I do something to broaden my horizons.
I take time for leisure.
I seek out intellectual challenges.
I do relaxing things.
I do things that challenge me.
I can decide for myself what to do.
I decide my own schedule.
I don’t think about work at all.
I can take care of things the way that I want them done.
After work I tend to need more time than in the past in order to relax and feel better.

Section 5: How do you feel?

1. The following statements deal with how you feel at work.

Please respond by choosing the option that best reflects how you feel.

4 = Strongly agree

3 = Agree

2 = Disagree

1 = Strongly disagree

Please select.

1 2 3 4

I am never tired before I arrive at work.
I can tolerate the pressure of my work very well.
I often feel emotionally energetic whilst working.
After work I have enough energy for my leisure activities.
I usually feel refreshed after work.
Usually I can manage the amount of work well.
I usually feel energized when I work.
I feel bursting with energy at my work.
I feel strong and vigorous at my work.
I am enthusiastic about my job.
My job inspires me.
When I get up in the morning I feel like going to work.
I feel happy when I am working intensely.
I am proud of the work that I do.
I am immersed in my work.
I get carried away when I’m working.

Closing page

Your responses have been submitted and we thank you for taking part in this research.

Your input is highly valued and will be used to provide company specific feedback and potential avenues for follow-up action to The Company X Group.

If you have any questions, please email (the internal HR liaison).
Appendix X: Visual indicators (histograms) for data preparation of quantitative data in sample 1 (please also consult table 5.1 showing skewness, kurtosis and standard error values, outlined in section 5.1.1).
Histogram

Mean = 35.81
Std. Dev. = 4.138
N = 79

Histogram

Mean = 8.47
Std. Dev. = 2.63
N = 79

Cognitive Flexibility

Recovery Mastery

Frequency

Frequency
Mean = 9.22
Std. Dev. = 3.016
N = 79
Appendix XI: Visual indicators (histograms) for data preparation of quantitative data in sample 2 (please also consult table 5.1 showing skewness, kurtosis and standard error values, outlined in section 5.1.1).
Histogram

Mean = 2.14
Std. Dev. = .577
N = 55

Histogram

Mean = 19.07
Std. Dev. = 4.69
N = 55