RELATEDNESS NEED SATISFACTION IN SENIOR EXECUTIVES

Marcus Berthold Müller

B.Sc. (Saarbrücken)
Dp.B.A. (Manchester)
Dp.Psych. (Tuttlingen)
M.B.A. (Melbourne)

This thesis is submitted in fulfilment of the requirements for the completion of the degree

Doctor of Philosophy

Faculty of Arts and Business
University of the Sunshine Coast
Sippy Downs Drive, Sippy Downs
Sunshine Coast, Queensland 4556
Australia

July 2012
Keywords

Autonomy Need Satisfaction
Autonomy Orientation
Basic Needs
Basic Psychological Needs
Causality Orientations
Competence Need Satisfaction
Control Orientation
Digital Technologies
Impersonal Orientation
Motivation
Need Satisfaction
Optimal Functioning
Organisational Behaviour
Psychological Well-being
Relatedness Need Satisfaction
Self-Determination Theory
Senior Executives
Subjective Vitality
Work
Abstract

Senior executives’ actions play a material role for organisational outcomes, and in turn, for society. However, senior executives’ inner resources as determining factors of their actions have been underexplored in organisational psychology research.

This thesis addressed this limitation by examining relatedness need satisfaction in senior executives. The author’s management background helped overcome the substantial challenges of senior executive research such as access, confidentiality, time, cost, and terminology. For the first time, self-determination theory (SDT) was applied to the field of senior executives in two qualitative and two quantitative research studies. Relatedness need satisfaction was identified as a predictor of senior executives’ motivation, behaviour, and well-being. Senior executives’ general causality orientations and physical distance as a social environmental factor could be shown to be associated with the level of relatedness need satisfaction. Furthermore, this research identified a process model underlying senior executives’ relatedness need satisfaction.

The results contribute to both academic research and practice. Firstly, this thesis’ findings may stimulate further organisational psychology research into senior executives’ inner resources as well as the impact of these inner resources on organisational outcomes. Secondly, the practical application of this thesis’ results can help monitor and influence senior executives’ motivation, behaviour, and well-being as determining factors of societal outcomes.
Table of Contents

Keywords ............................................................................................................................................ii
Abstract ........................................................................................................................................... iii
Table of Contents ............................................................................................................................ iv
List of Tables .......................................................................................................................................x
List of Figures .....................................................................................................................................xii
List of Abbreviations ..................................................................................................................... xiv
Declaration of Originality ................................................................................................................. xv
Acknowledgements ....................................................................................................................... xvi
1 INTRODUCTION ....................................................................................................................... 1
  1.1 The Organisational Context ............................................................................................ 1
  1.2 Theoretical Background ............................................................................................... 2
  1.3 Architectural Framework ............................................................................................... 5
2 REVIEW OF LITERATURE .......................................................................................................... 7
  2.1 Self-Determination Theory ............................................................................................ 8
    2.1.1 Overview .............................................................................................................. 8
    2.1.2 The important role of personality psychology .................................................... 9
    2.1.3 Psychological needs ............................................................................................ 11
      2.1.3.1 Traditional approaches to human needs ......................................................... 11
      2.1.3.2 Needs in SDT ............................................................................................. 15
      2.1.3.3 Basic needs in SDT .................................................................................... 18
    2.1.4 Mini theories ........................................................................................................... 22
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.4.1</td>
<td>Cognitive evaluation theory</td>
<td>22</td>
</tr>
<tr>
<td>2.1.4.2</td>
<td>Organismic integration theory</td>
<td>23</td>
</tr>
<tr>
<td>2.1.4.3</td>
<td>Causality orientation theory</td>
<td>25</td>
</tr>
<tr>
<td>2.1.4.4</td>
<td>Goal content theory</td>
<td>27</td>
</tr>
<tr>
<td>2.1.4.5</td>
<td>Basic psychological need theory</td>
<td>28</td>
</tr>
<tr>
<td>2.1.5</td>
<td>Applications of SDT</td>
<td>30</td>
</tr>
<tr>
<td>2.1.5.1</td>
<td>Work and organisations</td>
<td>31</td>
</tr>
<tr>
<td>2.1.5.2</td>
<td>Digital technologies</td>
<td>34</td>
</tr>
<tr>
<td>2.1.5.3</td>
<td>Well-being</td>
<td>37</td>
</tr>
<tr>
<td>2.2</td>
<td>Other Concepts, Theories, and Their Relations to SDT</td>
<td>41</td>
</tr>
<tr>
<td>2.2.1</td>
<td>Group psychology</td>
<td>41</td>
</tr>
<tr>
<td>2.2.2</td>
<td>Self-regulation theory</td>
<td>46</td>
</tr>
<tr>
<td>2.2.3</td>
<td>Rejection sensitivity</td>
<td>48</td>
</tr>
<tr>
<td>2.2.4</td>
<td>Attachment theory</td>
<td>50</td>
</tr>
<tr>
<td>2.2.5</td>
<td>Social presence theory</td>
<td>51</td>
</tr>
<tr>
<td>2.2.6</td>
<td>Achievement goal theory</td>
<td>54</td>
</tr>
<tr>
<td>2.2.7</td>
<td>Energy</td>
<td>56</td>
</tr>
<tr>
<td>2.2.8</td>
<td>Big five personality traits</td>
<td>57</td>
</tr>
<tr>
<td>2.2.9</td>
<td>Other theories of work motivation</td>
<td>59</td>
</tr>
<tr>
<td>2.2.10</td>
<td>Person environment fit theories</td>
<td>62</td>
</tr>
<tr>
<td>2.3</td>
<td>Senior Executives as Research Population</td>
<td>64</td>
</tr>
<tr>
<td>2.4</td>
<td>The Present Research</td>
<td>70</td>
</tr>
</tbody>
</table>
3 METHODOLOGY ........................................................................................................................................... 78

3.1 The Quantitative/Qualitative Divide .................................................................................................... 78

3.2 Philosophical Considerations ............................................................................................................. 81

3.3 Methodological Approaches ............................................................................................................ 89

3.3.1 Methodological approach to studies one and two ...................................................................... 89

3.3.1.1 Overview on grounded theory ................................................................................................. 91

3.3.1.2 Challenges of qualitative research in the field of senior executives ...................................... 94

3.3.1.3 Grounded theory and senior executive research ......................................................................... 96

3.3.1.4 Data collection .......................................................................................................................... 96

3.3.1.5 Data analysis .......................................................................................................................... 104

3.3.1.6 Implications for this thesis’ further research strategy ............................................................. 107

3.3.2 Methodological approach to studies three and four .................................................................... 110

3.3.2.1 Naturalist research techniques ............................................................................................... 112

3.3.2.2 Data collection ........................................................................................................................ 114

3.3.2.3 Data analysis .......................................................................................................................... 121

4 STUDY ONE – EXPLORING THE PROCESSES UNDERLYING RELATEDNESS NEED SATISFACTION IN SENIOR EXECUTIVES ..................................................................................................................... 122

4.1 Introduction ........................................................................................................................................ 122

4.2 Method ............................................................................................................................................... 128

4.2.1 Qualitative research design ........................................................................................................ 128

4.2.2 Recruitment and sampling ........................................................................................................ 130

4.2.2.1 Participants ............................................................................................................................. 132

4.2.2.2 Procedure ............................................................................................................................. 132
4.2.3 Data coding and Analysis ................................................................. 134
4.3 Results .............................................................................................. 134
4.4 Discussion ....................................................................................... 143

5 STUDY TWO – EXPLORING THE ROLE OF COMPUTER-MEDIATED COMMUNICATION FOR RELATEDNESS NEED SATISFACTION IN PHYSICALLY DISTANT RELATIONSHIPS OF SENIOR EXECUTIVES ................................................................................................................................. 152

5.1 Introduction .................................................................................. 152
5.2 Method ........................................................................................... 159
  5.2.1 Qualitative research design ....................................................... 159
  5.2.2 Recruitment and sampling ......................................................... 161
    5.2.2.1 Participants ................................................................. 163
    5.2.2.2 Procedure ................................................................. 164
  5.2.3 Data Coding and Analysis .......................................................... 165
5.3 Results ............................................................................................ 166
5.4 Discussion ....................................................................................... 174

6 STUDY THREE – INVESTIGATING THE RELATIONSHIP BETWEEN SENIOR EXECUTIVES’ CAUSALITY ORIENTATIONS AND THEIR LEVEL OF RELATEDNESS NEED SATISFACTION ................................................................................................................................. 181

6.1 Introduction .................................................................................. 181
6.2 Method ........................................................................................... 189
  6.2.1 Participants ................................................................. 189
  6.2.2 Procedure ................................................................. 192
  6.2.3 Materials ................................................................. 192
    6.2.3.1 General causality orientations .................................. 192
6.2.3.2 Basic psychological needs ........................................................... 194
6.2.3.3 Demographic information .......................................................... 195
6.3 Results ............................................................................................... 195
6.3.1 Preliminary analyses ..................................................................... 195
6.3.2 Descriptive statistics ..................................................................... 196
6.3.3 Research questions ....................................................................... 200
6.4 Discussion ....................................................................................... 204

7 STUDY FOUR – INVESTIGATING THE ROLE OF SENIOR EXECUTIVES’ RELATEDNESS NEED SATISFACTION FOR THEIR PSYCHOLOGICAL WELL-BEING .......................................................... 212
7.1 Introduction ..................................................................................... 212
7.2 Method ............................................................................................. 219
7.2.1 Participants .................................................................................. 219
7.2.2 Procedure .................................................................................... 221
7.2.3 Materials ..................................................................................... 222
7.2.3.1 Mood ...................................................................................... 222
7.2.3.2 Basic psychological needs ....................................................... 223
7.2.3.3 Psychological well-being .......................................................... 225
7.2.3.4 Demographic information ....................................................... 225
7.3 Results ............................................................................................. 226
7.3.1 Preliminary analyses ................................................................... 226
7.3.2 Descriptive statistics ................................................................... 227
7.3.3 Research questions ...................................................................... 231
7.4 Discussion ....................................................................................... 245
List of Tables

Table 2.1 Approaches to human needs .................................................................................................................. 13

Table 2.2 Number of articles (for the last five years, 28/4/2012) per key word search on APAPsychoNet ........................................................................................................................................................................ 66

Table 3.1 Comparison of two opposite views of social reality (Moses & Knutsen, 2007, p. 287) 82

Table 3.2 Data coding and sampling process (Strauss & Corbin, 1998) and (Easterby-Smith, et al., 2008, p. 180) ................................................................................................................................................................................. 93

Table 3.3 Three phases of data collection in studies one and two ................................................................. 98

Table 3.4 The four types of nonprobability sampling (Babbie, 2007) .......................................................... 101

Table 3.5 Recruitment and sampling process for studies one and two ....................................................... 102

Table 3.6 The five step model of theory construction for hypothesis testing (Babbie, 2007, p. 52) ........................................................................................................................................................................... 111

Table 4.1 Fulfilment of senior executive qualification criteria for study one as reported by senior executive participants .............................................................................................................................................. 131

Table 4.2 Summary of findings - study one ........................................................................................................ 135

Table 5.1 Fulfilment of senior executive qualification criteria for study two as reported by senior executive participants .............................................................................................................................................. 162

Table 5.2 Summary of findings - study two ........................................................................................................ 166

Table 6.1 Fulfilment of senior executive qualification criteria for study three as reported by senior executive participants .............................................................................................................................................. 190

Table 6.2 Cronbach’s α for GCOS subscales ........................................................................................................ 193

Table 6.3 Cronbach’s α for BPNS-G (21-items, 7-point Likert-type) subscales and intrinsic need-satisfaction .............................................................................................................................................. 194
Table 6.4 Means and standard deviations for participants’ causality orientation and basic psychological need scores grouped by demographic information (scores for groups with fewer than two cases are not included) ................................................................................................ 197

Table 6.5 Means, standard deviations and internal correlations for participants’ basic psychological needs ............................................................................................................................................... 200

Table 6.6 Means and standard deviations for general causality orientations as reported by comparable previous research and compared to this study’s data .............................................. 202

Table 6.7 Correlations between causality orientations and basic psychological need satisfaction in senior executives ............................................................................................................................................... 203

Table 7.1 Fulfilment of senior executive qualification criteria for study four as reported by senior executive participants ............................................................................................................................................... 220

Table 7.2 Cronbach’s $\alpha$ for BPNS-G (21-items, 7-point Likert-type) subscales ........................................ 223

Table 7.3 Means and standard deviations for participants’ positive and negative affect, basic psychological need, and subjective vitality scores grouped by demographic information (scores for groups with fewer than two cases are not included) ........................................................................................................ 228

Table 7.4 Means, standard deviations and internal correlations for senior executives’ basic psychological need scores ............................................................................................................................................... 230

Table 7.5 Means and standard deviations for basic psychological need satisfaction as reported by comparable previous research and compared to this study’s data .............................................. 233

Table 7.6 Relative contributions of individual subscale scores to total need satisfaction as reported by comparable previous research and compared to this study’s data .............................................. 236

Table 7.7 Unstandardised ($B$) and standardised ($\beta$) regression coefficients, and squared semi-partial correlation ($sr^2$) for each predictor on each step of a hierarchical multiple regression predicting subjective vitality in senior executives ............................................................................................................................................... 241

Table 7.8 Correlations between senior executives’ basic psychological need scores, subjective vitality scores, and positive and negative affect scores ........................................................................................................ 242
List of Figures

Figure 1.1. SDT model of work motivation (Gagné & Deci, 2005) ......................................................... 6

Figure 2.1. Approaches to basic human needs .................................................................................... 17

Figure 2.2. The types of motivation and regulation within self-determination theory as specified in organismic integration theory. The degree of relative autonomy for each type of motivation and regulation becomes greater within each row as it moves from left to right (Ryan & Deci, 2008b). ........................................................................................................................................ 24

Figure 2.3. Schematic depiction of a feedback loop, the basic unit of cybernetic control. In a discrepancy-reducing loop, a sensed value is compared to a reference value or standard, and adjustments occur in an output function (if necessary) that shift the sensed value in the direction of the standard. In a discrepancy-enlarging loop, the output function moves the sensed value away from the standard (Carver, 2004). ........................................................................................................ 46

Figure 2.4. Distribution of 63 articles with key word “senior executive” in their abstract (APAPsychNet, last five years, 28/4/2012) allocated to the constituents of Gagné and Deci’s (2005) research agenda for the SDT model of work motivation ................................................................. 67

Figure 2.5. Senior Executive Service (SES) core qualifications. ............................................................ 70

Figure 3.1. A scheme for analysing assumptions about the nature of social science (Burrell & Morgan, 1979, p. 3) ......................................................................................................................... 84

Figure 3.2. The research process (Crotty, 1998, pp. 4-5). ................................................................. 86

Figure 3.3. Graphic overview of qualitative research types, adapted from Miles and Huberman (1994, p. 7). ............................................................................................................................... 90

Figure 3.4. Inductive-deductive model (Moses & Knutsen, 2007, p. 46) ................................................. 108

Figure 3.5. The hierarchy of methods in the naturalist tradition (Moses & Knutsen, 2007, p. 52). ..................................................................................................................................................... 112

Figure 3.6. Benefits and drawbacks of e-survey approaches (Jansen, et al., 2007, p. 4). ........ 119
Figure 4.1. Relatedness Loop Model: Processes underlying relatedness need satisfaction in senior executives. .......................................................................................................................... 146

Figure 4.2. Strength-Weaknesses-Opportunities-Balance Matrix: Graphical overview of a senior executive’s portfolio of potential sources of relatedness need satisfaction (points represent hypothetical examples). .......................................................................................................................... 149

Figure 5.1. Attenuation effects of physical distance and level of relationships for senior executives. .................................................................................................................................. 171

Figure 5.2. Preferred mode of communication and level of relationships for senior executives. .................................................................................................................................................... 174

Figure 5.3. Level of relatedness need satisfaction associated with level of physically distant relationships in senior executives (illustration only). .......................................................................................................................... 176

Figure 6.1. Distribution of participants by company size - study three........................................ 191

Figure 7.1. Distribution of participants by company size - study four. ........................................ 221
List of Abbreviations

BOM   Belongingness Orientation Model
BPNT  Basic Psychological Needs Theory
CET   Cognitive Evaluation Theory
COT   Causality Orientation Theory
CMC   Computer Mediated Communication
CSM   Carver Scheier Model
FtF   Face To Face Communication
GFC   Global Financial Crisis
MDT   Motive Disposition Theory
OIT   Organismic Integration Theory
SDT   Self-Determination Theory
SWB   Subjective Well-Being
SWOB  Strengths-Weaknesses-Opportunities-Balances
Declaration of Originality

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: _________________________

Date: _________________________
Acknowledgements

I have been working on this research project for over three years now. There can hardly be a headline that has been more applicable for this journey than John Lennon’s quote of “life is what happens to you while you are making other plans”. I would like to take this opportunity to mention the people I feel most indebted to for overcoming these challenges.

I would like to thank Dr Peter Innes whose initial support and encouragement were material in starting this process. He also provided substantial support for my IPRS scholarship application and I am most grateful to the University of the Sunshine Coast for awarding it to me. Dr Innes invited Prof Brendan Burkett to my supervisory panel. Prof Burkett contributed his outgoing personality, his academic and editorial excellence as well as his strategic management skills to this work. Dr Geoff Lovell has been my principle supervisor for the most part of this research project. I am most deeply indebted to him for his guidance, encouragement, and tolerance throughout this adventure. When life struck, I could always rely on his advice.

Finally, first and last, I would like to thank my family for their endless love as a source of energy for this journey: my parents, Anneliese and Heinz, my parents-in-law, Erika and Gerd, my soul-mate, Annette, and my children, Angelina and Ayana.

_I dedicate this work to Gerd, my father-in-law, who died on the 2nd of May 2011,

we all miss you!_
1 INTRODUCTION

1.1 The Organisational Context

Senior executives are the key organisational decision makers whose actions have a material impact on society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005). Senior executive motivations and behaviour have been at the centre of the debate regarding who is to blame for the damage caused by the Global Financial Crisis, or GFC (Gould, 2008). Apart from provoking claims by newspapers and business magazines there is very little academic evidence to either support, or reject, claims that senior executives were greedy, short-term oriented oligarchs only pursuing their self-interest (Gould, 2008). As stated by Amabile and Kramer (2007) in a Harvard Business Review article, very little is known about how ‘people at work’ actually feel or think which has substantial implications for their organisational performance and well-being. Amabile and Kramer’s view (2007) is supported by other psychology researchers postulating that inner life investigations were a “neglected dimension in organisational behaviour research” (Ashkanasy, 2003, p. 23; Ashkanasy & Jordan, 2008). An inner-resource investigation, that is a study of the “inner resources for personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68) into senior executives could provide useful insights and guidance within this domain. Therefore, the aim of this thesis was to study relatedness need satisfaction in senior executives to further knowledge on senior executives’ motivation, behaviour, and well-being.
1.2 Theoretical Background

This thesis works within a theoretical framework that allows for an inner-resource investigation into senior executives. The motivational theory of self-determination (SDT) and its application to the field of work psychology proposes autonomous work motivation as a means to a variety of outcomes such as performance, psychological well-being, organisational trust and job satisfaction (Gagné & Deci, 2005). SDT postulates the satisfaction of three basic needs of (a) autonomy, (b) competence, and (c) relatedness, as indicators of autonomous work motivation (Gagné & Deci, 2005; Stone, Deci, & Ryan, 2009). The degree of basic need satisfaction is suggested to correspond to a continuum of autonomous work motivation (Gagné & Deci, 2005). When basic needs are thwarted, individuals can develop need substitutes (Deci, 1980) or compensatory motives which have been suggested to not be leading to basic need satisfaction (Deci & Ryan, 2000). Instead, individuals can display self-defeating and anti-social behaviour including disproportionate risk taking. Such behaviour, also referred to as self-regulation failure (Baumeister & Heatherton, 1996), has been particularly well documented in the case of a lack of relatedness need satisfaction (Baumeister, Heatherton, & Tice, 1994; Schueler & Kuster, 2011; Twenge, Baumeister, Tice, & Stucke, 2001; Twenge, et al., 2007). Interpreting SDT in the context of the GFC conveys that if senior executives engaged in self-defeating and anti-social behaviour, for example questionable financial products and transactions, a lack of senior executives’ basic need satisfaction, for example relatedness need
satisfaction, may have contributed to such behaviour. However, SDT’s basic psychological needs theory (Ryan & Deci, 2002) to date has not been studied in the context of senior executives.

Academic scholars have proposed a diverse set of definitions for the term ‘senior executive’ in literature. For example, some research studies have defined ‘senior executives’ as the Chief- or C-level executives of a company such as Chief Executive Officer (CEO; P. L. McClelland, Liang, & Barker, 2010), Chief Financial Officer (CFO; Gore, Matsunaga, & Yeung, 2011), Chief Information Officer (CIO; Arnott, 2010), or Chief Marketing Officer (CMO; O’Sullivan & Butler, 2010). Other investigations into senior executives recruited Senior Vice Presidents and Vice Presidents (Wallis, Yammarino, & Feyerherm, 2011) or a company’s four highest compensated executives (Nicely Sr, 2009) as participants. This thesis applied the core qualifications criteria of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012) as outlined in section 2.3 for the selection of eligible senior executive participants (Crumpacker & Crumpacker, 2008; Dickerson, 2011).

The concept of psychological needs has a long history in organisational psychology, although not directly applied to inner life investigations in the field of senior executives (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008). Since SDT’s beginnings in the 1970s (Deci, 1971, 1975), its theoretical framework has been supported by a stream of SDT studies in the context of organisations, these are discussed in more detail in section 2.1.5.1 of this thesis. However, most of the academic, organisational SDT work has concentrated on the need for autonomy, its implications for autonomous work motivation, and its role for outcomes
such as performance or psychological well-being (Gagné & Deci, 2005). There has been comparatively little research on the needs for competence and relatedness in the organisational context (Sheldon & Filak, 2008). Furthermore, very little work has been accomplished in the field of employees’ inner life (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008). An APAPsychNet database search by the author of this thesis is outlined in section 2.3 and supports the view that only very few researchers have investigated basic psychological need satisfaction in the context of senior executives. Historically, researchers may have taken the view that senior executives are nothing but company employees. However, recent academic literature suggests otherwise, i.e. senior executives seem to be different from other employees (Hahn, Dormann, & Stock-Homburg, 2010; Moutafi, Furnham, & Crump, 2007), which may also apply to the field of basic psychological need satisfaction. Academic scholars may have shied away from studying senior executives because of the reported considerable challenges attributed to research on senior executives (Conti & O’Neil, 2007; Easterby-Smith, Thorpe, & Jackson, 2008; Odendahl & Shaw, 2002). This concept is discussed in sections 2.3 and 3.3.1.2 of this thesis. Whatever the underlying reasons, it can be summarised that comparatively few psychology research projects have been undertaken with senior executives as research population. In particular a direct empirical investigation of basic psychological need satisfaction in senior executives, especially relatedness need satisfaction, is missing.

To address these limitations and identified gaps from previous research, this thesis represents an inner-resource investigation focusing on relatedness need satisfaction in senior
executives. The need for relatedness has been described as a fundamental motivation behind more secondary motives such as power and achievement (Baumeister & Leary, 1995; Ryan & Deci, 2000). Based on this suggestion, studying fundamental needs, for example relatedness, in senior executives is likely to further knowledge in the field of senior executive motivation, behaviour, and well-being. Moreover, a better understanding of senior executive motivation, behaviour, and well-being may support senior executives, other practitioners, and policy makers in terms of interpreting and overcoming existing challenges as well as preventing futures ones.

1.3 Architectural Framework

The aim of this thesis was to study relatedness need satisfaction in senior executives. A series of four research studies was conducted, each with a specific research objective. The research agenda for each of the four research objectives was determined by specific research questions. The theoretical basis for this thesis, its research aim, objectives and questions was Gagné and Deci’s (2005) research agenda for the SDT model of work motivation (see figure 1.1.).
Figure 1.1. SDT model of work motivation (Gagné & Deci, 2005).
2 REVIEW OF LITERATURE

The concept of motivation could be described as a multi-facetted phenomenon. For example, drive theory (Freud, 1900), incentive theory (Skinner, 1953), or needs theory (Alderfer, 1972; Herzberg, 1966; Maslow, 1943) are just an excerpt of conceptual approaches to motivation. However, the common denominator connecting all motivational theories is the understanding that “motivation concerns energy, direction, persistence, and equifinality” (Ryan & Deci, 2000, p. 69).

This thesis is based on SDT which conceptualises motivation in the tradition of needs theory. The review of literature was structured into three parts. The first part introduces SDT including its constituting mini-theories and their application in psychology research. Secondly, conceptual frameworks that may be applicable in the context of relatedness need satisfaction in senior executives are discussed including addressing their potential similarities and differences with SDT. Part three of the literature review finally turns to aspects of senior executives as research population.
2.1 Self-Determination Theory

2.1.1 Overview

The origins of SDT go back to initial work in the 1970s (Deci, 1971, 1975). Since then, the theory has gone through several developmental stages (Deci, 1980; Deci & Ryan, 1980a, 1980b, 1985b, 1991, 2000, 2008a). However, the dynamic relationship between the person and the social environment in the context of psychological need satisfaction has been a major focus throughout its evolution (Vallerand & Pelletier, 2008).

As a macro-theory of human motivation (Deci & Ryan, 2008b) SDT is based on five mini-theories and represents a new approach to the field of motivation. Many historical conceptual approaches to the field of motivation have defined motivation as a singular construct (Deci & Ryan, 2008b). These approaches have concentrated on an absolute amount of motivation that people display when performing tasks or activities. In contrast to these approaches, SDT differentiated between several types along a continuum of motivations (Ryan & Deci, 2000).

The theory suggests the satisfaction of three basic needs (a) autonomy, (b) competence, and (c) relatedness, as predictors of optimal levels of motivation leading to performance, social, and well-being outcomes (Deci & Ryan, 2008b). These needs are considered universal and developmentally persistent (Ryan & Deci, 2000) and play a central role in the investigations applying SDT to different areas.
Research on SDT has gained considerable momentum over the last ten years. For example, it has been applied to parenting (Joussemet, Landry, & Koestner, 2008), education (Jang, Reeve, Ryan, & Kim, 2009), well-being (Ryan, Huta, & Deci, 2008), health (Ryan, Bernstein, & Brown, 2010), or sport and exercise (Taylor, Ntoumanis, & Smith, 2009). Even though SDT research has been conducted in the field of work and organisations (J. P. Meyer & Gagné, 2008), the key influential population of senior executives have not been the focus of these investigations.

The following review of SDT literature outlines the key theoretical principles of SDT, their relationships to other conceptual frameworks, as well as their applications in research.

2.1.2 The important role of personality psychology

There has been a long-standing tradition in psychology to conceptualise individual behavioural differences as personality traits (Mischel & Shoda, 1995). Such traits have been suggested to predispose individuals to display consistent behavioural patterns irrespective of the situational context (Mischel & Shoda, 1995).

This concept of cross-situational consistency has been applied by psychology researchers throughout the last century. However, their inconsistent findings have failed to support the proposed concept (Hartshorne & May, 1928; Newcomb, 1929; Peterson, 1968; Vernon, 1964). Today, these results have gained great acceptance. However, scholars are still divided over their interpretations (S. Epstein, 1979; Mischel, 1984). Various strategies have been applied in the pursuit of a theory to explain research results. Currently, a particularly
popular theory of personality psychology proposes that individual differences cannot be found in consistent cross-situational behaviour, but instead, within stable situation-behaviour relations (Mischel & Shoda, 1995).

The idea of stable situation-behaviour relations was first suggested by Walter Mischel (1968). His contribution introduced a new paradigm into personality psychology which challenged the traditional assumptions of personality theory and has subsequently led to much discussion amongst scholars. Mischel’s postulate received further attention and acceptance when he conducted a large observational, longitudinal study of social behaviour across multiple repeated situations (Mischel & Shoda, 1995). Mischel and Shoda’s results provided empirical evidence for a concept which has since then been widely applied by psychology research, in particular with regard to the investigation of the dynamic processes underlying the proposed personality system (Mischel, 2004).

SDT follows the Mischelian tradition of personality psychology, postulating that

“it is typically people’s feelings, beliefs, motives, and goals, and the perceived environment within which these feeling, beliefs, motives, and goals arise, that organise subsequent behaviour” and “SDT is a theory of personal experience, it is also a theory of human nature, for it maintains that understanding subjective experience requires that one specify the nature of the self and its integrative tendencies as well as the basic psychological needs that lend greater salience to some events than others” (Ryan & Deci, 2008b, p. 655).
Basic psychological needs play a significant role in SDT. From early empirical studies investigated motivational processes, researchers identified a small set of basic psychological needs (a) autonomy, (b) competence, and (c) relatedness, as a common thread to explaining phenomena that were otherwise isolated (Ryan & Deci, 2000). This finding has led to the development of five mini-theories which constitute the pillars of basic psychological needs, and together form the theoretical framework of SDT.

2.1.3 Psychological needs

The theory of self-determination is based upon the concept of three basic psychological needs. The satisfaction of these needs depends on the social environment of the individual and is proposed to facilitate “optimal functioning of the natural propensities for growth and integration, as well as for constructive social development and personal well-being” (Ryan & Deci, 2000, p. 68). Furthermore, when the three needs are met for an individual, SDT also suggests that this individual will contribute to the well-being of the environment in which he or she operates (Ryan & Deci, 2008b).

Published research literature on human needs dates back to the 19th century. theorists have contributed a number of perspectives on the concept which need to be reviewed in the context of the theoretical framework of SDT.

2.1.3.1 Traditional approaches to human needs

Historically, there have been numerous approaches to the concept of psychological needs. For example, theories can be differentiated on the basis of their psychological and
physiological (physical) dimensions, their definition of a need as strength or nutriment, by subdividing needs into basic needs and other needs, by applying a hierarchical order to them, or simply by the number of needs proposed (see table 2.1).
When Karl Marx introduced his famous Paris Manuscript in 1844, he labelled humans as creatures of need (Marx, 1844). These needs were considered to exist across two dimensions, physical and emotional. New needs were proposed to be created by individuals in the process of satisfying their existing needs. This view was later opposed by the scholars who contributed...
to the discussion in the 20th century. Today, most theories conceptualise a stable set of needs, even though these sets differ considerably in terms of the number and definition of needs.

Many theories suggest a two-dimensional approach to need theory (Maslow, 1943; Max-Neef, Elizalde, & Hopenhayn, 1991; D. C. McClelland, 1985; Murray, 1938). Both physical and psychological aspects are emphasised as motives behind human behaviour. Other concepts, such as drive theory, suggest that psychological states are driven by physiological needs which depend upon an individual’s environmental conditions (Hull, 1943). The two approaches differ by their definition of a human need. The tradition of the two-dimensional framework proposes that individuals differ in terms of the varying strengths of their individual needs (Maslow, 1943; D. C. McClelland, 1985; Murray, 1938). Conversely, the Hullian tradition (Hull, 1943) follows the postulate of needs as nutriments, suggesting that individuals differ according to their respective degrees of need satisfaction. More recently, other scholars have tried to bridge the conceptual gap by integrating both schools of thought into a new theory termed human scale development (Max-Neef, et al., 1991). Need theories can also differ in terms of their categorisation of needs. Some scholars have proposed a two layer structure with basic needs as more fundamental motives behind other needs individuals may experience in life (Hull, 1943; Maslow, 1943; Max-Neef, et al., 1991). Murray (1938) and McClelland (1985) were less specific in their respective frameworks. Even though they selected a fixed number of needs, three and twenty respectively, they were less explicit about a potential relationship between this subset of needs and other potential needs. Maslow (1943) contributed a further conceptualisation to need theory when he introduced a hierarchical model of needs which has been referenced widely in literature.
In sum, the field of need theories can be described as diverse and multi-faceted. SDT’s approach to psychological needs has adopted features from several traditions to integrate those into a new circumscribed definition of needs.

2.1.3.2 Needs in SDT

Work in the field of SDT is based on the assumption that there was a specifiable number of basic psychological nutriments (Ryan & Deci, 2000). Individuals’ optimal functioning and well-being is proposed to depend upon the provision of those nutriments by the individuals’ social environments (Deci & Ryan, 2000). This understanding combines the nutriment aspect of Hull’s drive theory (Hull, 1943) and Max-Neef’s human scale development theory (Max-Neef, et al., 1991) with Murray’s, McClelland’s, and Maslow’s postulates which all include a psychological dimension (Maslow, 1943; D. C. McClelland, 1985; Murray, 1938).

SDT differentiates between basic needs and other needs, motives or desires (Ryan & Deci, 2008b). Satisfaction of a basic need always leads to optimal functioning and well-being. Furthermore, basic needs are proposed to be innate, natural, universal and leading to ill-effects when not met (Deci & Ryan, 2000). Firstly, SDT suggests that basic needs are innate and not learnt as postulated by the strength tradition (D. C. McClelland, 1985; Murray, 1938). SDT further proposes that individuals are not necessarily aware of their basic psychological needs, maintaining that “the human psyche innately seeks out these nutriments and gravitates to sources of their fulfillment” (Ryan & Deci, 2008b, p. 658). Secondly, SDT defines basic psychological needs as natural and universal, i.e. they are an invariant, principal component of
a human’s psychological architecture (natural aspect) as well as consistent across all individuals regardless of gender or cultural background (universal aspect). Thirdly, SDT proposes that when individuals fail to satisfy their basic needs they will suffer negative consequences. For example, individuals may seek need substitutes such as food and material items or engage in compensatory behaviour such as aggression or violence (Ryan & Deci, 2008b).

Conversely, other needs, motives, and desires are seen as mere energisers. However, the behavioural outcomes related to these energisers may have as many positive as negative consequences for the individual (Ryan & Deci, 2008b). Several scholars have attempted to conceptualise basic needs. Figure 2.1. shows a comparison between the two most widely used approaches, the frameworks of Baumeister and Leary (1995) and SDT, which exemplify the consideration of needs as essential nutriments, motives or desires.
Figure 2.1. Approaches to basic human needs.

To date the published literature on SDT research has focused on establishing a set of basic needs on the foundations of the nutriment approach. Very recently, a new stream of SDT investigations suggested a sequential process theory of psychological needs considering basic needs as both, requirements (nutriments) as well as motives, i.e. sources of behaviour and cognition (Sheldon, 2011; Sheldon & Schuler, 2011). Sheldon’s two process model (TPM) integrates previously disagreeing traditional approaches to psychological needs by proposing psychological needs as “evolved tendencies to seek out certain basic types of psychosocial...
experiences and to feel good and thrive when basic experiences are obtained” (2011, p. 552).

The model captures both aspects of psychological needs as part of a coupled motivational system that functions by prompting people to pursue adaptive behavioral motives and also reinforces them when successful. On the other hand, Baumeister and Leary (1995) proposed a wider definition of basic needs that included the aspects of other needs, motives, and desires. However, both theoretical frameworks, SDT and Baumeister and Leary’s, are consistent in terms of their conclusion on unmet needs. Baumeister conducted a series of experiments where the basic need for social relationships was manipulated. As a result, participants engaged in anti-social and self-defeating behaviour, such as unhealthy food choices, addiction, aggression, violence, or disproportional risk-taking (Baumeister, 2001, 2003; Baumeister, et al., 1994; Baumeister & Vohs, 2004; Twenge, et al., 2001; Twenge, Catanese, & Baumeister, 2002).

In their seminal work, Baumeister and Leary (1995) established the need to belong as a basic need. However, the focus of their work was a meta-review of literature in order to determine whether or not the need to belong should be categorised as basic need. In contrast, SDT used an inductive, empirical process to establish a set of basic needs as a comprehensive motivational framework (Ryan & Deci, 2000).

2.1.3.3 Basic needs in SDT

Compared to other propositions, SDT’s list of basic needs is short and includes the needs for autonomy, competence, and relatedness (Ryan & Deci, 2000). The need for autonomy refers to an individual’s perception of being the originator of their activities (deCharms, 1968; Deci,
SDT’s definition of autonomy involves volition and congruence with respect to one’s behaviour (Ryan & Connell, 1989). The term ‘autonomy’ can be misinterpreted in the direction of independence of others. However, Deci and Vansteenkiste (2004) have clarified that an individual’s autonomous behaviour and their social environment do not represent antagonistic concepts. In the contrary, they point out that autonomous activities contribute positively to the acting individual as well as their social environment, as long as the individual is the originator of the behaviour instead of being controlled by environmental factors. Heteronomy (feeling controlled by external forces) and not dependence have been suggested as the opposite to autonomy (Ryan & Deci, 2008b).

The need for competence (White, 1959, 1963) refers to an individual’s perception of their ability to operate effectively within an environment. Individuals feel competent in the context of proven capabilities, overcome challenges, and positive feedback. Conversely, controlling environments support feelings of incompetence. For example, individuals may conclude that they are not considered capable of performing the respective task.

The need for relatedness completes the set of SDT’s basic needs (Deci & Ryan, 1991). Given the concept’s role for this present thesis, the need for relatedness will be discussed in a more detailed review of literature than the previous two basic needs.

Since researchers in the field of psychology started their exploration of the role of individuals’ social contacts at the beginning of the 20th century, the phenomenon of a need for relatedness has been investigated under various labels such as affection between people.
(Murray, 1938), positive regards from others (Rogers, 1951), love (Maslow, 1943), affiliation motivation (D. C. McClelland, 1987), social connectedness (Starzyk, Holden, Fabrigar, & MacDonald, 2006), and social belongingness (Baumeister & Leary, 1995).

Baumeister and Leary’s seminal work (1995) represents a constituent conceptualisation of the need to belong. However, it was derived from close to 300 individual research studies. Actually, when Baumeister and Leary (1995, p. 500) proposed the fundamental ingredients of the need to belong as (a) frequent personal interactions marked by (b) stability, and mutual affective concern, none of their reviewed and referenced individual research studies had aimed at an empirical or conceptual framework of a social belongingness. Furthermore, their model has received only limited direct empirical evaluation since its conceptualisation which extends to the behavioural processes of social interaction underlying relatedness need satisfaction.

In SDT, the need for relatedness has been defined as “feeling connected with others and having a sense of belonging within one’s community. Relatedness satisfaction entails a sense that one is significant to others, which is often manifest in others’ willingness to care for one or to receive the care one has to offer.”(Ryan & Deci, 2008b, p. 658). Moller, Deci et al. (2010) provide a complimentary definition which shows consistencies with Baumeister and Leary’s (1995) proposal: “The need for relatedness [is] a psychological necessity that involves having positive interpersonal interactions and trusting relationships. Importantly, we further contend that social encounters contribute to the satisfaction of this need to the extent that the encounters foster feelings of trust and intimacy.”(p. 754).
In terms of SDT research studies there have been comparatively few investigations on the need for relatedness and its underlying relational processes (Moller, et al., 2010). For example, relatedness need satisfaction has received little attention in the specific context of organisations (Sheldon & Filak, 2008). With regard to underlying behavioural processes, La Guardia and Patrick (2008) suggest several potential directions for future research, “given the relative infancy of SDT-based research on relational processes in reciprocal partnerships there are several potential directions for future research” (p. 206). Over the past decade, SDT-based research in the field of relatedness as well as relational processes underlying need satisfaction has gained momentum. Studies include Deci, La Guardia et al.’s (2006) work on the mutuality of autonomy support, Ryan and Deci’s (2008c) paper on need satisfaction and motivation in psychotherapy, La Guardia and Patrick’s (2008) work on close relationships, Moller, Deci et al.’s (2010) study investigating the processes around person-level relatedness and the incremental value of relating, and Weinstein and Ryan’s (2010) work “When helping helps” (p. 1). Recently, Sheldon and Schueler (2011) integrated motive disposition theory (MDT) (D. C. McClelland, 1985) and SDT into a new conceptualisation for need satisfaction processes. This was labelled sequential process theory and included relatedness need satisfaction. As part of their belongingness orientation model (BOM) Lavigne, Vallerand, and Crevier-Braud (2011) identified two relatedness orientations, a growth orientation and a deficit-reduction orientation.

In summary, all three basic psychological needs have been identified by empirical work that led to the formulation of five mini-theories, (a) cognitive evaluation theory (CET), (b) organismic integration theory, (c) causality orientation theory (COT), (d) goal content theory
(GCT), and (e) basic psychological need theory (BPNT), which, together, constitute the theoretical framework of SDT.

2.1.4 Mini theories

2.1.4.1 Cognitive evaluation theory

Investigating intrinsic and extrinsic motivation has been at the centre of research underlying the development of the pillars of SDT. Initial experiments focused on the investigation of the relationship between intrinsic and extrinsic motivation (Deci, 1971). In contrast to prevailing academic opinion at the time (Atkinson, 1964; Vroom, 1964), experimental results showed that intrinsic and extrinsic motivation were not additive. Instead, SDT research found a more differentiated relationship. External incentives decreased intrinsic motivation for the respective task whereas positive competence feedback increased intrinsic motivation. The results of the initial work have been supported by over 100 published research studies since then (Ryan & Deci, 2008b). Cognitive evaluation theory (CET) was originally based on the findings that external factors, perceived as controlling by participants, had detrimental effects on intrinsic motivation (Deci, 1975; Deci & Ryan, 1980a). CET conceptualises rewards as a two-dimensional construct (Ryan & Deci, 2008b). The controlling aspect of a reward was proposed as being related to an individual’s satisfaction of the need for autonomy. Conversely, the informational aspect, for example, positive feedback, was suggested to support competence need satisfaction, as long as the feedback is given in a non-controlling way. Since its formulation, a stream of research has examined and supported CET. For example, studies
have found deadlines (Amabile, DeJong, & Lepper, 1976), surveillance (Lepper & Greene, 1975), imposed goals (Mossholder, 1980), and competition (Deci, Betley, Kahle, Abrams, & Porac, 1981) as detrimental to intrinsic motivation (Amabile, et al., 1976). Conversely, choice (Koestner, Ryan, Bernieri, & Holt, 1984; Zuckerman, Porac, Lathin, & Deci, 1978), interpersonal understanding (Koestner, et al., 1984), and feedback given in non-controlling ways (Fisher, 1978; Ryan, 1982) have been found to promote intrinsic motivation. In sum, CET highlights the important role of the needs for autonomy and competence for intrinsic motivation (Ryan & Deci, 2000).

### 2.1.4.2 Organismic integration theory

Even though CET suggests negative effects of external rewards on intrinsic motivation, this suggestion does not conclude that intrinsic and extrinsic motivation are antagonistic concepts. From the perspective of SDT, external rewards can potentially lead to autonomous behaviour (Ryan & Deci, 2008b). Organismic integration theory (OIT) was developed to capture this conceptualisation. The theory proposes a continuum of extrinsic motivation (Ryan & Deci, 2000). More specifically, OIT defines four types of extrinsic motivation (a) external, (b) introjected, (c) identified, and (d) integrated regulation, based on the assumption that external rewards can lead to autonomous motivation through internalisation (Ryan, Connell, & Deci, 1985). The process of internalisation describes an individual’s assimilation of external values into the individual’s self. The degree to which such internalisation occurs is proposed to correspond with the four suggested types of extrinsic motivation (Deci & Ryan, 1985b) (see figure 2.2.).
Figure 2.2 The types of motivation and regulation within self-determination theory as specified in organismic integration theory. The degree of relative autonomy for each type of motivation and regulation becomes greater within each row as it moves from left to right (Ryan & Deci, 2008b).

Furthermore, OIT postulates that an individual’s ability to internalise depends upon basic psychological need satisfaction, which is provided by the social context from which the values and external rewards arise. A substantial number of studies have found support for OIT. Ryan and Deci (2008b) provide an overview of SDT studies that have found support for OIT. Autonomy support has been the primary context of these studies.

The word ‘autonomy’ originates from ancient Greek and consists of two parts. The first part, ‘auto’, translates into the ‘self’, the second part ‘nomos’ means ‘law’. Put together, the word could be interpreted as a concept of ‘someone who lives according to their own law’. This is consistent with the application of autonomy support in SDT. An autonomy supportive
environment recognises individuals’ needs to behave in congruence with their feelings and thoughts, and as such, encourages choice and participation (Mageau, et al., 2009). The opposite of autonomy support is control, where individuals perceive a certain degree of pressure to act in a certain way.

SDT research found that internalisation was greater when social environments were autonomy supportive, and conversely, identified detrimental effects on internalisation when the social context displayed a lack of autonomy support (Deci, Eghrari, Patrick, & Leone, 1994; Grolnick & Ryan, 1989; Williams & Deci, 1996). Research based on OIT and CET further suggests a substantial positive relationship between autonomous motivation and outcomes such as psychological well-being (Ryan & Deci, 2000).

2.1.4.3 Causality orientation theory

Both CET and OIT suggest that the social environment plays a significant role for the various degrees of controlled and autonomous motivation. Research studies showed how the degree of autonomous motivation was significantly impacted by social-contextual factors (Williams, Freedman, & Deci, 1998). However, SDT further proposed a dynamic relationship between an individual’s social environment and the individual’s ability to detect autonomy supportive cues from it (Ryan & Deci, 2008b). Specifically, SDT introduced causality orientation theory (COT), suggesting that such orientations were “developmental outcomes in which the interaction of the active organism with a social environment results in a specifiable level of each orientation. Thus, people come to view themselves in relation to their environments as
somewhat autonomous, somewhat controlled, and somewhat impersonal, and the three orientations can be used to predict various outcomes (Vallerand, 1997).” (Ryan & Deci, 2008b, p. 665). The respective causality orientation has been theorised to correspond to the individual level of internalised self-regulation, as outlined by OIT (Olesen, Thomsen, Schnieber, & Tonnesvang, 2010). Autonomous individuals have been suggested to have higher levels of internalised self-regulation and experience their actions as free and volitional, as well as consistent with their values and beliefs. In contrast, controlled individuals have been described as having lower levels of internalised self-regulation leading to perceptions of behavioural choices under pressure or feelings, as if external rules and norms were imposed on them. Impersonal individuals have been proposed as lacking internalised self-regulation and, therefore, perceiving their behaviour beyond their intentional control. SDT postulates that individuals interpret situational cues according to all three causality orientations, even though the strength of each orientation has been suggested to differ by individual (Wong, 2000).

A substantial number of studies have been published investigating the concept of causality orientations and its relations to other phenomena. For example, autonomy orientation has been associated with a lack of guilt and hostility (Deci & Ryan, 1985a), surgery as being perceived as challenging rather than threatening (King, 1984), positive self-evaluation (Deci & Ryan, 1985a), self-starting (Sheldon & Kasser, 1995), more honest and interpersonal (Hodgins, Koestner, & Duncan, 1996), more persistent (Koestner & Zuckerman, 1994), and displaying higher levels of performance (Wong, 2000). Furthermore, Ratelle et al. (2007) found in a college student sample that the profile of a student's causality orientations, i.e. the levels
of the student’s autonomous, controlled, and impersonal orientations, were more predictive of resulting outcomes than the student’s individual causality orientation scores.

COT has also been applied in the context of work and organisations. Autonomy-oriented individuals have been described as looking for opportunities to satisfy intrinsic interests (Koestner & Zuckerman, 1994). Conversely, control-oriented individuals have been suggested to organise themselves according to deadlines and external rewards (Koestner & Zuckerman, 1994). Moreover, empirical work on causality orientations has linked the concept to job outcomes (Baard, Deci, & Ryan, 2004). More recently, Gagné and Deci’s (2005) theory of a mediating model, in which autonomous work motivation mediated the relation between causality orientation and job-related outcomes, received further support by research showing that causality orientations predicted autonomous work motivation, which in turn predicted job satisfaction and commitment (Lam & Gurland, 2008).

2.1.4.4 Goal content theory

Rewards are not always imposed on an individual externally. Goals and aspirations can originate as much from an individual’s inside as from their outside social environment (Ryan & Deci, 2008b). SDT work has investigated the content of goals proposing a relationship to well-being on the basis of psychological need satisfaction (T. Kasser & Ryan, 1996). Indeed, achieving extrinsic goals such as money or fame, did not support inherent need satisfaction. Conversely, intrinsic goals such as relationships or personal growth could be directly linked to the satisfaction of the basic psychological needs of autonomy, competence and relatedness.
Furthermore, it could be shown that the more importance individuals placed on extrinsic goals, the more negative they scored on a number of well-being measures. Further studies in the field of external goal framing could show that autonomy supportive goal framing had a positive impact on performance and well-being in both contexts, intrinsic and extrinsic goals and across cultures (Grouzet, et al., 2005; Ryan, et al., 1999).

2.1.4.5 Basic psychological need theory

Given the role of basic psychological need satisfaction for CET, OIT, and COT, Ryan and Deci (2002) felt the necessity to formulate a separate theory for this aspect which they labelled basic psychological needs theory (BPNT). The components of BPNT were outlined as:

a. Psychological needs define the necessary cross-developmental and cross-cultural nutriments for wellness and optimal functioning,

b. Various motives, aspirations, and goals can be evaluated with respect to their potential for satisfying or thwarting basic needs, and thus their impact on wellness will follow from these relations,

c. Within- and between-person variations in wellness are a function of need satisfaction, with all three needs demonstrating independent and interactive contributions.

(Ryan & Deci, 2008b, p. 666)
There have been a number of studies that have investigated the relationship between the satisfaction of SDT’s basic needs (a) autonomy, (b) competence, and (c) relatedness, and intrinsic motivation as well as with outcomes such as performance and well-being. For example, in the field of education, parental support for autonomy, competence, and relatedness in the context of children’s homework predicted children’s intrinsic motivation for school work. This, in turn, predicted children’s school performance (Grolnick & Ryan, 1989). In sports, the study by Hollembeak and Amorose (2005) demonstrated how coaching behaviour impacted on college athletes’ satisfaction of needs for autonomy, competence, and relatedness which, in turn, was associated with their intrinsic motivation. Academic work by Reis et al. (2000) investigated daily within-person fluctuations in well-being and found that the variations were associated with the degree of satisfaction of the three basic needs provided by daily activities.

In the context of work and organisations individuals displayed higher levels of pro-social behaviour when autonomy need satisfaction levels were higher (Gagné, 2003). When Baard et al. (2004) studied employees’ causality orientations and their perception of autonomy support from their managers, they found that both independently predicted the level of basic need satisfaction and, in turn, performance evaluations. Furthermore, SDT research identified basic needs thwarting as predictor of negative work outcomes such as higher emotional exhaustion, short-lived satisfaction after goal attainment, and turnover intentions (Vansteenkiste, et al., 2007). An interesting aspect of Vansteenkiste et al.’s (2007) work was that these negative outcomes were not limited to employees’ work environment but also indicated employees’ general mental health. This is consistent with recent SDT research which has focused on need
satisfaction across life domains and the consideration of basic needs as a portfolio, rather than studying each level of need satisfaction independently.

For example, Sheldon and Filak (2008) found that the satisfaction of the three basic needs of (a) autonomy, (b) competence, and (c) relatedness combined additively to predict well-being. A study investigating the balance of need satisfaction across the three basic needs showed that individuals who perceived the satisfaction of their needs as more balanced also reported higher levels of well-being than those with the same sum score but higher variability of satisfaction within their portfolio of three basic needs (Sheldon & Niemiec, 2006). A further examination of the balance of need satisfaction across life domains (Milyavskaya, et al., 2009) added to Sheldon and Niemiec’s findings. In three studies with adolescents, Milyavskaya et al. found that individuals who perceived balanced need satisfaction at school, at home, at work, and with their friends, displayed higher levels of well-being.

2.1.5 Applications of SDT

The application of SDT in psychology research has gained considerable momentum over the last ten years (Deci & Ryan, 2008b). Following the initial experimental designs that led to the formulation of SDT, an increasing number of field studies have applied the conceptual framework to various domains such as education (Grolnick & Ryan, 1989), healthcare (Williams, Deci, & Ryan, 1998), sport and exercise (Hollemeak & Amorose, 2005), work and organisations (see section 2.1.5.1), digital technologies (see section 2.1.5.2), and well-being (see section
2.1.5.3). This thesis was conducted by applying SDT in the contexts of work and organisations, digital technologies, and well-being.

2.1.5.1 Work and organisations

When the potential negative effects of extrinsic rewards on intrinsic motivation were first introduced (Deci, 1971), the proposition received attention in terms of its implications for organisational psychology. However, interest in CET soon subsided based on the following reasons (Gagné & Deci, 2005). Firstly, CET had not been established and tested in organisational field investigations but rather in laboratory experiments. Secondly, the concept did not seem practical in the context of daily organisational operations, which do not always allow for intrinsically interesting tasks and participation. Thirdly, monetary incentives have been up to the present day at the centre of organisations’ motivational schemes given that almost all people have to earn money. Fourthly, CET audience at the time perceived the concept as an antagonism, allegedly proposing that organisations had to choose between intrinsic and extrinsic motivational factors.

With the introduction of the principles of OIT (Ryan, et al., 1985), CET saw a revival of its postulate based on a more differentiated proposition for extrinsic motivation. The concept of internalisation suggested a continuum of extrinsic motivations offering an integrative approach to intrinsic and extrinsic factors. This addressed the most fundamental issue of antagonism and, subsequently, has provided a foundation for SDT researchers to address the other three points.
Addressing these points through empirical investigations requires assessment tools. SDT research has created a toolbox of surveys (http://www.psych.rochester.edu/SDT/questionnaires.php) which form the basis on which most SDT field studies are being conducted today. In the context of work and organisations there are, for example, the General Causality Orientation Scale (GCOS) (Deci & Ryan, 1985a), the Perceived Autonomy-Supportive Work Climate Questionnaire (Baard, et al., 2004), and the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). By applying the SDT inventory of assessment tools, the principles of SDT have received wide support of its applicability to the environment of work and organisations.

There has been organisational research that supports the relationship between basic need satisfaction and outcomes. It was found that employees’ perceived competence, autonomy, and relatedness at work was positively related to their work engagement and well-being on the job (Deci, et al., 2001). Furthermore, employees’ performance evaluations were found to be associated with the satisfaction of their basic needs (Baard, et al., 2004).

According to SDT, there are two factors impacting upon an individual’s basic need satisfaction, autonomous motivation, and related outcomes: (a) an individual’s causality orientation and (b) their social environment. Research on the social contextual factors has mainly focused on the field of autonomy support which has been proposed to originate from the following two sources: (b1) choice, job content, rationale, and context; and (b2) work climate (Deci, et al., 1994). Autonomy supportive environments have been found to be
positively related to outcomes such as job satisfaction, level of trust in corporate management, and positive work-related attitudes (Deci, Connell, & Ryan, 1989). Other outcome related SDT research includes Breaugh's study (1985) that showed a positive association between autonomous motivation, job involvement, and quality of performance. In addition, Sheldon and Elliot's work (1998) found autonomous motivation as a predictor of greater effort and more goal attainment at work. Autonomy support has been closely linked to need satisfaction (Baard, et al., 2004; Deci, et al., 2001; Gagné, Koestner, & Zuckerman, 2000) which, in turn, could be shown to predict more favourable outcomes such as job satisfaction or better performance evaluation, greater persistence, greater acceptance of organisational change, and better psychological adjustments. Blais and Briere (1992) investigated the impact of managerial autonomy support on their subordinates and found that is was positively related to employees’ autonomous motivation and, in turn, their quality of performance. To conclude, Gagné and Deci's (2005) model of autonomous work motivation was supported by empirical research that linked causality orientations to autonomous work motivation, which, in turn, predicted work outcomes such as job satisfaction.

In summary, causality orientations predict levels of individual need satisfaction and autonomous work motivation in the context of work and organisations, which both have been associated with work outcomes. However, this model has not been tested in a population of senior executives.
\textbf{2.1.5.2 Digital technologies}

Early research in the 1980s and 1990s considering the impact of digital technologies such as the internet had suffered from the hypothesis that the internet had uniform and universal effects on all users (Weiser, 2001). Furthermore, since research has gained momentum over the last 15 years, the majority of the research that has examined the impact of media such as the internet on its users has concentrated on economic benefits, such as productivity gains, rather than psychological aspects (Lowry, Roberts, Romano, Cheney, & Hightower, 2006; Teske, 2002). Since then, research objectives have become more specific with empirical findings highlighting the potential benefits (Matsuba, 2006; Sum, Mathews, Hughes, & Campbell, 2008), or the harmful aspects (Bonebrake, 2002; Riva, 2002) of computer mediated communication (CMC). Other conceptual approaches to researching the impact of CMC focused on either (a) the functionality or (b) the individual differences between the users of digital technologies.

Firstly, there has been a seminal debate over the role that functionality, i.e. channels of communication, plays for CMC. Supporters of the ‘cues-filtered-out approach’ argue that CMC lacks social cues because of the limited channels of communication available to the parties involved (Riva, 2002) and, therefore, does not allow for meaningful relationships. Conversely, social information processing theory (J.B. Walther, 1992) postulated that time and interaction were the keys to relational development and maintenance instead of channels of communication.
Secondly, research on personality types and internet communication has differentiated the debate. Based on empirical studies on extroverts versus introverts, high versus low anxiety participants, older versus younger individuals, researchers concluded that personality was a significant mediator for psychological well-being in relation to the use of CMC (Matsuba, 2006). Social and psychological effects on a CMC user were found to be primarily dependent upon their reasons and intentions for using the technology. According to Wallace, the most important mediator of behaviour in internet environments was the purpose of the people who visit and inhabit them (Riva & Galimberti, 2001; Weiser, 2001). Despite the sound work of Wallace and other psychology research considering CMC, the current body of knowledge related to psycho-social consequences of CMC is substantially limited (Riva, 2009).

In strong contrast to these limitations, CMC plays a substantial role in today’s organisational world. Global communication requirements represent challenging aspects of senior executives’ work environments due to their high levels of mobility (J. S. Black, Gregersen, Mendenhall, & Stroh, 1999; J. S. Black, Morrison, & Gregersen, 1999; Evans, Pucik, & Barsoux, 2002). Research in the field of eLeadership (Annunzio & Liesse, 2001), ‘e’ for electronic, studies phenomena of electronic management in organisations. More research into the psycho-social consequences of CMC is required, in particular, in the field of senior executives.

SDT provides an intriguing alternative framework to previous research by integrating both approaches. It is considering (a) the functionality as social environmental factor and (b) the individual differences of users by analysing their respective impact on basic psychological
need satisfaction and autonomous motivation. Over the past five years SDT research on digital technologies has started to gain momentum. For example, work in the field of video games found that participation was related to the individual differences of motives and the socio-functional context (Ryan, Rigby, & Przybylski, 2006). Specifically, individual needs for competence or relatedness were associated with participation as well as the game functionality facilitating need satisfaction. Furthermore, the concept of presence, the perceptual illusion of ‘being there’ (Lombard & Ditton, 1997), was found to be related to need satisfaction. The same pattern could be identified by Przybylski et al. (2009) in a study of game violence. Participants higher in trait aggression had more preferences for violent games. Also, autonomy supportive environments were also found to be more preferred by individuals higher on trait aggression. In summary, these studies in the field of video games suggest SDT as an applicable conceptualisation for studying the psycho-social consequences of CMC.

SDT has also been applied to the features of personalisation in digital technologies. Oulasvirta and Blom (2007) conceptualise features of personalisation as central environmental factors in helping individuals satisfy their basic psychological needs. The choice of feature is proposed to depend upon the individual differences of people. Furthermore, SDT researchers have investigated the impact of motivational aspects of presence on online community participation, and found that the dimensions of presence were related to both intrinsic and extrinsic motivation to participate in online communities (Shen & Khalifa, 2008). In the work environment, Venkatesh and Vitalari (1992) adopted an early formulation of SDT (Deci, et al., 1989) to show that computer based work from home was beneficial to achieving certain work
related objectives as the formal work environment limited self-determined behaviour of employees.

2.1.5.3 Well-being

“How are you?” is part of most individuals’ daily social interactions. Over the last 30 years, an increasing volume of research has been undertaken to answer the question from a scientific point of view (Ryan & Deci, 2001). When people have been asked for their goals in life as part of these studies, happiness, well-being, and meaningfulness have usually made it to the top of survey rankings (Bok, 2010; Ryan & Deci, 2001). The results of these, and other experimental and field investigations, have divided scholars into two schools of thought when it comes to well-being, hedonic and eudaimonic psychology (Huta & Ryan, 2010; Ryan & Deci, 2001).

When Kahneman et al. (1999) introduced “a new field of psychology” (p. ix), hedonism, happiness and well-being were essentially proposed to be equivalent. Well-being in hedonic psychology is an outcome oriented conceptualisation which is related to maximising happiness. Hedonism researchers measure aspects of subjective well-being (SWB) which is theorised to consist of three constituents: (a) life satisfaction, (b) presence of positive mood, (c) absence of negative mood, all together summarised as happiness (Ryan & Deci, 2001). Hedonic psychology has been described as a concept of ‘feeling good’, whereas eudaimonic psychology has been outlined as being focused on ‘living well’ (Ryan & Deci, 2001).
The theoretical framework around eudaimonia concentrates on the realisation of the human potential (Waterman, 1993). The core differentiating proposition of eudaimonic psychology is that well-being depends upon individuals living in congruence with their true self. This suggests that not all pleasure producing outcomes contribute to individual well-being. Empirical studies have shown that both concepts of well-being are highly correlated, however, were theorised as representing different types of well-being (Huta & Ryan, 2010; Ryan & Deci, 2001). Whereas hedonism has been described as outcome focused (“seeking pleasure and comfort” (Huta & Ryan, 2010, p. 735)), eudaimonia has been suggested to be more life content and process oriented (“seeking to use and develop the best in oneself” (Huta & Ryan, 2010, p. 735)). Huta and Ryan (2010) summarise “that hedonia and eudaimonia occupy both overlapping and distinct niches within a complete picture of well-being, and their combination may be associated with the greatest well-being.” (p. 735). In conclusion, when investigators conduct research into well-being, they need to clarify which perspective they are studying phenomena from: hedonic, eudaimonic, or both.

SDT is more closely related to the eudaimonic tradition by proposing that basic need satisfaction leads to psychological growth, internalisation, and well-being. For example, empirical studies on the basis of SDT have established vitality, “a positive and phenomenologically accessible state of having energy available to the self” (Ryan & Deci, 2001, p. 152), as an indicator of well-being. Even though, earlier SDT conceptualisations of well-being considered happiness and vitality as one construct, today’s approach distinguishes between the concepts by defining happiness as positive affect linked to SWB and vitality as positive affect
more closely aligned with eudaimonic well-being. In order to reconcile the two concepts, it has been suggested that both are outcomes, with happiness resulting from hedonic and vitality from eudaimonic living.

There has been a substantial amount of SDT research on well-being. Early studies investigated the impact of materialism on well-being (T. Kasser & Ryan, 1993, 1996; Ryan, et al., 1999; Schmuck, Kassser, & Ryan, 2000). Sheldon et al. (1997) examined the relations between big five personality traits and well-being. In sports, a field study investigated gymnasts’ well-being could be related to their basic need satisfaction (Gagné, Ryan, & Bargmann, 2003). Furthermore, within person fluctuations of need satisfaction were linked to positive affect and vitality (Reis, et al., 2000). Nix et al. (1999) showed an association between well-being and positive and negative mood states. Nix et al.’s study supported previous research which had proposed that higher levels of vitality were related to less negative and more positive mood states (Ryan & Frederick, 1997). More recently, helping and volunteering could be shown as contributing to basic need satisfaction and, in turn, contributing to well-being (Weinstein & Ryan, 2010) as well as comparing the impact of hedonia and eudaimonia on well-being (Huta & Ryan, 2010). A study on weekend effects showed that day-to-day fluctuations in well-being were related to the day of the week, as well as the work activity itself (Ryan, et al., 2010). In sum, these studies investigated the relationships between various phenomena and well-being. However, there is a stream of research specifically investigating the relationship between the need for relatedness and well-being.
There is a substantial number of empirical evidence supporting the suggestion that the need for relatedness is linked to well-being. For example, when surveying factors that impact on well-being, aspects of relatedness have been consistently ranked amongst the items on the top of such lists (Argyle, 1987; Bok, 2010; D.G. Myers, 1999). Furthermore, theories proposing a relationship between the two constructs have been well documented in literature (Baumeister & Leary, 1995; Ryan & Deci, 2000). Ryan and Deci (2000) also provide a review of literature on SDT research in that context. For example, the need for relatedness could be shown to be associated with the well-being of residents of a nursing home (V. G. Kasser & Ryan, 1999). More recently, it could be shown that between-person level of relatedness was positively associated with the incremental value of relatedness extracted from cues from the environment (Moller, et al., 2010). In the context of well-being, these findings suggest the hypothesis that individuals higher on well-being are likely to derive more well-being from the same social context than others on the basis of their respective relatedness need satisfaction. In conclusion, relatedness need satisfaction has been advocated as a predictor for well-being in literature. However, there is scope for future research further exploring this specific association and its potential implications for other constructs.

After this review of literature within the theoretical framework of SDT, the following section will review concepts and theories outside the scope of SDT which, nonetheless, may contribute respective aspects to an understanding of relatedness need satisfaction in senior executives.
2.2 Other Concepts, Theories, and Their Relations to SDT

The review of literature which was undertaken in the context of this thesis produced a number of concepts and theories outside the theoretical framework of SDT. These were considered significant contributions to the core areas of this thesis, namely, groups, work and organisations, motivation, relatedness, and senior executives. This section will briefly introduce the respective concepts or theories, potential contributions to the topic of this thesis, as well as potential differences or similarities in relation to SDT.

2.2.1 Group psychology

Baumeister and Leary (1995) have proposed that relatedness need satisfaction requires “frequent personal contacts and interactions with the other person” (p.500). According to Myers (2001), at least two people interacting interdependently constitute a group. Research in the field of group processes has long suggested that psychological needs play an important role as motivators of group behaviour (Tafjel, 1981). However, scholars in the field of motivation have been slow in integrating the psychological need construct with the concept of groups (Sheldon & Bettencourt, 2002). This part will give a brief historical overview over the development the group concept and conclude with a critical evaluation of the current state of literature in the context of SDT.
Research studies in the field of anthropology found that all cultures naturally form groups (Coon, 1946) and have survived in small groups throughout evolution (Barchas, 1986). Social sciences research on groups reaches back to the works of Ferdinand Toennies (1887) and Emile Durkheim (1894) at the end of the 19th century. Toennies proposed a two-dimensional framework of social groups where individuals either formed groups on the basis of shared norms, beliefs and values (personal dimension or Gemeinschaft), or instrumental and formal links (the impersonal dimension or Gesellschaft). Conversely, Durkheim argued that groups were non-individualistic, a construct created by individual interaction instead of individual properties. More recent psychology research in the field of collective behaviour shows that collaboration, searching for and sharing of solutions and resources have been identified as one of the main benefits of groups (Goldstone, Roberts, & Gureckis, 2008).

Psychology literature in the field of social contacts dates back to the theories of LeBon (1895), McDougall (1921), Freud (1921), and Allport (1924) which were further developed by Sherif (1936) and Asch (1952). Theory development in these early days was non-empirical. What these theories have in common was their antagonistic perspective on the relationship between the group and the individual, also referred to as the ‘porcupine problem’. That is individuals with a “desire for positive social interaction” on the one hand, “causing each other considerable aggravation, distress and heartbreak” on the other (Maner, DeWall, Baumeister, & Schaller, 2007, p. 42). Group psychologists like LeBon, McDougall and Freud argue that individuals undergo social and psychological transformation to ultimately become a group. Some scholars have even advanced the idea that a group would actually degrade an individual
to form a group-mind (LeBon, 1895). On the contrary, supporters of the idea of individualism propose that individuals never lose their individuality and only change temporarily to conform to the group (Allport, 1924). Subsequent theories have rejected the group-mind as well as Allport’s individualism (Asch, 1952; Sherif, 1936). The idea of social and psychological transformation as a result of group formation survived (Asch, 1952; Sherif, 1936). In addition, scholars introduced the concept of identity to investigate the apparent trade-off between group and individual norms, values, and beliefs (Foschi & Lombardo, 2006; Lewin, 1946; Sherif, 1936).

With the advent of empirical testing, groups and their relations to the self-concept have become a key empirical research domain in the field of psychology. The seminal work of Tajfel and Turner (Tajfel & Turner, 1979; Turner, 1999) has established social identity theory which has provided a theoretical framework for further investigations into the group concept. Consistent with the proposition of both traditions, group psychology and individualism, the theory suggests an antagonistic perspective on two aspects of the self, an individual self (personal identity) and a collective self (social identity). Individuals assimilate to the values and beliefs of a group as soon as a relevant group identity is salient (Turner, 1991). However, this gives rise to an ongoing conflict between the need to belong (Baumeister & Leary, 1995; Maslow, 1943; Ryan & Deci, 2000) and the need to differentiate oneself (Vignoles, Chryssochoou, & Breakwell, 2000), to be distinct (Brewer, 1991), or to be unique (Snyder & Fromkin, 1980). Self-categorisation theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), an extension to social identity theory, even goes as far as to suggest that individuals may be
prepared to give up their personal identity (de-personalisation) to immerse themselves into a group. For example, in an attempt to reduce uncertainty and risk about the out-group world (Hogg, 2000). The process of de-personalisation could lead to individual group members viewing themselves as group prototypes, completely congruent with other group members.

Social identity and social categorisation theorists have been criticised in recent years for “becoming out of step with recent cultural shifts toward self-determination and self-fulfillment” (Hornsey & Jetten, 2004, p. 262) in a call for convergent approaches to both needs, distinctiveness and belongingness. Alternative perspectives on both theories have included the identification of strategies which individuals can apply to integrate both the personal and collective self (Hornsey & Jetten, 2004). This approach reconciles both needs within the theoretical frameworks of social identity and self-categorisation theory.

Regardless of the criticism of social identity and self-categorisation theory, the discussion on the dynamic relationship between the self and the group has prompted other streams of research. For example, academic work in the area of cohesiveness focuses on what attracts individuals to participate in groups (Festinger, Schachter, & Black, 1950; Schachter, Ellertson, McBride, & Gregory, 1951). More recently, researchers have applied the concept of cohesiveness under the term ‘team cohesion’ to the fields of organisational (LaFasto & Larson, 1989) and sport (Carron, 1982) psychology aiming at optimising team performance. The investigation of the process of how individuals manage the suggested conflict between self and group has given rise to the field of self-regulation (Baumeister, et al., 1994; Carver & Scheier,
1981; Kanfer & Karoly, 1972), “which concerns how people take in social values and extrinsic contingencies and progressively transform them into personal values and self-motivation” (Ryan & Deci, 2000, p. 69). Research studies in the field of cultural psychology have adopted the concept of social identity to investigate the phenomena of individualism (Fiske, Kitayama, Markus, & Nisbett, 1998; Hofstede, 1980, 1983) and collectivism (Choi, Nisbett, & Norenzayan, 1999; Kim & Markus, 1999). Furthermore, social identity theory has been applied in the organisational context investigating a broad spectrum of phenomena, such as organisational trust, multiple organisational roles and identities, work-group socialisations, commitment, mergers, or post-merger integration (Hogg & Terry, 2001).

The motivational theory of SDT integrates the psychological need construct with the concept of group processes. Its position on the self versus the group aspect proposes that individuals have the developmental capacity to satisfy their basic psychological needs by internalising cultural values (Ryan & Deci, 2008b). Ryan and Deci (2008) suggest that “the tendency for the individual to make ambient values their own – that is, to integrate them into their sense of self – allows them to experience enactment of these values as autonomous” (p. 659). And they further outline that “needs supply the underlying processes that explain how cultures (groups) become part of individual personality” (p. 659). Social identity theory, self-categorisation theory, and Hornsey & Jetten’s (2004) proposed strategies, all work on the basis of an antagonistic relationship between the self and the group. In strong contrast, SDT proposes an integrated, dynamic relationship between both concepts based on psychological need
satisfaction. There has been a stream of empirical SDT research supporting this conceptualisation (Reis, et al., 2000; Sheldon & Bettencourt, 2002).

2.2.2 Self-regulation theory

The foundations of self-regulation theory go back to early ‘Test, Operate, Test, Exit’ (TOTE) models (Miller, Galanter, & Pribram, 1960) and Kanfer and Karoly’s (1972) three stage model of beta-regulation. Both frameworks have been applied as a blueprint by researchers to add to the understanding of self-regulation. The most recent and widely used conceptualisation of self-regulation was Carver and Scheier’s cybernetic feedback loop model (Baumeister & Vohs, 2004; Carver & Scheier, 1981) (see figure 2.3.).

Figure 2.3. Schematic depiction of a feedback loop, the basic unit of cybernetic control. In a discrepancy-reducing loop, a sensed value is compared to a reference value or standard, and adjustments occur in an output function (if necessary) that shift the sensed value in the direction of the standard. In a discrepancy-enlarging loop, the output function moves the sensed value away from the standard (Carver, 2004).
When comparing the Carver and Scheier model (CSM; 1981) assumptions to SDT, it can be concluded “that Carver and Scheier have been more concerned with the how of goal pursuit once a goal has been selected, whereas SDT has been more concerned with the what and why of goal selection and pursuit” (Deci & Ryan, 2000, p. 258). There has been a seminal debate over how to interpret SDT in the context of the CSM (Carver & Scheier, 1999a, 1999b; Ryan & Deci, 1999). At the time, it was concluded that both frameworks work at conceptually different levels (Deci & Ryan, 2000). Since then a number of empirical studies have supported SDT’s perspective on self-regulation (Deci & Ryan, 2008b). These studies have particularly focused on the phenomena related to a resource or energy which has been proposed by many researchers as requirement for self-regulatory processes (Baumeister, 2003; Baumeister & Heatherton, 1996; Muraven & Baumeister, 2000).

When relatedness needs are thwarted, individuals have been found to fail in terms of self-regulation (Baumeister, 2001; Baumeister, DeWall, Ciarocco, & Twenge, 2005). Such self-regulation failure has been attributed to the depletion of a resource or energy required for self-regulation which researchers so far have failed to specify (Baumeister, Vohs, & Tice, 2007). Coping with social rejection or exclusion has been proposed to deplete such resource and individuals have been found to engage in anti-social or self-defeating behaviour (Baumeister, et al., 1994; Baumeister & Vohs, 2004) leading to ill effects such as aggression and violence (Baumeister, 2001; Gaertner & Iuzzini, 2005; Leary, Twenge, & Quinlivan, 2006; Twenge, et al., 2001), unhealthy food choices (Twenge, et al., 2002), binge eating (Schueler & Kuster, 2011) and addiction (Baumeister, 2003). More recently, researchers have identified the levels of heart
rate variability (Segerstrom & Solberg Nes, 2007) and glucose (Gailliot & Baumeister, 2007) as predictors of self-regulatory strength which may provide useful insights for future research.

SDT research has hypothesised and demonstrated that not all self-regulation drains this reservoir of energy (Moller, Deci, & Ryan, 2006). Ryan and Deci (2008a) propose in a review of SDT literature that only controlled regulation is depleting the resource whereas activities that provide basic need satisfaction (not only for the need for relatedness but also for autonomy and competence), leading to autonomous motivation, are suggested to even have the potential to increase vitality and self-regulatory energy. Further research studies have supported Ryan and Deci’s claim since then. For example, it was found that autonomous self-control was less-depleting than other forms of self-regulation (Muraven, 2008) and that the level of energy required for self-regulation was related to autonomous versus controlled motivation (Muraven, Gagné, & Rosman, 2008).

This section has highlighted how thwarting basic need satisfaction can lead to self-regulation failure, particularly in the case of senior executives. In the context of the need for relatedness, the concept of rejection sensitivity postulates individual difference in terms of how socio-contextual relatedness cues are perceived. The following section will review the related literature and compare the conceptual assumptions to those of SDT.

2.2.3 Rejection sensitivity

Karen Horney (1937) was the first to introduce this term and concept. In her work she related rejection sensitivity to the neurotic personality. More recently, the phenomenon has
been refined by Downey and her colleagues at Columbia University (Downey & Feldman, 1996; Downey & Romeo-Cayas, 2005). When people are more sensitive to social rejection, they are more likely to identify cues from the environment that could be interpreted as ultimately leading to their exclusion from the group (Pickett, Gardner, & Knowles, 2004). In that respect, rejection sensitivity can be seen as an individual’s security system to report any potential threat to their relationship portfolio in order to avoid “the social death penalty” (Ouwerkerk, Kerr, Gallucci, & van Lange, 2005). Ayduk et al. (2000), (based on 550 participants’ preschool scores for delayed gratification (years 1968-1974), with 363 questionnaires responses from the sample of 550 collected between 1993 and 1995) established the level of an individual’s attention management as an indicator for their coping with rejection. Their interpretation of research results was that the participants high on attention management skills either could re-evaluate rejection cues or better manage their response behaviour to them. They further concluded, similar to attachment theorists, that early childhood environments, such as families and schools, could be considered the training camps for a person’s capacity to cope with social rejection.

SDT and the concept of rejection sensitivity are based on the same assumption that need satisfaction is an outcome of developmental social interactions. At the same time, the rejection sensitivity construct assumes that individual dispositions are based on previous experiences. In sum, both SDT and rejection sensitivity theorists advance the idea that individual differences lead to behavioural outcomes including well-being.
However, there is a significant aspect that differentiates SDT from rejection sensitivity. Researchers in the area of rejection sensitivity have advocated that individual differences are traits and as such highly stable across time and social context (Downey & Romeo-Cayas, 2005). This is inconsistent with SDT which proposes within-person variations related to the respective social context (Deci & Ryan, 2000; Ryan & Deci, 2008b).

2.2.4 Attachment theory

Another concept of social interactions focusing on intimate relationships is the framework of attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969; Shaver, Hazan, & D., 1988). The framework proposes that early social interactions between infants and their respective environments determine the pattern of their future relationships with others. Even though relatedness has not been part of the agenda of attachment research an increasing number of recent conceptualisations and refinements of attachment theory have suggested the need for relatedness as an underlying principle of attachment theory (Deci & Ryan, 2000). Furthermore, the idea of individuals universally seeking proximity and the failure of such endeavours leading to dysfunctional consequences are coherent with the concept of the need for relatedness.

COT is based on this same concept as attachment theory, assuming that an individual’s ability to satisfy their basic needs is the outcome of developmental social interactions between an individual and their environment. At the same time, attachment theory proposes that individual attachment styles are developmental results of infants testing various strategies for
prompting relatedness cues from their environments, and these social context providing or withholding those cues (Deci & Ryan, 2000). In conclusion, both SDT and attachment theory postulated that individual differences lead to behavioural outcomes that include well-being.

There is a significant aspect that differentiates SDT from attachment theory. Attachment researchers have advocated that attachment styles are highly stable across time and social context (Deci & Ryan, 2000). This is in strong contrast to SDT which proposes within-person variations which are related to the respective social context. SDT research has supported this theoretical differentiation. When studying between- and within-person differences of attachment styles across a range of social contexts, less than 50% of the differences were accounted for by between-person differences. It was shown that the remainder of differences could be attributed to within-person differences, which were dependent upon the extent to which the respective social contexts satisfied the individuals’ basic psychological needs (LaGuardia, Ryan, Couchman, & Deci, 2000).

Given the role of ‘being close to others’ for basic needs satisfaction the following section will review literature on proximity and its application in the context of CMC, i.e. social presence theory.

2.2.5 Social presence theory

Global communication plays a significant role in the lives of senior executives today. Its significance has even led to a new field of academic studies, termed ‘eLeadership’ (Annunzio &
Liesse, 2001). An increasing number of business transactions are being conducted without the respective partners having ever been physically present.

Literature in the field of social presence theory has approached the phenomenon of proximity from a communication perspective. For social psychologists physical distance is a question of social attachment. According to social attachment research, mere proximity is a significant factor promoting the formation of relationships (Festinger, et al., 1950). The term ‘close’ not only refers to the quality but also to the physical proximity, or propinquity, of a relationship (Nahemow & Lawton, 1975). Schachter’s (1959) conclusion that the presence of a friend can be comforting was supported by studies reporting associations with lower anxiety, less cardiovascular activity, lower heart rate and blood pressure (Pontari, 2009). Educational theories such as Vygotsky’s (1978) constructivist approach to learning are consistent with these findings in emphasising the importance of social processes. Many of the theories and concepts in the field of social attachment originate from the era of FtF (face-to-face) communication well before the advent of CMC. Therefore, many of the studies mention social attachment and social processes as a pre-requisite for relationships by implying proximity. The question these studies fail to answer in a world of CMC is in how far individuals’ proximity needs are being met by CMC. The theoretical framework of presence has contributed to the research on proximity effects related to CMC.

Social presence theory enabled researchers to open up this new stream of studies (Short, Williams, & Christie, 1976). Its traditional conceptualisation suggested that different media
provide different perceptual illusions of ‘being there’ (Lombard & Ditton, 1997). Adding an intermediary, the communication medium, to the already complex field of interpersonal communication has substantially increased the level of complexity. Personal interaction by means of CMC is no longer a co-defining process of two but three constituents, at least two individuals plus the medium. Nonetheless, the fundamental conclusions of research in the field of presence are consistent with studies in the area of social attachment. The more physically close individuals feel the more beneficial for relationships even though the feeling is based on real proximity in FtF communication and on a perceptual illusion in the case of presence and CMC (Greenwood & Long, 2009; Riva, 2002).

Despite the two antagonistic suggestions that the use of CMC was either related to individual differences (Weiser, 2001) or the functionality of the medium (Riva, 2002; J.B. Walther, 1992), the current body of knowledge related to psycho-social consequences of CMC is substantially limited (Riva & Galimberti, 2001). This applies in particular to the field of basic need satisfaction. Baumeister and Leary’s (1995) conceptualisation of the need to belong was derived from a review of approximately 300 references. A substantial number of the studies included in the review pre-date the development of CMC. At the time of those pre-CMC investigations, most theories of human relationships were based on physical proximity. Therefore, Baumeister and Leary’s (1995) key relationship features of (a) frequent personal interactions marked by (b) stability, and mutual affective concern need to be re-considered with particular emphasis given to the role of physical distance and CMC.
SDT offers an integrative framework for the two apparently opposing approaches to CMC’s uses and effects. It integrates Wallace’s view (Weiser, 2001) on individual differences as well as theories focusing on social context, i.e. medium functionality (Riva, 2002; J.B. Walther, 1992). Interpreting CMC in the context of SDT suggests that individuals’ choice of communication media varies depending on individual basic need satisfaction which, in turn, is a result of a dynamic relationship between individual differences and the channels available for communication. SDT research has investigated the impact of motivational aspects of presence on online community participation and found that the dimensions of presence were related to individual need satisfaction in online communities (Shen & Khalifa, 2008).

2.2.6 Achievement goal theory

Goal pursuit represents a core element of motivational theories (Ryan & Deci, 2000). Several theorists have suggested that achieving goals may be a more secondary motive behind the basic need to relate (Baumeister & Leary, 1995; Ryan & Deci, 2000). Field studies in the context of achievement support these theorists’ postulate of the important role of relatedness need satisfaction for individual achievement behaviour (Baumeister & Leary, 1995; Osterman, 2000; Roeser, Midgley, & Urdan, 1996; Ryan & Deci, 2000). From the individual’s perspective, a person seeks to achieve for approval by others. From a group’s perspective, achieving individuals appear to be more liked and accepted for their competences.

Early conceptualisations of goal pursuits include the contributions of Nicholls (1984) and Dweck (1986), which provided the theoretical framework for the concept of achievement
motivation. Individuals high on achievement motivation are considered competent and motivated in their pursuit of achievement goals, defined as certain standards of excellence (J. A. Epstein & Harackiewicz, 1992; D. C. McClelland, 1951, 1961, 1985; Trope, 1975). The respective literature describes individuals chronically high on achievement motivation as motivated to achieve high-performance goals, value competence, and seek challenges and achievement-relevant feedback.

Both Nicholls (1984) and Dweck (1986), proposed that goals could be categorised into two contrasting types of goals, (a) those to demonstrate competence, and (b) those to develop competence. As part of their respective theoretical frameworks, both scholars also suggested that the goal of competence demonstration was conceptually associated with extrinsic motivation and competence development related to intrinsic motivation (Dweck, 1985; Nicholls, 1984).

From an SDT's perspective, there appears to be alignment of both theories in terms of competence development and alignment. However, the proposed relationship between goal demonstration and extrinsic motivation conceptually does not fit into SDT's postulate of a continuum of extrinsic motivation, nor the postulate that certain forms of extrinsic motivation can be autonomous and not controlled.

In sum, the propositions of both theoretical frameworks, achievement motivation and SDT, could be described as overlapping but not congruent (Deci & Ryan, 2000). If individual behaviour to satisfy the need to achieve indeed contributes to the satisfaction of the more
fundamental need to relate, then individuals who have achieved high standards of excellence, for example senior executives, represent an interesting research population for exploratory as well as quantitative studies into the concept of the basic need for relatedness.

After considering goal pursuits, the following part will focus on another core element of motivational theories, the concept of energy.

### 2.2.7 Energy

The idea of energy could still be described as a conundrum in the context of psychology. There have been a number of conceptual approaches to the topic throughout psychological history. Freud (1900) introduced the term ‘psychic energy’ which he described as a limited psychic resource best modeled by an economic framework. Investing energy in defense or resistance was theorised to deplete an individual’s reserve of energy.

More recently, the concept of energy has played a central role in the research of self-regulation failure (Baumeister, 2003; Muraven & Baumeister, 2000) and psychological well-being (Ryan & Deci, 2000; Thayer, 1996). In self-regulation research, glucose has been identified as one contributor to a store of energy (Gailliot & Baumeister, 2007). In case of depletion, individuals fail to self-regulate leading to anti-social and self-defeating behaviour (Baumeister, et al., 1994; Baumeister & Vohs, 2004). In the field of psychological well-being energy has led to the introduction of the concept of subjective vitality (Ryan & Frederick, 1997).
In SDT, subjective vitality is defined as “a positive feeling of aliveness and of possessing personal energy” (Nix, et al., 1999, p. 268). Subjective vitality is more aligned with eudaimonia than hedonism. Its conceptual principles differ from other schools of thought, for example Freud, as empirical studies showed that subjective vitality co-varied with both psychological and somatic factors.

Over the last decade, several studies have associated the need for relatedness with subjective vitality (Adie, Duda, & Ntoumanis, 2008; Reinboth & Duda, 2006; Ryan, et al., 2010; Ryan, et al., 2006). However, little work has been done in applying the concept of subjective vitality to the field of work and organisations. A review of literature could not find a reference that studied subjective vitality in a sample of senior executives.

2.2.8 Big five personality traits

Dispositional personality traits have been defined as “dimensions of individual differences in tendencies to show consistent patterns of thoughts, feelings, and actions” (McCrae & Costa, 2003, p. 25). Following this definition, personality traits reflect enduring patterns that differ between people and predict behavioural choices over time and across environmental contexts. The Big Five personality traits framework is the most widely used model of dispositional dimensions (see John, Naumann, & Soto, 2008, for review). The five dimensions consist of neuroticism, extraversion, openness, agreeableness, and conscientiousness.
In contrast, SDT postulates that the satisfaction of three basic needs (autonomy, competence, and relatedness) predicts organismic functioning (Ryan & Deci, 2000). The level of nutriments, i.e. need satisfaction, provided by the respective social contexts differs and so does individual functioning (Ryan & Deci, 2008b). Therefore, the SDT concept of need satisfaction is not a trait model. There is empirical support for the hypothesis of substantial within-person variation in traits (Ryan & Deci, 2008b).

A number of studies have tried to apply and compare both theories in empirical settings. More recently, Olesen et al. (2010) studied the theoretical congruence and distinction between individual differences in the Big Five model and SDT in an effort to reconcile the two conceptual frameworks. They found that autonomy orientation was correlated with extraversion ($r = .33$), openness ($r = .35$), and agreeableness ($r = .26$). However, results suggested that it was conceptually distinct from the Big Five traits. Furthermore, control orientation negatively correlated with agreeableness ($r = -.44$), and data proposed that there was some overlap between the two concepts, but also suggested that they were predominantly distinct on a conceptual basis. Finally, the impersonal orientation was related to neuroticism ($r = .52$) and extraversion ($r = -.48$). The study found evidence that parts of the impersonal concept were distinct and others overlapped with neuroticism.

In summary, the conceptual frameworks of the Big Five personality traits and SDT appear to work on conceptually different levels, even though correlated and overlapping in certain
aspects. For this thesis, the SDT framework was chosen and, therefore, aspects of the Big Five theory were not considered in the four studies.

### 2.2.9 Other theories of work motivation

In their seminal work of applying SDT to the field of work motivation, Gagné and Deci (2005) provide an overview over other theories of work motivation and how they compare to SDT. The following part will briefly summarise their respective propositions.

Even though there are a variety of theoretical approaches to work motivation, there is a common denominator for all of them. They all consider motivation as a singular construct differentiating individuals according to their overall amount of motivation. In contrast, SDT distinguishes between different types of motivation, namely autonomous and controlled motivation. This suggested a dynamic relationship between the two without proposing both types to be additive.

Goal-setting theory (E. A. Locke & Latham, 1990) integrated earlier approaches by Locke (1968) with Bandura’s self-efficacy theory (Bandura, 1986). The theory proposes that individuals act upon their specific goals. In turn, individual performance depends upon the understanding of what is required to achieve these goals and how competent the individuals feel about pursuing this path. The main criticism of goals setting theory in the context of SDT is that it does not differentiate between (a) different types of motivation and regulation as well as (b) different goal contents which are predictors of varying performance quality (Sheldon & Elliot, 1999; Sheldon, Ryan, Deci, & Kasser, 2004).
Action regulation theory has been promoted by German scholars over the last 20 years (Frese, 1989, 2001; Frese & Sabini, 1991; Hacker, 1994). Like goal setting theory, this theoretical framework also draws on the concept of goals. Frese and his colleagues postulate decision latitude, which they equate with autonomy, as the main predictor of motivation and behavioural outcomes. The theory considers motivation as a singular construct and does not differentiate between intrinsic and extrinsic motivation. From the SDT perspective, autonomy need satisfaction has been suggested as one predictor of motivation, regulation, and associated outcomes. However, not the only one, with competence and relatedness needs accounting for two more factors contributing individual cognition and behaviour.

Job characteristics theory proposed that individuals are best motivated by optimal job design (Hackmann & Oldham, 1980). They use the concept of internal motivation to theorise that job characteristics are related to internal work motivation. Specifically it is suggested that (a) job variety and positive impact on other individuals, (b) discretion and freedom, and (c) meaningful feedback provide the basis for increased work motivation. The authors also postulate that different strengths in individual needs moderate the effect of their job characteristics model. The theory is consistent with some aspects of SDT. However, there are three major differences. Firstly, SDT proposes relatedness need satisfaction as a further motivational factor in addition to the needs of autonomy and competence as proposed by Hackmann and Oldham. Secondly, SDT understands needs as nutriments instead of strengths. Thirdly, the authors only concentrate on one type of motivation (internal motivation) and do
not consider the dynamic relationship between different types of motivation as proposed by SDT.

Needs and motives theories follow in the traditions of Maslow (Maslow, 1943), Herzberg (Herzberg, 1966), and Alderfer (Alderfer, 1972). Whereas Maslow and Alderfer both propose a hierarchy of needs, five and three respectively, Herzberg distinguished two categories of motives, intrinsic and extrinsic, or motivators and satisfiers. These approaches are consistent with SDT’s postulate of basic psychological needs and their impact on outcomes such as performance and well-being. However, there are also some significant differences. The theories focus on the energising aspect of needs and motives only whereas SDT also includes the directional aspect of needs. Furthermore, the formulation of SDT has evolved as a motivational theory based on empirical findings whereas needs and motives theories, even though widely used and referenced, lack empirical support (Miner, 1990).

Kelman’s theory of internalisation (Kelman, 1958) proposes that an individual’s inclination to attitude change depends upon the individual’s identification with other individuals. There are two significant differences to SDT. Firstly, Kelman’s theory related the process of internalisation to interpersonal factors whereas SDT focuses on values and behavioural regulations. Secondly, the level of identification with other individuals does not allow for predictions on whether the resulting behaviour is either autonomously motivated or controlled, a distinction which represents a core constituent of SDT. Recently, Kelman’s theory (Kelman, 1958) has been integrated with social identity theory (Tafjel & Turner, 1979) and
applied to work motivation in the context of organisational group processes. Ellemers, de Gilder, and Haslam (2004) suggested that the higher an individual’s identification with a group the higher their motivation to contribute to the group’s goals and performance. From the perspective of SDT, this approach lacks the differentiation of motivation into autonomous and controlled types including their respective implication for predictions of performance and well-being. Furthermore, Kelman’s framework of internalisation (Kelman, 1958) has also been an integral part of the organisational commitment theories of O’Reilly and Chatman (1986) and Allen and Meyer (1996). Both theories distinguish between three forms of an individual’s organisational commitment. Empirical SDT research has shown that both frameworks SDT and organisational commitment theory, work on conceptually different levels. In two studies autonomous motivation was identified as an important facilitator of the types of commitment as proposed by organisational commitment theory (Gagné, Boies, Koestner, & Martens, 2004; Gagné & Koestner, 2002).

2.2.10 Person environment fit theories

The dynamic relationship between an individual and her or his organisational context has been studied from a variety of theoretical perspectives (Schneider, Goldstein, & Smith, 1995). Conceptualisations include person-environment (PE) fit theory (Caplan, 1987; Conway, Vickers, & French, 1992; French, Rodgers, & Cobb, 1974), the theory of work adjustment (Dawis & Lofquist, 1984), and organisational theories that propose the idea of PE fit as the interplay between individuals and attributes of their work environments (Kristof, 1996).
There are several core assumptions underlying all theories in the tradition of PE fit theory. Firstly, it is suggested that PE fit investigations should study an individual’s values and needs in the context of the resources provided by the organisational environment. Secondly, PE fit theories propose that an individual’s abilities should be studied in regard to organisational skill demands. Thirdly, PE fit theories follow the traditions of Murray (1938) and McClelland (1951) who propose a strength definition of needs. Fourthly, even though it has been generally assumed that individuals adapt their needs to organisational values through a process of socialisation over time (Chao, 1997; Chatman, 1989, 1991; Kristof, 1996), empirical findings conducted on the basis of PE fit theories have failed to support this proposition (Chatman, 1991; Harms, Roberts, & Winter, 2006; B. W. Roberts & Robins, 2004). Conversely, they found that individual needs and self-perceptions were surprisingly stable over time. Instead, individual perceptions of the respective environments changed substantially (Harms, et al., 2006).

SDT does not follow the traditions of Murray (1938) and McClelland (1951). Instead, the theory proposes needs as nutriments. The findings of PE fit research support SDT’s postulate of universal needs. Furthermore, OIT applies the concept of internalisation to the dynamic relationship between an individual and her or his environment (Ryan & Deci, 2000). The concept of internalisation differs from socialisation considerably. Internalisation is understood as an individual adapting external values ‘as their own’. This process is facilitated through basic needs satisfaction provided by the environment. OIT assumes the needs to remain universally constant. Conversely, socialisation proposes that individuals adapt their needs to whatever is
being offered by the respective environment. In sum, both concepts SDT and PE fit theories work on conceptually different assumptions.

2.3 Senior Executives as Research Population

Senior executives’ actions can have profound implications for their respective organisations and society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005). Nonetheless research studies investigating senior executives’ motivation, behaviour, and well-being has been surprisingly limited within the published literature. For example, inner-resource investigations, i.e. studying the “inner resources for personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68), have been considered a “neglected dimension in organisational behaviour research” (Ashkanasy, 2003, p. 23) (Amabile & Kramer, 2007; Ashkanasy & Jordan, 2008), not limited to senior executives. However, empirical studies have shown that even the small proportion of research findings based on employee research populations cannot necessarily be generalised and applied to senior executives (Hahn, et al., 2010; Moutafi, et al., 2007). Business scholars, most notably Havard University’s Abraham Zaleznik (for example 1992, 1995) and Harry Levinson (for example 1990, 1991), as well as INSEAD’s Manfred Kets de Vries (Kets De Vries, 2007a, 2007b, 2010; Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), have been highlighted by Havard Business Review as leading researchers in the field of senior executives psychology with “uncompared exposure to the mind of the business leader”(Coutu, 2004, p. 64) who “know what really goes on inside
the mind of the leader” (Coutu, 2004, p. 64). Despite these ample claims, a review of their literature appears to suggest that these business scholars’ work has been based on little empirical data, lacked a comprehensive research framework, and focused on the consequences of senior executive behaviour rather than the “inner resources for (senior executives’) personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68).

In order to specify the level of research activity in terms of inner-resource investigations into senior executives, the APAPsychnet database was searched for articles within the preceding five years (from 2007 to 2012). In a first step, the results yielded the number of articles whose abstracts included the following key words: “employee”, “senior executive”, “leadership”, “employee + motivation”, “senior executive + motivation”, “leadership + motivation”, “employee + well-being”, “senior executive + well-being”, and “leadership + well-being” (see table 2.2).
Table 2.2 Number of articles (for the last five years, 28/4/2012) per key word search on APAPsychnet

<table>
<thead>
<tr>
<th>Key Words</th>
<th>Number of articles</th>
<th>Key Words</th>
<th>Number of articles</th>
<th>Key Words</th>
<th>Number of articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee</td>
<td>5,332</td>
<td>Employee</td>
<td>310</td>
<td>Employee</td>
<td>344</td>
</tr>
<tr>
<td></td>
<td>+ Motivation</td>
<td></td>
<td>+ Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior executive</td>
<td>63</td>
<td>Senior executive</td>
<td>2</td>
<td>Senior executive</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>+ Motivation</td>
<td></td>
<td>+ Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>13,762</td>
<td>Leadership</td>
<td>525</td>
<td>Leadership</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>+ Motivation</td>
<td></td>
<td>+ Motivation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In a second step, distribution and content of the articles were analysed. According to the analysis, there were a substantial number of 13,762 articles on leadership. However, the overwhelming majority of articles did not focus on inner-resource phenomena but rather on interpersonal, group, or organisational aspects. The 5,332 research articles on employees were not considered applicable based on findings that senior executives were different from lower level managers and employees (Hahn, et al., 2010; Moutafi, et al., 2007). When the 63 articles which included the key word “senior executive” in their abstract were analysed, their respective research focus was allocated to the respective component of the research agenda for the SDT model of work motivation (see figure 2.4.).
Most academic work in the field of senior executives (56%) over the last five years was performed in the area of individual differences with topics such as race, gender, attitudes, skills, or assessment. The social environment accounted for 16 articles (25%) including research articles on compensation, decision support systems, coaching, mentoring, and representational dynamics. Academic work on senior executive related work outcomes accounted for 10%, or six articles, five in the area of performance and one in the context of psychological well-being. These six articles all focused on the impact of senior executive behaviour and not on the senior executives themselves. Finally, there were five articles (9%) that could not be allocated to the
above research agenda framework. No article could be identified investigating psychological need satisfaction and well-being in senior executives.

These findings are consistent with a review of Kets de Vries’ list of publications. For example, most of Kets de Vries’ contribution to senior executive psychology research is based on data generated by his executive coaching practice focusing on “the interface between international management, psychoanalysis, psychotherapy, and dynamic psychiatry” in the context of “leadership development, top executive team building, organisational change, and cross-cultural management” (www.ketsdevries.com). In summary, like the overwhelming majority of articles in the APAPsychNet database search, Kets de Vries’ work did not focus on inner-resource investigations but rather on interpersonal, group, or organisational aspects.

The reasons for the lack of inner-resource investigations into senior executives in published literature can only be suspected. Maybe researchers have historically not differentiated between senior executives and company employees, an assumption that has been contradicted in recent studies (Hahn, et al., 2010; Moutafi, et al., 2007). Also, access to senior executive research samples appears to be quite challenging for researchers. According to Conti and O’Neil’s (2007) definition of elites, i.e. “people who inhabit the highest strata of global power” (p. 63), senior executives qualify as part of global elites. The challenges of studying elites (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008; Odendahl & Shaw, 2002) may have contributed to a lack of inner-resource investigations in the field of senior executive psychology research. For example, “access to elites can be difficult to obtain and typically
requires extensive preparation, homework, creativity on the part of the researcher, as well as the right credentials and contacts, not to mention a little luck.” (Odendahl & Shaw, 2002, p. 306). Furthermore, time available for interviews or filling out questionnaires is a critical issue (Conti & O'Neil, 2007; Easterby-Smith, et al., 2008). In an environment where senior executive hours are frequently calculated at well over USD 1,000, most researchers will not be able to purchase these hours but will have to rely on a “donation of time” from participants (Conti & O'Neil, 2007, p. 71). As interviewing is a more time consuming, and therefore more challenging, research method in the context of senior executive research, the challenges of qualitative research in the field of senior executives will be discussed in more detail in section 3.3.1.2. This thesis overcame the challenges of senior executive research to provide insights into the above gap as identified in literature, i.e. the inner resources of senior executives.

Researchers have applied various recruitment criteria for senior executives in their respective studies. For example, senior executive investigations have examined the Chief- or C-level executives of companies such as Chief Executive Officer (CEO; P. L. McClelland, et al., 2010), Chief Financial Officer (CFO; Gore, et al., 2011), Chief Information Officer (CIO; Arnott, 2010), or Chief Marketing Officer (CMO; O'Sullivan & Butler, 2010). Alternative definitions for senior executives include companies’ Senior Vice Presidents and Vice Presidents (Wallis, et al., 2011) or a company’s four highest compensated executives (Nicely Sr, 2009). This thesis applied the core qualifications criteria of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012) for the selection of eligible senior executive participants (Crumpacker & Crumpacker, 2008; Dickerson, 2011). According to figure 2.5., any executive
that, self-reportedly, fulfilled at least three of the five core qualifications as responsibilities in their current organisational context qualified as a senior executive for this thesis.

<table>
<thead>
<tr>
<th>Leading Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishing organisational visions and implementing them in a continuously changing environment</td>
</tr>
<tr>
<td>Leading people toward meeting organisational vision, mission and goals</td>
</tr>
<tr>
<td>Making decisions that produce high-quality results by applying technical knowledge, analyzing problems and calculating risks</td>
</tr>
<tr>
<td>Managing human, financial, and information resources strategically</td>
</tr>
<tr>
<td>Networking, identifying internal and external politics, persuading others, building consensus through give and take</td>
</tr>
</tbody>
</table>

Figure 2.5. Senior Executive Service (SES) core qualifications.

### 2.4 The Present Research

This thesis investigated relatedness need satisfaction in senior executives. A series of four research studies was conducted, each with a specific research objective. The research agenda for each of the four research objectives was determined by specific research questions based on Gagné and Deci’s (2005) research agenda for the SDT model of work motivation.

The following research objectives were developed:
Research objective 1: Exploring the processes underlying relatedness need satisfaction in senior executives

SDT’s postulate of autonomous work motivation proposes that optimal functioning at work depends upon the degree to which an individual feels their needs for autonomy, competence, and relatedness are being satisfied (Ryan & Deci, 2000). When all needs are met, an individual feels autonomously motivated which is suggested as leading to optimal work outcomes. In case of a perceived lack of need satisfaction, an individual will feel controlled by external consequences of their respective behaviours which may lead to sub-optimal work outcomes.

With regard to relatedness need satisfaction, interpersonal interaction has been described within the literature as a fundamental component of establishing trust and intimacy (Baumeister & Leary, 1995; Moller, et al., 2010). Despite its significance, both the need for relatedness and the relational processes underlying interpersonal interaction in the context of relatedness need satisfaction are considered underexplored (Moller, et al., 2010). For example, Baumeister and Leary’s influential seminal work on the need to belong was derived from a large number of individual empirical findings. When Baumeister and Leary (1995, p. 500) proposed the features of the need to belong as; (a) frequent personal interactions marked by (b) stability, and mutual affective concern; none of their almost 300 reviewed research studies had been undertaken with a view to contribute to the development of a conceptualisation for relatedness. Following its formulation, their framework has received only limited direct
empirical evaluation. Besides, comparatively few studies have investigated specific aspects of relatedness need satisfaction in social interaction.

Based on the identified limitations of previous research, the first research objective of this thesis was to empirically investigate the processes underlying relatedness need satisfaction in senior executives. This new knowledge contributes to the field of inner-resource investigations into senior executives as well as the conceptualisation of relatedness need satisfaction. The findings will potentially be applicable across a range of settings in research and practice, beyond the scope of organisations and senior executives. For example, in areas of clinical, health, counselling, or sport psychology, where relatedness need satisfaction may be salient. This defined the first research question, as listed below:

*Research question 1: What are the processes underlying relatedness need satisfaction in senior executives?*

**Research objective 2: Exploring the role of computer-mediated communication for relatedness need satisfaction in physically distant relationships of senior executives**

According to SDT, the social context plays an important role for feelings of autonomy, competence and relatedness (Ryan & Deci, 2000). Most academic work in the field has been accomplished with regard to the need of autonomy, which is most significantly impacted by social context. In these studies, aspects of job content and context as well as work climate have
been identified as two key dimensions impacting on perceived feelings of autonomy in a work environment that ultimately lead to autonomous work motivation (Gagné & Deci, 2005). Given the important role of the need for autonomy as a social factor for autonomous work motivation, the impact of the social work context on the need for relatedness has received comparatively little academic attention (Sheldon & Filak, 2008). Within the current globalised business world the major factors impacting upon the social environment of today’s senior executives include extensive travel and re-locations (J. S. Black, Gregersen, et al., 1999; J. S. Black, Morrison, et al., 1999; Evans, et al., 2002), as well as the challenges of eLeadership (Annunzio & Liesse, 2001). The ‘e’ for electronic leadership is a result of the development of computer-mediated communication (“CMC”) technologies that are associated with global communication requirements. Therefore, the second research objective explored the field of the social environment of autonomous work motivation by investigating the impact of physical distance on relatedness need satisfaction in senior executives including the impact of CMC. Specifically, the investigation addressed three research questions:

**Research question 2a:** What are the components of relatedness need satisfaction in senior executives post CMC introduction?

**Research question 2b:** What is the impact of physical distance on the features of senior executives’ perceptions of relatedness?

**Research question 2c:** What is the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships?
Research objective 3: Investigating the relationship between senior executives’ causality orientations and their level of relatedness need satisfaction

Psychology’s traditional view on needs proposes that individuals vary according to differing strengths of specific needs. However, SDT offers a different perspective on needs. Building on Harlow’s (1958) and White’s (1959) work, SDT proposes the role of needs for human development as analogous to vitamins for the human body. That is nutrients that are equally important for all individuals for their optimal functioning. By adopting this perspective, SDT researchers do not focus on the implications of potential individual differences in the strengths of needs but rather on individuals’ differing abilities in satisfying their needs within social contexts. SDT has coined the term ‘general causality orientations’ for an individual’s ability to satisfy one’s need for autonomy, competence, or relatedness respectively. According to this definition, people vary according to the degree to which they are autonomy oriented, control oriented, or impersonally oriented. Substantial research supports SDT’s concepts of basic needs (Ryan & Deci, 2008b) and causality orientations (Olesen, et al., 2010; Wong, 2000), linking individuals’ causality orientations to autonomous work motivation (Lam & Gurland, 2008). However, no published research has previously investigated the relationship between causality orientations and basic need satisfaction in senior executives. Therefore, to further the current body of knowledge, the third research objective was to investigate the impact of senior executives’ individual differences on their relatedness need satisfaction. This was broken down into four specific questions:
Research question 3a: Are senior executives higher on autonomy and control orientation, and lower on impersonal orientation than other individuals?

Research question 3b: Is senior executives’ autonomy orientation positively correlated with their level of relatedness need satisfaction?

Research question 3c: Are senior executives’ control and impersonal orientations negatively correlated with their level of relatedness need satisfaction?

Research question 3d: Does senior executives’ autonomy orientation correlate stronger with their level of relatedness need satisfaction than with their levels of competence and autonomy need satisfaction?

Research objective 4: Investigating the role of senior executives’ relatedness need satisfaction for their of psychological well-being

Within survey research, when people are asked for their goals in life, the top rankings usually are happiness and well-being (Bok, 2010; Ryan & Deci, 2001). Over the last 30 years, an increasing amount of research from a scientific point of view has been undertaken to investigate these phenomena (Ryan & Deci, 2001). For example, SDT research has established higher levels of basic need satisfaction and autonomous work motivation as predictor of better work outcomes such as higher levels of performance, more organisational trust and commitment, more job satisfaction, and higher levels of psychological well-being (Baard, et al.,
The fourth research objective was intended to add to this previous research by investigating the relationship between senior executives’ relatedness need satisfaction and their level of psychological well-being. This contained the following six specific research questions:

Research question 4a: Do absolute levels of relatedness need satisfaction differ between senior executives and other individuals?

Research question 4b: Does the contribution of relatedness need satisfaction to total need satisfaction differ between senior executives and other individuals?

Research question 4c: Does the level of senior executives’ relatedness need satisfaction have a significant relationship with their psychological well-being?

Research question 4d: Is the unique contribution of senior executives’ relatedness need satisfaction levels to their psychological well-being higher than the unique contribution of autonomy and competence need satisfaction levels?

Research question 4e: Does mood play a mediating role in the relationship between senior executives’ basic psychological need satisfaction levels and their psychological well-being?
Research question 4f: Does balanced basic psychological need satisfaction [i.e. less variation in individual basic need satisfaction levels] predict senior executives’ psychological well-being independently of the total amounts of individual basic need satisfaction levels?
3 METHODOLOGY

Fourteen research questions were identified in chapter 1. They represented the starting point for this research project. This methodology chapter provides the scaffolding for this thesis’ research architecture (Crotty, 1998, pp. 7-8). It specifies the rationale behind linking the four research studies to a specific plan of action in terms of collecting, analysing, and interpreting data. This chapter will be presented in three parts. The first part provides a brief overview on the quantitative/qualitative divide (Moses & Knutsen, 2007) as an introduction. It concludes with the definition of the terms ‘methodology’ and ‘methods’ in the context of this thesis. The philosophical frameworks underlying the development of a research methodology will be outlined in the second part of this chapter. In part three, methodologies including philosophical assumptions and selected methods will be presented for the four research studies.

3.1 The Quantitative/Qualitative Divide

A review of literature suggested that there were (a) paradigmatical aspects and (b) issues of terminology that require consideration before the planning of research activities.

On (a), the paradigmagtical aspects, Crotty (1998) suggests: “Every beginning researcher learns at once that all research is divided into two parts – and these are ‘qualitative’ and ‘quantitative’, respectively.”(p. 15). This “quantitative/qualitative schism” (Moses & Knutsen,
2007, p. 293) postulates a divide of the research world based on methods (Bryman, 1984). Some authors have suggested that this debate is political rather than intellectual, theoretical, or philosophical (Hanson, 2008). Nonetheless, the labels for this ongoing divide reflect upon the fundamental positions taken by its respective advocates. For example, terms like “battlefield” (Tashakkori & Teddlie, 1998, p. 3), “warriors” (Tashakkori & Teddlie, 1998, p. 4), “extremes of a continuum” (Morgan & Smircich, 1980, p. 493), “dialectics of social research” (Babbie, 2007, p. 3), or “polar opposites” (Crotty, 1998, p. 15; Osborne, 2008, p. 125) express the extent of a heated debate (Moses & Knutsen, 2007). Moreover, the discussion extends beyond the technical issues of methods (Bryman, 1984) to a philosophical level. Terms such as “philosophical foundations” (Easterby-Smith, et al., 2008, p. 2), “philosophical positions” (Easterby-Smith, et al., 2008, p. 56), “philosophical traditions” (Easterby-Smith, et al., 2008, p. 56), “philosophical orientations” (Babbie, 2007, p. 19), “philosophical paradigms” (Babbie, 2007, p. 32; Easterby-Smith, et al., 2008; Miles & Huberman, 1994, p. 1; Tashakkori & Teddlie, 1998, p. 3), or “battles over reality” (Moses & Knutsen, 2007, p. 1) suggest a close association between the technical issue of methods and philosophical aspects (Bryman, 1984).

The divide has been criticised in literature as not being justified (Crotty, 1998), not being useful (McLaughlin, 1991), not sufficiently defined (Morales, 1995), confusing (Bryman, 1984), not practical and counterproductive (Hanson, 2008), and “possibly theoretically ungrounded” (Hanson, 2008, p. 98). Snizek (1976) and Marsh (1979) both were early advocates of considering philosophical aspects and technical issues of methods separately. More recently, some authors
even excluded any reference to ‘qualitative’ or ‘qualitative’ methods (Moses & Knutsen, 2007) from their work to avoid the issue of a paradigmatical divide.

Despite these contributions to resolve the divide, the confusion around competing philosophical aspects and methods persists (Bryman, 1984; Moses & Knutsen, 2007) and may have contributed to issues of terminology in the context of academic research (Moses & Knutsen, 2007). Researchers often use the terms ‘methodology’ and ‘methods’ interchangeably (Bryman, 1984; Moses & Knutsen, 2007; Waltz, 1979).

In this thesis the term ‘methodology’ relates to what concepts, theories, and principles are being applied (Moses & Knutsen, 2007) to answer the fourteen research questions. It is synonymous with the framework of the research process (Babbie, 2007; Creswell & Plano Clark, 2007), i.e. “the strategy, plan of action, process, or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes.” (Crotty, 1998, p. 3). As such, ‘methodology’ can be understood as a toolbox specifically designed for a research project (Moses & Knutsen, 2007). Following this analogy, ‘methods’ are considered tools in this toolbox, i.e. individual techniques for collecting and analysing data (Crotty, 1998) related to the fourteen research questions.

The following section will introduce the frameworks of Burrell and Morgan (1979) as well as Crotty (1998) as conceptualisations for planning a research process including the development of a methodology.
3.2 Philosophical Considerations

Scientists can be considered entrepreneurs dedicated to solving problems in the field of ‘finding out’ (Babbie, 2007). However, before deciding upon and applying “a given method or methodological approach to a problem, she [the scientist] needs to consider the nature of the phenomenon in question.” (Moses & Knutsen, 2007, p. 290). There are two alternative worldviews (Creswell & Plano Clark, 2007; Crotty, 1998) or views of social reality (Burrell & Morgan, 1979) on the nature of phenomena. Research based on an ‘objective’ worldview considers the social world as external, hard, and universal (Burrell & Morgan, 1979) or regular, aggregate, and general (Babbie, 2007). The most common labels for philosophical frameworks supporting the identification and explanation of such patterns and regularities include ‘naturalism’, ‘positivism’, ‘empiricism’, or ‘behaviourism’ (Moses & Knutsen, 2007). Conversely, a ‘subjective’ view of social reality emphasises individual creation, modification, and interpretation (Burrell & Morgan, 1979) which, in philosophical terms, includes aspects of ‘constructivism’, ‘interpretivism’, ‘hermeneutics’, or Habermas’s ‘Critical Theory’ (Ball, 1987; Moses & Knutsen, 2007). The following table 3.1 summarises the two opposite views of social reality:
<table>
<thead>
<tr>
<th>View of...</th>
<th>Naturalism</th>
<th>Constructivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>View of the world</td>
<td>Objectively real/permanent</td>
<td>Human construction/changeable</td>
</tr>
<tr>
<td>View of man</td>
<td>Man is similar to material objects (e.g., man has mass and extension), but with a capacity to reason. Man can be seen as meaningless (literally), as will/agency is generally downplayed. Constant and predictable.</td>
<td>Like naturalists, but more. Greater focus on will, agency, reason and empathy: men and women are creatures of their context, and help to create it. Malleable.</td>
</tr>
<tr>
<td>View of knowledge</td>
<td>Cumulative and based on sensual experience (primarily observation)</td>
<td>Knowledge is overlapping: it advances, retreats and moves sideways. Willingness to embrace a much larger epistemological field: observation, authority, reason, empathy, etc.</td>
</tr>
<tr>
<td>View of theory</td>
<td>Theory is an aid to explaining and is used to reveal patterns in world. Theories are clusters of objective laws.</td>
<td>Theory is an aid to understanding and is used to reveal contingent phenomena. Theories are products of the human imagination.</td>
</tr>
<tr>
<td>View of truth</td>
<td>Subscribes to the correspondence theory: a statement is true when it corresponds to the facts in the Real World. Fixed</td>
<td>Truth is derived from changing constellations of power and perspectives. Fleeting.</td>
</tr>
<tr>
<td>View of objectivity</td>
<td>Following Hume: normative studies should be banished from scientific study</td>
<td>Normative framing is important, unavoidable, and should be brought out into the open.</td>
</tr>
<tr>
<td>View of language</td>
<td>Instrumental and objective. Language is an unbiased conduit for transmitting experience.</td>
<td>Language is saturated with meaning and is an important part of the social scientific project. Language helps to frame the way we understand the world.</td>
</tr>
<tr>
<td>View of context</td>
<td>Context is not important in itself: the world can be manipulated in a mechanical fashion to reveal causal relationships.</td>
<td>Context is central and must be protected in order to access meaning.</td>
</tr>
</tbody>
</table>
The choice of philosophical framework impacts on the research process. This includes the development of a methodology. In objectivist or naturalist research, “the investigator works from the ‘top’ down, from a theory to hypotheses to data to add to or contradict the theory.” (Creswell & Plano Clark, 2007, p. 23). In subjectivist or constructivist approaches, “the inquirer works more from the ‘bottom’ up, using the participants’ views to build broader themes and generate a theory interconnecting the themes.” (Creswell & Plano Clark, 2007, p. 23). Burrell and Morgan (1979) as well as Crotty (1998) provide helpful conceptualisations on how worldview assumptions can translate into the research process.

In Burrell and Morgan’s chapter “Assumptions about the Nature of Social Science”, (1979, p. 1) they introduce four groups of assumptions to present the two polarised perspectives (see figure 3.1.).
First of all, the authors present assumptions about the reality under investigation. From an objective point of view, reality is being imposed on the individual from the external environment (realism). Conversely, the subjective approach to reality is one of individual cognition, i.e. the product of an individual's mind (nominalism). The second group of assumptions relates to the epistemological perspective on nature. Objectivists argue that the nature of knowledge is tangible, real, general, and hard (positivism) whereas the subjective position postulates knowledge to be rather intangible and being based on unique, individual experience (anti-positivism). Associated with ontology and epistemology, but conceptually different from them, is the third group of assumptions regarding human nature, which can be
either deterministic or mechanistic. Advocates of the objective tradition see humans as conditioned by their environments (determinism). The contrasting, subjective perspective proposes a more creative, free-willed human (voluntarism), “the master rather than the marionette.” (Burrell & Morgan, 1979, p. 2). Finally, assumptions on the first three concepts have implications for the choice of methodology, the fourth level in Burrell and Morgan’s model. If one considers the social world to be objective, then the chosen research methodology needs to be appropriate for identifying and explaining universal laws. Conversely, methodology within a subjective set of assumptions needs to reflect on the importance of capturing individual experiences.

Burrell and Morgan’s model (1979) represents a great conceptualisation of subjectivist and objectivist approaches to nature. However, Crotty’s conceptual approach (1998) to the framework of the social research process does not stop at the level of methodology. Instead, it provides further practical guidance by extending the discussion to the level of methods (see figure 3.2.).
Crotty’s discussion on the choice of methodology and methods is a helpful contribution to structuring a social research process (Creswell & Plano Clark, 2007) in so far as it bridges gaps opened up by the “quantitative/qualitative schism” (Moses & Knutsen, 2007, p. 293). The framework does no longer allow for quantitative methods to be tied to objectivist research and qualitative approaches being tied to subjectivist approaches. Instead Crotty (1998) suggests:

Not too many of us embark on a piece of social research with epistemology as our starting point.’ I am a constructionist. Therefore, I will investigate...’ Hardly. We typically start with a real-life issue that needs to be addressed, a problem that needs to be solved, a question that needs to be answered. We plan our research in terms of that issue or problem or question. What, we go on to ask, are the further issues, problems or questions implicit in the one we start with? What, then is the aim and what are the
objectives of our research? What strategy seems likely to provide what we are looking for? What does that strategy direct us to do to achieve our aims and objectives? In this way our research question, incorporating the purposes of our research, leads us to methodology and methods. (p. 13)

The research methodology for this thesis was developed in accordance with Crotty’s postulate (Crotty, 1998). He promotes research as a dynamic process that should neither be governed by irreconcilable, philosophical paradigms (Crotty, 1998; Howe, 1972; Lincoln & Guba, 2000) nor “off-the shelf” methodologies (Crotty, 1998, p. 14). Instead, Crotty’s approach to methodology may be best summarised by George Homan’s (1949) remark: “People who write about methodology often forget that it is a matter of strategy, not of morals” (p. 330). Therefore, at the start of good science is not an epistemology (Crotty, 1998; Miles & Huberman, 1994) or a pre-occupation with methods (Crotty, 1998; Howe, 1972). Instead the development of methodology should be driven by research questions (Crotty, 1998; Moses & Knutsen, 2007), “in ways that help us understand the world around us”(Crotty, 1998, p. 3).

This thesis will adopt varying philosophical perspectives and methods in congruence with each of the fourteen research questions. As Crotty (1998) pointed out, a researcher cannot investigate a phenomenon from an objective and subjective perspective at the same time. However, a single research problem may well be approached from alternative philosophical perspectives in subsequent steps (Crotty, 1998). This view is supported by Miles and Huberman (1994) who suggest that “each perspective adds a meaningful layer” (p. 5). Similarly, Creswell
and Plano Clark (2007) propose that “researchers can employ multiple worldviews and honour each” (p. 35). It can be concluded that the legitimate distinction of philosophical paradigms (Burrell & Morgan, 1979; Crotty, 1998) breaks down at the level of specific methods (Crotty, 1998; Easterby-Smith, et al., 2008). Crotty (1998) postulates that methods are neither genuinely objectivist nor subjectivist. For example, qualitative data can be analysed quantitatively, just as quantitative data can be analysed qualitatively (Hanson, 2008; Pratt, 2009). Miles and Huberman (1994) see an increasing number of research studies “combining qualitative and quantitative inquiry” (p. 2) in what researchers have described as ‘multi-method’ (Miles & Huberman, 1994; Smith & Louis, 1982), ‘multiple methods’ (Silverman, 2010), ‘multimethodology’ (Mingers & Brocklesby, 1997) or ‘mixed methods’ (Brannen, 2005; Creswell & Plano Clark, 2007) approach. Creswell and Plano Clark (2007) provide a useful definition by distinguishing mixed techniques research at the levels of methodology and methods respectively:

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative phases in the research process. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. (p. 5)
Following Creswell and Plano Clark’s (2007) definition this thesis applied a mixed methods methodology as philosophical assumptions and techniques for data collection and analysis varied throughout a series of four research studies on relatedness need satisfaction in senior executives. Each of the four research studies was based on a single philosophical perspective and applied a single technique of data collection and analysis. The respective methodological approaches to studies one through four will be outlined in the following part.

3.3 Methodological Approaches

3.3.1 Methodological approach to studies one and two

The research problems in studies one and two were considered of an exploratory nature. The questions were designed to identify conceptualisations for the role and underlying processes of perceived relatedness in senior executives. Babbie (2007) suggests a ‘bottom-up’, subjective, inductive approach to the investigation of such phenomena: “Quite often social scientists begin constructing a theory through the inductive method by first observing aspects of social life and then seeking to discover patterns that may point to relatively universal principles” (p. 54). This view is supported by Creswell and Plano Clark (2007) who elaborate: “In constructivist approaches, the inquirer works more from the ‘bottom up’, using the participants’ views to build broader themes and generate a theory interconnecting the themes” (p. 23). Therefore, a subjective, constructivist philosophical perspective was applied to the data collection and analysis processes in studies one and two.
Even though, qualitative methods are not tied to a constructivist approach to research, they provide excellent techniques for generating and revising conceptual frameworks (Bryman, 1984; Creswell & Plano Clark, 2007; Hanson, 2008; Miles & Huberman, 1994; Strauss & Corbin, 1998). Figure 3.3 gives an overview on qualitative research techniques.

![Figure 3.3](image-url)

Figure 3.3. Graphic overview of qualitative research types, adapted from Miles and Huberman (1994, p. 7).

It was decided to apply the concept of grounded theory to answer the research questions in studies one and two for the following two main reasons. Firstly, grounded theory has been described as a particularly useful technique for theory development (Martin & Turner, 1986; Miles & Huberman, 1994; Strauss & Corbin, 1998). Secondly, qualitative methods have
traditionally been criticised for a lack of clear standards, guidelines, or conventions (Lincoln & Guba, 1990; Miles & Huberman, 1994; Wolcott, 1992). In contrast, grounded theory techniques have been outlined more concretely than other qualitative methods (Strauss & Corbin, 1990). Easterby-Smith, Thorpe, and Jackson (2008) argue that “grounded theory contains precisely articulated methods and presuppositions” (p. 101).

3.3.1.1 Overview on grounded theory

Grounded analysis forms the basis of an approach that led to the development of grounded theory (Easterby-Smith, et al., 2008). In grounded data analysis, the structure of the analysis is not imposed on participants’ data externally but is derived from the data themselves. This means that patterns, themes and common categories evolve throughout the process of data analysis. When Glaser and Strauss (1967) originally introduced grounded theory, it was the first structured approach to grounded analysis (Easterby-Smith, et al., 2008). At its core, grounded theory applies the “constant comparative method” (Babbie, 2007, p. 380) of grounded analysis where individual “observations are compared with one another and with the evolving inductive theory (Babbie, 2007, p. 380). Constant comparison means, “initially of data with data, progressing to comparisons between their interpretations translated into codes and categories and more data. This constant comparison of analysis to the field grounds the researcher’s final theorising in the participants’ experiences” (Mills, Bonner, & Francis, 2006, p. 27)
Since the introduction of grounded theory there have been several stages of its development during which its founders have moved in diverging conceptual directions (Easterby-Smith, et al., 2008; Miles & Huberman, 1994). Glaser’s view postulates a flexible, open approach to data analysis allowing for theory to emerge from the data without prior orienting ideas (1978, 1992, 1998). Conversely, Strauss advocates a more directed, prescribed approach to data analysis which allows for some initial orientation (Strauss & Corbin, 1990, 1998) where the coding of data and sampling of participants operates at three prescribed levels (see table 3.2):
Table 3.2 Data coding and sampling process (Strauss & Corbin, 1998) and (Easterby-Smith, et al., 2008, p. 180)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification of emerging concepts. Relatively indiscriminate sampling of people, places and situations that will provide the best opportunities for collecting relevant data.</td>
</tr>
<tr>
<td>2</td>
<td>Grouping of concepts into categories and identification of relationships between concepts and categories. Variational and relational sampling, focused sampling of people, places and situations that will provide opportunities to gather data about the properties and dimensions of the categories as well as how the categories are related to each other. Data gathering in terms of coding paradigm is also clearly implicated here.</td>
</tr>
<tr>
<td>3</td>
<td>This is the process of integrating and refining theory. Discriminate sampling, very focused and deliberate sampling of people, places and situations that will fill in and refine the story line of the core categories and the proposed relationships between categories. Often also referred to as theoretical sampling as it is intended to lead to theoretical saturation, i.e. no new properties, dimensions, or relationships emerge during analysis.</td>
</tr>
</tbody>
</table>

This thesis followed Strauss and Corbin’s (1998) approach to grounded theory for two reasons. Firstly, there is Wolcott’s (1982) notion that it is “impossible to embark upon research without some idea of what one is looking for and foolish not to make that quest explicit” (p. 157). Miles and Huberman (1994), Silverman (2010), and Strauss (Strauss & Corbin, 1998) support this view suggesting at least some initial orienting ideas as well as familiarising oneself with prior research. The researcher approached research studies one and two with prior
knowledge, presuppositions, and orienting ideas drawn from his business experiences as well as a review of literature. Therefore, Strauss and Corbin’s (1998) conceptualisation of grounded theory appeared as the appropriate choice for investigating the research problems in studies one and two. Secondly, the participants for this research project were senior executives for whom time is a scarce resource. In many instances, a researcher has ‘one shot’ only with no second chance or opportunity for post-interview clarifications. Therefore, as suggested by Hertz and Imber (1995), a semi-structured, single-interview approach was applied which, again, appeared opposite to Glaser’s (1998) and conformable to Strauss and Corbin’s (1998) interpretation of grounded theory.

Time constraints are only one of several challenges associated with senior executives as research participants. A comprehensive overview on the challenges of qualitative senior executive research will be presented as part of the following section.

3.3.1.2 Challenges of qualitative research in the field of senior executives

According to Conti and O’Neil’s (2007) definition of elites, i.e. “people who inhabit the highest strata of global power” (p. 63), senior executives qualify as part of global elites. The challenges of studying elites have been well documented in academic literature. First of all, “access to elites can be difficult to obtain and typically requires extensive preparation, homework, creativity on the part of the researcher, as well as the right credentials and contacts, not to mention a little luck.” (Odendahl & Shaw, 2002, p. 306). Secondly, mobility is one of the key features of elites and, therefore, co-ordinating an interview can become a complex task in
addition to funding travel to a senior executive’s location (Conti & O’Neil, 2007). Thirdly, time available for interviews is a critical issue (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008). In an environment where senior executive hours are frequently calculated at well over USD 1,000, most researchers will not be able to purchase these hours but will have to rely on a “donation of time” from participants (Conti & O’Neil, 2007, p. 71). Furthermore, the requirements of daily events including short term decision making may lead to interviews being interrupted, kept far shorter than a researcher would have desired, or even suspended (Conti & O’Neil, 2007).

Fourthly, specific knowledge and terminology are required to successfully conduct interviews in an elite setting (Conti & O’Neil, 2007). Finally, “managers tend to be powerful and busy people.” (Easterby-Smith, et al., 2008, p. 7). Therefore, power and authority can play a significant role in the processes of organising and interviewing (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008; Lindlof & Taylor, 2002; Rubin & Rubin, 2005). In fact, “the strategic contest over authority during the research process and the feelings of despondency that resulted from being ‘talked down’ by informants” (Conti & O’Neil, 2007, p. 63) can represent a serious challenge to any research project in the field of elites (Conti & O’Neil, 2007).

In summary, all the above challenges can represent substantial methodological difficulties, i.e. can “have dramatic effects both on the manner in which research is practiced and the character of knowledge claims that it produces”. (Conti & O’Neil, 2007, p. 63). The following sections will present the methodological approach to studies one and two by taking the challenges of elite research into consideration.
3.3.1.3 Grounded theory and senior executive research

The techniques of grounded theory have been developed predominantly in educational and health research; the collection of data is comparatively flexible and easy in these fields. This is in strong contrast to the environment of senior executives as outlined above. Therefore, Locke (2001) suggests that the conceptualisation of grounded theory needs to be adapted to this environment. Jones (1985) postulates that interviews in management research require more structure to deal with the specific challenges of the field. For more unstructured approaches, such as grounded theory, an interview checklist or topic guide is proposed leading to a semi-structured, guided open interview process (Easterby-Smith, et al., 2008; Jones, 1985).

The following part will present the methodology in terms of data collection for studies one and two considering the challenges of elite research, the conceptualisation of grounded theory and its suggested amendments in the context of senior executive research.

3.3.1.4 Data collection

The researcher’s career as a senior executive helped overcome most of the above outlined challenges of elite research (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008; Lindlof & Taylor, 2002; Rubin & Rubin, 2005). His network of business contacts facilitated access to potential study participants and arrangements for scheduling interviews. Furthermore, the researcher’s business experience provided him with specific knowledge about and terminology of the field under investigation. In addition, the interviewer’s credentials allowed for an environment that could be characterised as ‘communication of equals’. As a result, situations
of power play or contest over authority in the processes of organising and interviewing could be avoided. Nonetheless, there were two main obstacles for data collection: (a) initial recruitment and (b) the business dynamics during interviews. First of all, initial recruitment of senior executives was challenging despite the researcher’s network of business contacts due to participants’ time constraints and concerns over confidentiality. Secondly, several interviews were interrupted, others were kept far shorter than expected, and some were cancelled due to short-term events occurring in the ordinary course of a senior executive’s daily business.

*The interview process*

Participant data were collected in a single interview per participant due to senior executives’ time constraints. Following Jones’ (1985), Easterby-Smith’s et al.’s (2008) as well as Hertz and Imber’s (1995) suggestion, the grounded theory approach was amended by a more structured interview process. Data collection was subdivided into three phases in accordance with Strauss and Corbin’s (1998) coding and sampling techniques of grounded theory (see table 3.3).
Table 3.3 Three phases of data collection in studies one and two

<table>
<thead>
<tr>
<th>Phase</th>
<th>Type and Content of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Face-to-face semi-structured interviews identifying emerging concepts</td>
</tr>
<tr>
<td>2</td>
<td>Face-to-face semi-structured interviews focusing on the relationships between identified concepts and categories</td>
</tr>
<tr>
<td>3</td>
<td>Face-to-face structured interviews to investigate specific issues for integrating and refining theory</td>
</tr>
</tbody>
</table>

Semi-structured interviews have been described as guided open interviews (Easterby-Smith, et al., 2008). A checklist was developed as guidance for the open interviews in phases one and two (Easterby-Smith, et al., 2008; Jones, 1985). In accordance with Rubin and Rubin (2005), three types of questions were applied to guide an interview: main questions, follow-up questions, and probes. This initial interview guide (see Appendix C) was “not a set of questions that must be asked with particular words and in a particular order” (Babbie, 2007, p. 306). Instead, as an open interview proceeded, the interviewer ticked the respective topic area as covered by the participant allowing for the exploration of specific areas without precluding interviewees from providing further information. By applying this procedure, interviews delivered responses to a standardised set of open questions plus additional unstructured information. Following the “continuous nature of qualitative interviewing” (Babbie, 2007, p. 305) in general and, specifically, the constant comparison technique of grounded theory
(Babbie, 2007; Strauss & Corbin, 1998), the interview guide was amended throughout phases one and two on the basis of the ongoing analysis of interview transcripts.

Phase three interviews had a structured format investigating specific issues for integrating and refining theory and model. There was no formal topic guide for phase 3 as the number of open questions was limited.

The researcher plays a central role in qualitative interviewing (Babbie, 2007; Minichiello, Aroni, & Hays, 2008; Silverman, 2010). In order to ensure the quality of this thesis’ interviews, the interviewer followed a set of best practices for judging constructivist qualitative interviewing as summarised by Kvale (1996, p. 145) and later amended by Roulston (2010, p. 202):

- The extent of spontaneous, rich, specific, and relevant answers from the interviewee.
- The shorter the interviewer’s questions and the longer the subject’s answers, the better.
- The degree to which the interviewer follows up and clarifies the meanings of the relevant aspects of the answers.
- The ideal interview is to a large extent interpreted throughout the interview.
- The interviewer attempts to verify their interpretations of the subjects’ answers in the course of the interview.
- The interview is ‘self-communicating’ – it is a story contained in itself that hardly requires much extra descriptions and explanations.
All interviews were voice recorded and subsequently transcribed. In addition to the interview transcripts, the researcher took notes as a form of complementary data collection (Silverman, 1993).

Recruitment and sampling

Before the start of the recruitment process, three questions need to be answered: Who qualifies as a participant? How can participants be identified and selected? How many participants are required?

First of all, the “units of analysis” (Babbie, 2007, p. 94) for this thesis were senior executives. The criteria for what constitutes a senior executive in the context of this thesis have been outlined in section 2.3 of this document. These five core qualifications of the senior executive service of the US Government were used for judgement. Executives who, self-reportedly, fulfilled at least three of the five criteria qualified as senior executives that were targeted as part of the recruitment process.

Secondly, academic literature distinguishes between two types of methods in terms of identifying study participants, probability sampling and nonprobability sampling (Babbie, 2007). Probability sampling can be considered the primary sampling method for “selecting large, representative samples for social research, including national political polls” (Babbie, 2007, p. 183), i.e. all large-scale surveys. This method is based on probability theory involving some form of random-selection mechanism (Babbie, 2007). Conversely, there are four types of nonprobability sampling which applies to situations that do not allow for large-scale surveys
(Babbie, 2007): reliance on available subjects, purposive sampling, quota sampling, and snowball sampling (Babbie, 2007, pp. 183-187). The four types are summarised in Table 3.4.

**Table 3.4 The four types of nonprobability sampling (Babbie, 2007)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliance on available subjects:</td>
<td>Extremely risky, no control over representativeness, great caution in terms of generalising results.</td>
</tr>
<tr>
<td>Purposive sampling:</td>
<td>Participants are selected on the basis of being judged useful or representative.</td>
</tr>
<tr>
<td>Quota sampling:</td>
<td>Participants are selected on the basis of pre-specified characteristics, so that the total sample will have the same distribution of characteristics assumed to exist in the population being studied.</td>
</tr>
<tr>
<td>Snowball sampling:</td>
<td>Each participant interviewed may be asked to suggest additional individuals for interviewing.</td>
</tr>
</tbody>
</table>

This thesis applied nonprobability sampling for the identification of senior executive participants in studies one and two. A combination of snowball sampling and purposive sampling was used for the recruitment process. For example, snowball sampling based on the researcher’s network of senior executive contacts was employed in phase one (see section 3.3.1.4) of the interview process. This first phase of interviewing was consistent with the guidelines of ‘Level 1 Open Coding & Sampling’ (see table 3.2) in Strauss and Corbin’s (1998) grounded theory. Participants interviewed in phase two were still identified by snowball sampling. However, their selection was performed on the basis of Strauss and Corbin’s (1998) ‘Level 2 Axial Coding & Sampling’, i.e. their usefulness in terms of gathering data about the properties and dimensions of coded categories as well as how the categories were related to
each other. In phase three of the interview process, senior executives suggested by previous interview candidates were only selected if the researcher felt that they could contribute data to a specific open issue to help refine and integrate a theory developed in phases one and two, i.e. theoretical saturation. This selection was in accordance with the principles of Strauss and Corbin’s (1998) ’Level 3 Selective Coding & Sampling’. Table 3.5 summarises the recruitment and sampling process for studies one and two.

Table 3.5 Recruitment and sampling process for studies one and two

<table>
<thead>
<tr>
<th>Interview process</th>
<th>Grounded theory technique (Strauss and Corbin (1998))</th>
<th>Recruitment type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1 – semi-structured</td>
<td>Level 1 – Open c &amp; s</td>
<td>Snowball sampling</td>
</tr>
<tr>
<td>Phase 2 – semi-structured</td>
<td>Level 2 – Axial c &amp; s</td>
<td>Snowball sampling</td>
</tr>
<tr>
<td>Phase 3 – structured</td>
<td>Level 3 – Selective c &amp; s</td>
<td>Snowball sampling</td>
</tr>
</tbody>
</table>

Note. c & s = coding & sampling

Thirdly, the sample size for interviews in a constructivist research framework is usually much smaller than in naturalist research settings (Ritchie, Lewis, & Elam, 2003). As a constructivist study is progressing, more data does not necessarily lead to additional information, a phenomenon that is often referred to as ‘diminishing returns’ (Ritchie, et al., 2003). This is based on the conceptualisation of constructivist techniques where the single occurrence of a code, or piece of data, is all that is required for it to be included in an analytical
framework. As opposed to statistical methods, constructivist interview techniques value a
single occurrence of data as much as many in the process of developing a concept, model, or
theory. This is based on the constructivist research’s postulate of exploring meaning rather than
accepting or rejecting generalised hypotheses (Crouch & McKenzie, 2006).

A number of factors have been suggested by academic literature as determinants of
sample sizes in constructivist settings. For example, Ritchie et al. (2003, p. 84) propose seven
potential factors affecting sample size:

The heterogeneity of the population; the number of selection criteria; the extent to
which ‘nesting’ of criteria is needed; groups of special interest that require intensive
study; multiple samples within one study; types of data collection methods used; and
the budget and resources available.

Constructivist researchers usually use saturation as the predominant factor determining
sample size (Morse, 2000). This is in accordance with the principles of grounded theory applied
in this thesis where saturation is understood to be the point in an interview process where
additional data do not contribute any further insight into the phenomenon under investigation
(Strauss & Corbin, 1998). As saturation depends upon a continuous interview process, the
required size of a sample in constructivist settings is difficult to determine prior to data
collection. Morse (2000) argues that one of the main factors impacting saturation was the
quality of collected data which is difficult to be foreseen when designing a methodology for an
investigation.
There is very little guidance in academic literature on constructivist sample sizes in terms of actual numbers (Guest, Bunce, & Johnson, 2006). For example, Ritchie et al. (2003) suggest that sample sizes often “lie under 50” (p. 84). Others have identified a range between 20 and 30 interviews as appropriate (Griffin & Hauser, 1993). This is supported by Green and Thorogood (2009) who concluded that “little that is ‘new’ comes out of transcripts after you have interviewed 20 or so people” (p. 120). In the context of grounded theory methodology, Charmaz (Charmaz, 2006) argued that “25 (participants are) adequate for smaller projects” (p. 114). This corresponds to Creswell (1998, p. 64) who suggested 20-30 interviews. Morse (1994, p. 225) proposed 30-50 interviews as guidance.

In conclusion, a sample size for interviews was not determined prior to data collection in studies one and two. Instead, theoretical saturation was applied as a guiding principle for determining when to stop the interview process.

This section outlined the methodology for data collection in studies one and two. The following part will provide an overview on how collected data were analysed.

3.3.1.5 Data analysis

The NVivo Software package was used to analyse collected data. Coding individual pieces of data in NVivo allows for concepts and categories to be captured as “nodes” (Bazeley, 2007, p. 69). Furthermore, aspects related to conceptual and categorical nodes can be coded in “tree-nodes” (Bazeley, 2007, p. 69) which represent sub-nodes of higher level nodes. While constructivist researchers often use an initial set of nodes at the start of the coding process
(Easterby-Smith, et al., 2008), this thesis did not apply such a priori codes. Despite the initial semi-structured interview approach, it was felt that a pre-selection of nodes, for example, in accordance with the interview guide, may have caused pre-conceptions for the researcher. Furthermore, pre-structuring the coding process contradicts the principles of grounded theory in general as well as the start of the prescribed coding algorithm, i.e. open coding, in particular (Strauss & Corbin, 1998).

Following the techniques of grounded theory, data collection and data analysis are not subsequent processes (Strauss & Corbin, 1998). Both processes are interrelated due to the principle of constant comparison (Babbie, 2007; Charmaz, 2006; Strauss & Corbin, 1998) and, therefore, run (in) parallel. That means that after the transcription of the first interview, this interview was reviewed line by line, usually within a paragraph, and coded in NVivo. Subsequently, this procedure was repeated for each of the following interviews. As a result, the number of conceptual and categorical nodes grew, labels were reviewed, and concepts or categories were summarised in tree nodes.

A key advantage of coding software like NVivo is that it helps managing the complexity, also referred to as “creative messiness”(Easterby-Smith, et al., 2008, p. 187), of the coding process (Bazeley, 2007; Miles & Huberman, 1994). For example, updating the codes by means of renaming, deleting or merging nodes can be done automatically within short periods of time (Bazeley, 2007). This is particularly useful at coding levels 2 and 3 of the grounded theory framework. Coding, updating, and displaying the relationships between individual concepts and
categories can become an extremely messy exercise in a paper-and-pencil environment. NVivo enabled the researcher to ‘stay on top’ of the data and understand how themes and concepts were linked together, for example, by using an NVivo tool called “relationship nodes” (Bazeley, 2007, p. 116). This allowed the researcher to build a theory and develop a conceptual model as a result of data analyses in research studies one and two (see Appendix D for NVivo coding for studies one and two).

**Quality assurance in qualitative data analysis**

Two issues are being addressed in the context of assuring the quality of the researcher’s analysis: (a) quality of data, and (b) bias.

First of all, “there cannot be a perfect transcript of a tape-recording. Everything depends upon what you are trying to do in the analysis, as well as upon practical considerations involving time and resources” (Silverman, 1993, p. 124). The researcher made every effort to transcribe the tape-recordings as accurate as possible including the addition of the respective field notes.

Secondly, bias can play a significant role in constructivist research (Babbie, 2007; Miles & Huberman, 1994; Silverman, 1993, 2010). Analysing data in a framework that postulates an individual’s subjective construction of reality prompts the question, whose reality is being analysed by the researcher. Furthermore, a researcher can become so immersed in the research problem that she or he is ill-prepared to take a step back and see the bigger picture in form of “more general and fundamental disciplinary frameworks” (Silverman, 2010, p. 357).
the other hand, Silverman (2010) argues that “constant self-criticism (about quality issues) can lead to ‘methodological paralysis’. So don’t take self-criticism too far.” (p. 308). A pre-requisite for dealing with bias in this research project was to be aware of a potential misrepresentation of transcribed data by the researcher during the process of analysis (Babbie, 2007). This approach is supported by Morrow (2005) who suggests that constructivist researchers should be self-reflective by “making their implicit assumptions and biases overt to themselves and others” (p. 254). In this thesis, the researchers used interviewing techniques, for example, as proposed by Rubin and Rubin (2005), to separate participants’ realities from his own. Moreover, each interview transcript was discussed in team meetings with research supervisors in terms of the degree to which the researcher had clarified the respective participant’s reality, the degree to which he had possibly imposed his reality onto the participant, and the conclusions, in the format of coding, he had derived from analysing the interview transcript.

**3.3.1.6 Implications for this thesis’ further research strategy**

At this point, there were several alternative routes or strategies that could have been pursued by the researcher as a next methodological step: (a) inductive/deductive methodology, (b) all-inductive methodology, or (c) methodology including inductive and deductive elements.

First of all, the general claims, laws, or theories identified in studies one and two could have been tested by applying an inductive-deductive methodology. For example, Moses and Knutsen (2007) use an inductive-deductive model to establish a logic linking constructivist and naturalist methodology as building blocks of a potential research strategy (see figure 3.4.).
This model could have been used in an inductive/deductive methodological approach to design this thesis’ research process as “storyline” by moving from theory development in studies one and two to testing hypotheses related to these theories in subsequent studies. Creswell (1998) proposes as a potential research design that “a researcher explores how individuals describe a topic by starting with interviews and then uses an analysis of the information to develop a survey instrument that is administered later to sample from a population” (p. 11). There are two options available to researchers for developing a survey instrument: (a) construction from scratch and (b) adaptation from an existing questionnaire. In both cases, the survey instrument needs to be tested under real-life conditions, i.e. with participants from the population under investigation, to provide a sound foundation for the research process (Campanelli, 2008). Campanelli (2008) suggests three stages of testing for a questionnaire: the developmental stage, question testing, and dress rehearsal (p. 177).
At the developmental stage, survey questions are formulated, for example, based on interview data or by consulting experts. In a second step, questions are tested to ascertain that each individual question as well as the order of questions ensured an accurate measurement of the variables under investigation. Finally, “the third stage is the Dress Rehearsal where the goal is to test the questionnaire as a whole under real survey conditions (or as close as possible) with a much larger sample size than the Question Testing stage” (p. 177).

This first methodological option was discarded by the researcher based on the challenges related to senior executive research as outlined in section 2.3. In fact, recruiting a significant number of additional senior executives for survey testing was considered a risky strategy within the scope of this thesis given the constraints for time and resources. Therefore, this thesis will suggest the development of survey instruments as part of its proposals for further research in the field.

The second potential strategy, an all-inductive methodological approach, could have been applied by exploring further aspects in the context of senior executives. However, this option was also ruled out as the researcher intended to learn about both approaches, constructivist and naturalist, as part of his PhD education. Therefore, a naturalist methodological approach was applied to studies three and four. Each study tested a hypothesis based on existing general claims, laws, theories and related questionnaires, developed by prior academic research, instead of using the theories identified in studies one and two. Nonetheless, two other aspects are linking the first two exploratory studies to studies three and four. First of
all, the concept of relatedness in senior executives represents a common thread for all four research studies. Secondly, the four investigations are integrated through Gagné and Deci’s (2005) SDT research model as presented in chapter 1.

The following part will now outline the methodology for studies three and four.

3.3.2 Methodological approach to studies three and four

A number of general claims, laws, and theories have been established by academic literature with regard to relatedness need satisfaction through SDT’s model of work motivation (Gagné & Deci, 2005). Studies three and four were designed to test these propositions as hypotheses with senior executives as research population. Babbie (2007) proposes a five steps, ‘top-down’, naturalist, objective, deductive approach to the investigation of such phenomena (p. 52). A hypothesis can be understood as “a specified testable expectation about empirical reality that follows from a more general proposition; more generally, an expectation about the nature of things derived from a theory. It is a statement of something that ought to be observed in the real world if the theory is correct.” (Babbie, 2007, p. 44). Table 3.6 applies the five step model to the development of hypotheses to be tested in studies three and four respectively.
Table 3.6 The five step model of theory construction for hypothesis testing (Babbie, 2007, p. 52)

<table>
<thead>
<tr>
<th>Steps</th>
<th>Application to studies three and four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Specify the topic</td>
</tr>
<tr>
<td>Relatedness need satisfaction</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td>Specify the range of phenomena your theory addresses</td>
</tr>
<tr>
<td>Senior executives as research population</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>Identify and specify your major concepts and variables</td>
</tr>
<tr>
<td>Causality orientations (study three)</td>
<td></td>
</tr>
<tr>
<td>Psychological well-being (study four)</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>Find out what is known about the relationships</td>
</tr>
<tr>
<td>For example:</td>
<td></td>
</tr>
<tr>
<td>Autonomy orientation is positively correlated with level of relatedness need satisfaction (study three)</td>
<td></td>
</tr>
<tr>
<td>Relatedness need satisfaction is positively correlated with psychological well-being (study four)</td>
<td></td>
</tr>
<tr>
<td>Step 5</td>
<td>Reason logically from those propositions to specific topic</td>
</tr>
<tr>
<td>Study three hypothesis (for example):</td>
<td></td>
</tr>
<tr>
<td>Senior executives' autonomy orientation is positively correlated with their level of relatedness need satisfaction</td>
<td></td>
</tr>
<tr>
<td>Study four hypothesis (for example):</td>
<td></td>
</tr>
<tr>
<td>Senior executives' relatedness need satisfaction is positively correlated their level of psychological well-being</td>
<td></td>
</tr>
</tbody>
</table>

The following section will provide an overview in terms of the technical options available to researchers for testing hypotheses.
3.3.2.1 Naturalist research techniques

Once a hypothesis has been formulated, there is a variety of techniques available to a naturalist researcher for investigation (see figure 3.5.).

Experiments are the naturalist’s preferred technique of acquiring knowledge (Moses & Knutsen, 2007). The scientist identifies regularities about the world by manipulating the actual environment and comparing the results to the observations prior to manipulation (Babbie, 2007; Moses & Knutsen, 2007). The key advantage of experiments is that identified relationships are “real and direct” (Moses & Knutsen, 2007, p. 53), and not accidental (Moses & Knutsen, 2007). The experimental technique is so central to naturalist research design that Ernest Nagel (1961) argues that “every branch of inquiry aiming at reliable general laws concerning empirical subject matter must employ a procedure that, if it is not strictly controlled experimentation,
has the essential logical functions of experiment in inquiry” (p. 425). However, there are areas in social life where experimental techniques cannot be applied for ethical or practical reasons (Babbie, 2007; Moses & Knutsen, 2007). For example, it could be challenging to recruit senior executives for experiments. Control over how much of their ‘inner game’ they were exposing would rest with the researcher, an extremely sensitive issue in the case of senior executives. Two likely behavioural outcomes of such a research design could be either a lack of participants or participants retaining control by not getting involved in the experimental design. This means, there would either be a lack of data or a lack of meaning of collected data. Therefore, it is suggested that naturalist investigations require an alternative mode of data collection for senior executives.

Inferential statistical techniques represent an alternative to experimental designs when experiments are not practical, affordable, or ethical (Moses & Knutsen, 2007). Babbie (2007) defines inferential statistics as “the body of statistical computations relevant to making inferences from findings based on sample observations to some larger population” (p. 460). As part of this approach, data do not need to be manipulated physically (Moses & Knutsen, 2007). Instead, inferential statistics allow for a conceptual approach to manipulation (Moses & Knutsen, 2007). The phenomenon under investigation is not studied in an actual physical situation but as an event that has already occurred (Moses & Knutsen, 2007). That means that existing data are manipulated ex-post through a statistical approach.
This technique comes with a downside. Statistical approaches can only capture the phenomena associated with previously defined variables (Moses & Knutsen, 2007). Despite this downside, the inferential statistical technique of survey research was considered as an appropriate approach for data collection and analysis as studies three and four were designed to investigate previously identified relationships between known variables - relatedness need satisfaction, autonomy orientation, and psychological well-being - in a new population, i.e. senior executives.

3.3.2.2 Data collection

Survey research is frequently used for data collection in social sciences. Typically, a sample of study participants is selected for responding to a standardised questionnaire, which can be defined as “a document containing questions and other types of items to solicit information appropriate for analysis” (Babbie, p. 246).

There are several weaknesses associated with survey research as discussed by Babbie (2007). The flexibility is limited as a result of the rigidity of study design which could not be changed during the research process even if new aspects or variables were discovered. Moreover, questionnaires have to fulfill a ‘one size fits all’ requirement which adds to the downsides in terms of flexibility. “By designing questions that will be at least minimally appropriate to all respondents, you may miss what is most appropriate to many respondents.” (Babbie, 2007, p. 276). Finally, questionnaires cannot measure social life. Instead, they collect
self-reported assessments of recalled past behaviour or of hypothetical behaviour in a given setting.

Conversely, the advantages of survey research (Babbie, 2007) include its flexibility in terms of asking a variety of questions on a selected topic and ways to analyse responses. Furthermore, it is a useful tool for investigating phenomena of larger populations. Finally, standardised questions provide responses to the same set of data from all participants which facilitates the general measurement and analysis. Based on these strengths, survey research was considered as an appropriate technique for investigating the research problems in studies three and four.

Challenges of survey research

When applying the survey research technique to a research problem, four cornerstones which are associated with specific errors, provide the foundation for administering the research process: (a) coverage (error), (b) sampling (error), (c) response (nonresponse error), and (d) measurement (error) (de Leeuw, Hox, & Dillman, 2008, p. 4).

First of all, when selecting a sample from a targeted population, a sample frame needs to be applied. For example, a sample frame could be a regional phone book or an organisational telephone directory. Web surveys can be especially challenging for survey research because there are no records that would allow for a meaningful selection of a sample and a coverage error could result from it (de Leeuw, et al., 2008, pp. 7-8).
Secondly, the method of sampling plays a significant role in terms of how representative a researcher’s findings in the population sample are with regard to the population under investigation. In this context, a sampling error would mean generalising findings from a sample that is not representative of the investigated population. Published literature distinguishes between two types of methods in terms of identifying study participants, probability sampling and nonprobability sampling (Babbie, 2007). The main difference between the two methods is that probability sampling uses a random selection process which nonprobability sampling does not. This means, that statistical theory cannot be applied to draw conclusions from a nonprobability sample to a general population. Nonetheless, a nonprobability sample may still be representative of a population. Even though, statistical inference would be inappropriate for generalisation, it could still be applied “to assess the precision with which we can generalise to a population consisting of whoever responded. Whether this representative for any general population is beyond statistical inference”. (de Leeuw, et al., 2008, pp. 9-10).

Thirdly, there are two forms of nonresponse in a survey: unit nonresponse and item nonresponse. Unit nonresponse means that no information could be collected from an eligible participant. Two primary reasons for unit nonresponse are that the participants could not be contacted or refused to participate. On the other hand, item nonresponse means that a participant either missed the response to a survey question or refused to answer it. Both forms can lead to a nonresponse error, i.e. missing data in the data collection process. (de Leeuw, et al., 2008, pp. 10-11)
Fourthly, there are four sources of measurement errors in survey research. If the questionnaire is self-administered by the participant, then three of the four sources are: the questionnaire, the respondent, and the method of data collection. When data are collected by an interviewer then the interviewer is the fourth source of measurement problems. For example, the design of a questionnaire forms the basis for accurate measurement of the variables under investigation. Furthermore, respondents can give incorrect information. In addition, modes of data collection such as telephone or web surveys can be a source of measurement problems (de Leeuw, et al., 2008, pp. 11-13; Deci & Ryan, 2011).

The following part will outline the methodological approach to addressing the above cornerstones and associated errors of survey research in the process of data collection.

**Survey instruments**

The questionnaires used for collecting data were taken from an inventory of questionnaires in the context of the SDT framework (Deci & Ryan, 2011). These instruments had been validated in previous studies and applied in a variety of research projects. Therefore, it was concluded that the respective questionnaires accurately measured the variables under investigation.

**Survey mode**

There are a variety of modes in which a survey can be administered, for example, in-person, telephone, mail, email, or internet (Lohr, 2008). Studies three and four used a self-
administered internet mode to overcome the challenge of senior executives’ high level of mobility (Conti & O'Neil, 2007). This mode of administration has also been referred to as e-survey (Jansen, Corley, & Jansen, 2007) or online survey (Beidernikl & Kerschbaumer, 2007; Ye, 2007). E-surveys and online surveys could be described as congruent categories including everything related to electronic data collection via computer (Jansen, et al., 2007; Ye, 2007), also referred to as electronic research (L. D. Roberts, 2007). For example, self-administered e-survey instruments can be either email-based or web-based (Beidernikl & Kerschbaumer, 2007). When participants receive an email-based questionnaire, such a questionnaire can either be embedded in an email or attached as a file. The respondent then fills in the questions, either directly in the email, into the file or on a printout of the questionnaire; and returns the form via email, or by using classical channels such as fax or postal services. Alternatively, web-based instruments physically reside on a network server (Jansen, et al., 2007). An online link (URL) provides access to the questionnaire which is opening up (popping-up) for the participant in a separate internet browser window. After the completion of the questionnaire, the window closes automatically (Beidernikl & Kerschbaumer, 2007). Figure 3.6. compares the benefits and drawbacks of both approaches.
It was decided to use a web-based questionnaire. In addition to the general benefits of e-surveys, such as quick results and global reach (Jansen, et al., 2007), it was felt that a web-based approach would support senior executives' perception of convenience and confidentiality, both factors facilitating the recruitment for studies three and four. The drawbacks outlined by Jansen, et al. (2007) were addressed in the following ways.

First of all, an online web application, SurveyMonkey (SurveyMonkey, 2011), was used to develop the web-based survey. It provided the necessary tools to design the instrument according to online questionnaire design guidelines as outlined in literature (Dillman, 2000; Norman, et al., 2003). For example, the length of the web-based survey was designed to limit a participant's potential response time to around 10 minutes, as suggested by Czaja and Blair.
(2005), to overcome nonresponse issues. “Drop-out” (L. D. Roberts, 2007, p. 26) or “break-off” (Dillman, 2008, p. 171) is a common phenomenon in web-based surveys referring to participants who commence a survey but do not complete it. The number of drop-outs in electronic research usually increases when a questionnaire is not user-friendly, lengthy, or incurs technical problems (L. D. Roberts, 2007). “Terminating a web survey is easiest of all, a break off is just one mouse-click away.” (de Leeuw, 2008, p. 121). This phenomenon may apply to an even higher degree to time-constrained senior executives. Secondly, technology problems and access to technology for participants were considered negligible given that a research population of senior executives was investigated. Thirdly, the functionality of the SurveyMonkey web application helped ensure actual security as well as perceived confidentiality on behalf of study participants. Finally, a section asking demographic questions in addition to self-reported levels of responsibility (according to the core qualifications of the senior executive service of the US Government, see section 2.3) was included to help control the sample.

Recruitment and Sampling

Interviewed senior executives from studies one and two were contacted by telephone and kindly asked to forward a subsequent email to potential target respondents. The email included an invitation to participate, an online link to the web-based survey (see Appendix E), and an information sheet as attachment (see Appendix B). The snowball sampling technique does not allow for controlling the respondents to the web-based survey. However, a
demographic section in the questionnaire helped differentiate between eligible and non-eligible participants based on self-reports as part of the researcher’s data analysis.

### 3.3.2.3 Data analysis

Quantitative analysis has been defined as “the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect”. (Babbie, 2007, p. 405). The PASW Statistics software package by SPSS was used to analyse data collected in studies three and four which provided all the tools required for uni-variate, bi-variate, and multi-variate analysis.
4 STUDY ONE – EXPLORING THE PROCESSES UNDERLYING RELATEDNESS NEED SATISFACTION IN SENIOR EXECUTIVES

4.1 Introduction

Since researchers in the field of psychology started their exploration of the role of individuals’ social contacts at the beginning of the 20th century, the phenomenon has been investigated under various labels such as affection between people (Murray, 1938), positive regards from others (Rogers, 1951), love (Maslow, 1943), affiliation motivation (D. C. McClelland, 1987), relatedness (Deci & Ryan, 1991), social connectedness (Starzyk, et al., 2006), and social belongingness (Baumeister & Leary, 1995). During this journey, the concept of relatedness has been associated with other theoretical frameworks such as achievement (Baumeister & Leary, 1995), optimal functioning and well-being (Ryan & Deci, 2000), and the meaning of life (Stillman, et al., 2009; Twenge, Catanese, & Baumeister, 2003). When deprived of relatedness, individuals have been found to engage in anti-social or self-defeating behaviour (Baumeister, et al., 1994; Baumeister & Vohs, 2004; DeWall, Deckman, Pond, & Bonser, 2011) leading to ill effects such as aggression and violence (Baumeister, 2001; Gaertner & Iuzzini, 2005; Leary, et al., 2006; Twenge, et al., 2001), unhealthy food choices (Twenge, et al., 2002),
addiction (Baumeister, 2003), and an increase in mortality (V. G. Kasser & Ryan, 1999). Several scholars have argued that given such far reaching effects associated with the concept of relatedness, an individual’s goal to satisfy one’s need to belong may be a more fundamental goal behind a broader spectrum of individual goals (Baumeister & Leary, 1995; Ryan & Deci, 2000). This emphasises the need to relate as a basic need (Baumeister & Leary, 1995; Maslow, 1943; Ryan & Deci, 2000).

With regard to relatedness need satisfaction, interpersonal interaction has been described as a fundamental component of establishing trust and intimacy (Baumeister & Leary, 1995; Moller, et al., 2010). Despite its significance, both the need for relatedness and the behavioural processes underlying interpersonal interaction in the context of relatedness need satisfaction are still underexplored empirically (Moller, et al., 2010). This is consistent with literature suggesting that investigating individuals’ inner resources (Ryan & Deci, 2000, p. 68), for example, relatedness need satisfaction, were a “neglected dimension in organisational behaviour research” (Amabile & Kramer, 2007; Ashkanasy, 2003, p. 23).

Existing theoretical frameworks for relatedness, for example Baumeister and Leary’s seminal work (1995) on the need to belong, have been derived from a large number of empirical findings. When Baumeister and Leary (1995, p. 500) proposed the features of the need to belong as (a) frequent personal interactions marked by (b) stability, and mutual affective concern, none of their close to 300 reviewed and referenced individual research studies had been undertaken with a view to contribute to an empirical or conceptual
development of a relatedness framework. Furthermore, based on a review of literature conducted by the author of this thesis, it appears that their model has received only limited direct empirical evaluation since its conceptualisation which extends to the behavioural processes of social interaction underlying relatedness need satisfaction.

Study one of this thesis attempts to resolve this limitation by conducting an empirical investigation into the processes underlying relatedness need satisfaction in senior executives as an important contribution to psychology research.

The need for relatedness is a constituent part of self-determination theory which could be characterised as a macro-theory of human motivation based on several mini-theories. Three basic psychological needs, i.e. the need for autonomy, competence, and relatedness, represent a common conceptual denominator tying the mini-theories together. SDT suggests the three needs to be natural, universal, and, innate, i.e. developmentally persistent. Furthermore, Ryan and Deci (2000) theorise that the level of satisfaction of the three basic psychological needs predicts the optimal functioning of individuals including performance and well-being. Conversely, when basic psychological needs are thwarted, this can lead to ill-effects. In SDT, both scenarios are related to the two extremes of a continuum of motivations. When an individual’s basic needs are met, the individual is described as being autonomously motivated, i.e. the individual perceives one’s action as originating from or congruent with one’s self. Alternatively, unmet needs lead to controlled motivation, i.e. the individual either feels self-
imposed pressure or external control. In conclusion, autonomous motivation predicts optimal functioning and well-being, in turn, controlled motivation is associated with ill-effects.

In the context of organisations, SDT argues that work environments that promote the satisfaction of the three basic psychological needs will contribute to employees’ autonomous work motivation, in turn, leading to better work outcomes such as performance, organisational citizenship behaviour, job satisfaction, and psychological well-being (SDT Model of Work Motivation; Gagné & Deci, 2005). This postulate is supported by empirical research studies. For example, it was found that employees’ perceived competence, autonomy, and relatedness at work was positively related to their work engagement and well-being on the job (Deci, et al., 2001). Furthermore, work environments supporting employees’ perceived autonomy have been found to be positively related to outcomes such as job satisfaction, level of trust in corporate management, and positive work-related attitudes (Deci, et al., 1989). Other outcome related SDT research includes Breaugh’s finding (1985) that showed a positive association between autonomous motivation, job involvement, and quality of performance as well as Sheldon and Elliot’s work (1998) which found autonomous motivation as a predictor of greater effort and more goal attainment at work. Furthermore, autonomy support has been closely linked to need satisfaction (Baard, et al., 2004; Deci, et al., 2001; Gagné, et al., 2000) which in turn could be shown to predict more favourable outcomes such as job satisfaction or better performance evaluation, greater persistence, greater acceptance of organisational change, and better psychological adjustments. Blais and Briere (1992) investigated the impact of managerial autonomy support on their subordinates and found that is was positively related to employees’
autonomous motivation and, in turn, their quality of performance. Despite this stream of organisational research studies, the concepts of autonomous work motivation and basic psychological need satisfaction, let alone relatedness need satisfaction, have not been investigated in the context of a senior executive research population.

With specific reference to relatedness in SDT literature, the need for relatedness has been defined as “feeling connected with others and having a sense of belonging within one’s community. Relatedness satisfaction entails a sense that one is significant to others, which is often manifest in others’ willingness to care for one or to receive the care one has to offer.” (Ryan & Deci, 2008b, p. 658). Moller, Deci et al. (2010) provide an complementary definition which shows consistencies with Baumeister and Leary’s (1995) proposal: “The need for relatedness [is] a psychological necessity that involves having positive interpersonal interactions and trusting relationships. Importantly, we further contend that social encounters contribute to the satisfaction of this need to the extent that the encounters foster feelings of trust and intimacy.” (p. 754). In terms of SDT research studies there have been comparatively few investigations on the need for relatedness and its underlying relational processes. For example, relatedness need satisfaction has only received limited attention in the context of organisations in particular (Sheldon & Filak, 2008). With regard to underlying behavioural processes, La Guardia and Patrick (2008) suggest several potential directions for future research, “given the relative infancy of SDT-based research on relational processes in reciprocal partnerships there are several potential directions for future research” (p. 206). Over the past decade, SDT-based research in the field of relatedness as well as relational processes underlying
need satisfaction have gained momentum. Studies include Deci, La Guardia et al.'s (2006) work on the mutuality of autonomy support, Ryan and Deci’s (2008c) paper on need satisfaction and motivation in psychotherapy, La Guardia and Patrick’s (2008) work on close relationships, Moller, Deci et al.’s (2010) study investigating the processes around person-level relatedness and the incremental value of relating, and Weinstein and Ryan’s (2010) work “When helping helps” (p. 1). Recently, Sheldon and Schueler (2011) integrated motive disposition theory (MDT) (D. C. McClelland, 1985) and SDT into a new conceptualisation for need satisfaction processes, including relatedness need satisfaction, which they labelled ‘sequential process theory’. Lavigne, Vallerand, and Crevier-Braud (2011) identified two relatedness orientations, a growth orientation and a deficit-reduction orientation, as part of their belongingness orientation model (BOM).

SDT provided the theoretical framework for this study. The research objective of study one was to explore the processes underlying relatedness need satisfaction in senior executive. Specifically, the present investigation addressed the following research question:

Research question 1: What are the processes underlying relatedness need satisfaction in senior executives?”
4.2 Method

4.2.1 Qualitative research design

Based on Strauss and Corbin’s (1998) suggestion that qualitative, inductive methodologies are appropriate for exploring new theoretical frameworks, an inductive research design was adopted. Grounded theory has been outlined by Martin and Turner (1986) as “an inductive theory discovery methodology that allows the researcher to develop a theoretical account of general features of a topic while simultaneously grounding the account in empirical observations or data” (p. 142). Assuming that human beings differ according to their individual, social construction of reality (Berger & Luckmann, 1966; Burr, 1995), interviewing allows for a high validity of information “‘grounded’ in data” (Fassinger, 2005, p. 157) on which a new theoretical framework can be constructed upon (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Data analysis in grounded theory requires constant comparison of data, “initially of data with data, progressing to comparisons between their interpretations translated into codes and categories and more data. This constant comparison of analysis to the field grounds the researcher’s final theorising in the participants’ experiences” (Mills, et al., 2006, p. 27).

The techniques of grounded theory have been developed predominantly in educational and health research. The collection of data is comparatively flexible and easy in these fields. This is in strong contrast to the challenges of senior executive research as outlined in section 3.3.1.2. Therefore, Locke (2001) suggests that the conceptualisation of grounded theory needs
to be adapted to respective research environment. Jones (1985) postulates that interviews in management research require more structure to deal with the specific challenges of the field. For more unstructured approaches, like grounded theory, an interview checklist or topic guide is proposed leading to a semi-structured, guided open interview process (Easterby-Smith, et al., 2008; Jones, 1985).

The structuring of the data collection process was broken down into three phases: (a) face-to-face semi-structured interviews identifying emerging concepts, followed by (b) semi-face-to-face semi-structured interviews focusing on the relationships between identified concepts and categories, and finally (c) face-to-face structured interviews investigating specific issues for integrating and refining theory. Academic literature provides very little guidance on sample sizes prior to data collection in qualitative research. One of the main factors impacting qualitative sample sizes is the quality of collected data (Morse, 2000) which is difficult to be foreseen when designing an investigation. This present study was based on 32 face-to-face interviews: 15 interviews in phase one, 12 interviews in phase two and 5 interviews in phase three. At that point in the research process, it was felt that further data collection had reached saturation with further participants not adding anything to the emergent framework (Strauss & Corbin, 1998). A sample size of 32 is also consistent with the few guidelines offered by literature, for example Creswell (1998), and Griffin and Hauser (1993) who both suggest 20 to 30 interviews. Other suggestions conclude that “little new comes out of transcripts after 20 interviews” (Green & Thorogood, 2009, p. 120).
4.2.2 Recruitment and sampling

Participant eligibility was determined as only senior executives who, self-reportedly, fulfilled at least three of the following five criteria, which were based on the five core qualifications of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012) as outlined in table 4.1.
Table 4.1 Fulfilment of senior executive qualification criteria for study one as reported by senior executive participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Number of participants fulfilling the respective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading change</td>
<td>Establishing organisational visions and implementing them in a continuously changing environment</td>
<td>26 (81% of participants)</td>
</tr>
<tr>
<td>Leading people</td>
<td>Leading people toward meeting organisational vision, mission, and goals.</td>
<td>27 (84% of participants)</td>
</tr>
<tr>
<td>Results driven</td>
<td>Making decisions that produce high-quality results by applying technical knowledge, analysing problems, and calculating risks</td>
<td>30 (95% of participants)</td>
</tr>
<tr>
<td>Business acumen</td>
<td>Managing human, financial, and information resources strategically</td>
<td>29 (91% of participants)</td>
</tr>
<tr>
<td>Building coalitions</td>
<td>Networking, identifying internal and external politics, persuading others, building consensus through give and take</td>
<td>31 (98% of participants)</td>
</tr>
</tbody>
</table>

Number of participants fulfilling 3 criteria: 3 (9% of participants)

Number of participants fulfilling 4 criteria: 6 (19% of participants)

Number of participants fulfilling all 5 criteria: 23 (72% of participants)

Additionally, participants were required to be fluent in English.

Nonprobability sampling (Babbie, 2007) was employed for the identification of senior executive participants. A combination of snowball sampling and purposive sampling was used for the recruitment process. For example, snowball sampling based on the researcher’s
network of senior executive contacts was used in phase one of the interview process. Participants interviewed in phase two were still identified by snowball sampling. However, their selection was performed on the basis of their usefulness in terms of gathering data about the properties and dimensions of coded categories as well as how the categories were related to each other (Strauss & Corbin, 1998), which qualifies as purposive sampling. In phase three of the interview process, senior executives suggested by previous interview candidates were only selected if the researcher felt that they could contribute data to a specific open issue to help refine and integrate a theory developed in phases one and two. This phase three process has also been referred to as theoretical saturation under Strauss and Corbin’s (1998) grounded theory technique.

4.2.2.1 Participants

Of the total of 32 interviewed participants, 14 (44%) were female and 18 (56%) were male. Participants’ average age was 46.2 and ranged from 30 to 65 years. Their industry backgrounds included finance (banking [3], insurance [2], private equity & venture capital [5]), energy [3], resources [5], pharmaceuticals [1], automotive [4], and services (legal and tax consulting [4], management consulting [5]). Thirteen participants were Australian, 11 American, four German, and four English. All spoke fluent English.

4.2.2.2 Procedure

Following informed consent, all interviews were conducted separately, with only the participant and the researcher present. Semi-structured interviews have been described as
guided open interviews (Easterby-Smith, et al., 2008). A checklist was developed as guidance for the open interviews in phases one and two (Easterby-Smith, et al., 2008; Jones, 1985). In accordance with Rubin and Rubin (2005), three types of questions were applied to guide an interview: main questions, follow-up questions, and probes. However, the interview guide (see Appendix C, p. 298) was “not a set of questions that must be asked with particular words and in a particular order” (Babbie, 2007, p. 306). Instead, as an open interview proceeded, the interviewer ticked the respective topic area as covered by the participant allowing for the exploration of specific areas without precluding interviewees from providing further information. By applying this procedure, interviews delivered responses to a standardised set of open questions plus additional unstructured information. Following the “continuous nature of qualitative interviewing” (Babbie, 2007, p. 305) in general and, specifically, the constant comparison technique of grounded theory (Babbie, 2007; Strauss & Corbin, 1998), the interview guide was amended throughout phases one and two on the basis of the ongoing analysis of interview transcripts. Phase three interviews had a structured format investigating specific issues for integrating and refining theory and model. Interview duration was between 45 and 67 minutes in phase one, between 37 and 62 minutes in phase two, and between 21 and 39 minutes in phase three. All interviews were audio recorded and subsequently transcribed. In addition to the interview transcripts, the researcher took notes as a form of complementary data collection. These notes were, for example, based on the interviewer’s observation of participants’ body language (Silverman, 1993).
4.2.3 Data coding and Analysis

Data coding and analysis was based on Strauss and Corbin’s (1998) grounded theory technique which proposes a three level process of coding: (a) open coding, (b) axial coding, and (c) selective or theoretical coding. The NVivo software package (Miles & Huberman, 1994; Richards, 2005) was used to analyse interview transcripts with regards to the above technique. Firstly, open coding identified individual nodes which correspond to concepts that emerge from data. The researcher reviewed the concepts, grouped them into categories by means of tree nodes. Subsequently, appropriate names were selected for nodes, concepts and categories (Miles & Huberman, 1994). As a next step, axial coding identified potential relationships between various nodes, concepts and categories. Following axial coding, selective or theoretical coding was performed which has been defined as “the process of integrating and refining the theory” (Strauss & Corbin, 1998, p. 143). This was based on the previous two stages of coding and represented the point in the process where no new “properties, dimensions, or relationships emerge during analysis” (Strauss & Corbin, 1998, p. 143), also referred to as theoretical saturation. This third stage of the coding process was aimed at condensing the analysis to a dynamic, interrelated set of categories that best supported the evolving and emergent theory.

4.3 Results

Eleven core constituent categories emerged from the data. Table 4.2 outlines the 11 categories in their order of emergence during the data analysis process.
<table>
<thead>
<tr>
<th>Category 1:</th>
<th>Small group: Participants’ perceptions of sources of relatedness</th>
<th>“I tend to think of connecting with people mostly on the group level.”(P3)</th>
<th>“I prefer working in a small team of three or four people.”(P7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 2:</td>
<td>Areas of Life: Participants’ perceptions of social belonging-ness in terms of life domains</td>
<td>“My family gives me this sense of belonging.”(P18)</td>
<td>“I feel as an integral part within my neighbourhood.”(P9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I get a lot of affection from my staff at work.”(P2)</td>
<td></td>
</tr>
<tr>
<td>Category 3:</td>
<td>Return: Others’ behaviour perceived as relatedness by participants</td>
<td>“I can always rely on my family. That is where I belong.”(P18)</td>
<td>“You belong to our team, we will support you all the way.”(P5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“You are a respected board member of this firm.”(P19)</td>
<td></td>
</tr>
<tr>
<td>Category 4:</td>
<td>Investment: Participants’ behaviour to prompt behaviour from others potentially conveying relatedness</td>
<td>“I am contributing to the firm, not sure, but I think with the expectation to get something in return, [pause], not just money, maybe respect or, [thinking], recognition.”(P8)</td>
<td></td>
</tr>
<tr>
<td>Category 5:</td>
<td>Investment/return loop: Circular causal relationship between investment and return</td>
<td>“the more you contribute, the more you feel you are a part of it.”(P2)</td>
<td>“when you feel the respect of employees, it motivates you to work extra hard on these issues.”(P6)</td>
</tr>
<tr>
<td>Category 6:</td>
<td>Energy: A reservoir or resource participants drawn on for investments and replenished by returns</td>
<td>“It is important to separate good people from negative ones - in order to conserve energy.”(P11)</td>
<td>“I can feed off others’ energy when they are around me.”(P21)</td>
</tr>
<tr>
<td>Category 7:</td>
<td>Physical distance: The role of physical proximity for feelings of relatedness</td>
<td>“I miss the face-to-face contact.”(P17)</td>
<td>“I felt excluded when I could not participate in that overseas project”(P8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I am up here and they are down there, I do not feel as close to them as when I lived there”(P12)</td>
<td></td>
</tr>
<tr>
<td>Category 8:</td>
<td>Drain and burden: Participants’ perceptions of investments without returns</td>
<td>“I often take on other people’s burden, and put a lot of energy into it. I had some very draining experiences where this had become a one way street.”(P28)</td>
<td></td>
</tr>
<tr>
<td>Category 9:</td>
<td>Unconditional return: Participants’ perceptions of receiving returns without investing</td>
<td>“You are very much accepted for what you are, no need to make any effort to put up a front.”(P16)</td>
<td></td>
</tr>
<tr>
<td>Category 10:</td>
<td>Investment focus: The degree to which participants invest in one area of life</td>
<td>“My job is my life.”(P13)</td>
<td>“No area in life should be more important than another but I just cannot let go.”(P6)</td>
</tr>
<tr>
<td>Category 11:</td>
<td>Cross-subsidies: Dynamic relationship between life domains with regards to investments and returns</td>
<td>“The support from family and friends is what I rely on as a manager when I go through tough times.”(P7)</td>
<td>“I feel like with my family’s support, it gives me the strength to take on anything in business, or life in general.”(P10)</td>
</tr>
</tbody>
</table>
**Category 1: Small group – participants’ perception of sources of relatedness**

Interviewees consistently used terms such as “being part of”, “identify with” or “have a connection to” in the context of a variety of groups such as “group of people”, “community”, “social network”, “family group”, “different networks”, “group of work colleagues”, “workgroup”, “sporting group” or group of “closest friends”. Participant responses provided a high level of homogeneity with regards to the group aspect across interviews. Even when asked for clarification regarding any interdependencies between groups and individual relationships, interviewees kept referring to the group aspect of individual relationships. These findings provide supporting evidence for a more general theory in terms of participants’ perception of relatedness. In the present study, participants seemed to think of relatedness in terms of groups. It appeared that interviewees differentiated between underlying, individual relationships and the group. With regards to relatedness, the individual relationship aspects seemed to be of a secondary nature. It became apparent that participants not only thought of “groups” but “small groups” in the context of relatedness. For example: “...it would be a small group of friends I keep up with and I draw support from...” (P13), “...I prefer working in small task forces of two or three” (P11) and “...no more than three or four [people], otherwise it gets a bit, [pause] messy, a large party becomes harder to manage at the expense of effectiveness” (P22).
Category 2: Areas of life – participants’ perception of relatedness in terms of life domains

Three sub-categories emerged from the data when interviewing participants in the context of their social lives. These comprised: family, work/occupation and social life. The group concepts mentioned by the participants could be allocated to one of those sub-categories. The following list of concepts per sub-category gives an overview over the categorisation of participants’ responses. For example, the family category included “immediate family”, “extended family”, “parents”, “children”, “brothers and sisters”, “siblings”, or “cousins”. The work/occupation category comprised “colleagues”, “board”, “mentors”, “team”, “people at work”, “clients”, “shareholders”, or “workplace”. The social life category included “neighborhood”, “club”, “friends”, “mates”, “community”, “sporting group”, or “social group”. Each general area appeared across participants’ data.

Category 3: Return – others’ behaviour perceived as relatedness by participants

The findings suggest that there were two dimensions of how participants perceived relatedness: (a) a tangible and (b) an intangible dimension. A male banker provided the following insight into these two dimensions: “You’ve closed a huge transaction and made a shit load of money for yourself and your team - you’re the rainmaker and we all love you” (P12) and “You are God, you are great - wow, he’s great, can I work for you in your team? That in itself is motivation, that is where I belong” (P12). However, the same banker also mentioned a tangible dimension of perceiving relatedness. “My God, you’re the most respected guy on the floor, here’s a pat on the back for you” (P12). Other terms used by participants to describe what cues
from their environments can lead to perceived relatedness generally included “support”, 43 instances in 27 out of 32 participants, but also being “talked to”, “valued”, “understood”, “accepted”, “trusted”, “appreciated”, “recognised”, “known”, and “remembered”. In review of the above findings, it is suggested that the term ‘support’ could be defined as a summary term for all other terms in the context of perceiving relatedness.

**Category 4: Investment – behaviour to prompt behaviour from others potentially conveying relatedness**

Participants consistently commented on their own behaviour with the goal of making others behave in ways which could be interpreted in terms of relatedness. A female senior manager of a large multi-national company contributed the following quote to our data: “It is not really the monetary gain from it, but [pause], in the end, my contribution as CEO, [pause], the company gives me something in return for my contribution, a sense of being part of something” (P16) and “I’m helping out, [...] occasionally spending time with my staff on the nitty-gritty of client presentations, [...] gives you a feeling of contributing in some way to making it better and to improving it, the staff really appreciate that kind of thing” (P4). “Helping”, “contributing”, “organising”, “giving”, “making better”, and “improving”, all seemed to be appropriate behaviour for the participant to prompt a sense of relatedness from the group. The word “help” or “helping” was used 52 times by all 32 interviewees to describe a form of contribution. Other terms that participants used included “talk”, “get to know”, “interact”, “plan”, “organise”, “give advice”, and “participate”. Based on the following quote
from a senior executive in a private equity firm, it was decided to label the category including all of the above terms as *investment*: “But I think what happens is that decision makers make investments, in people, in capital, and in reputation, however, ultimately, they are investing in themselves, in their own lives and careers” (P29).

**Category 5: Investment/return loop – circular causal relationship between investment and return**

Early on, at the first stage of semi-structured interviewing, it emerged from the data that there may be a relationship between the categories of investment and return. For example, a male board member of a small family owned business said: “My knowledge and dedication are what makes me feel I am being valued by the team of people who work for us” (P20). Firstly, evidence supporting a relationship of *investment leading to return* was identified with statements such as “we’ve created long term client relationships, where there is an enormous amount of loyalty and support” (P1), “Social connections are part of being more interactive…you have got to create that” (P2), “I think the more you contribute, the more sense of connection you do feel” (P13) or “I don’t know, it’s more what you do and what you add to the firm. So the better – I’ve always looked at it like this - the better your performance, the more respect you get and the more embedded you feel” (P25). In a second step, the reverse relationship, *return leading to investments* could also be identified. For example, a female senior executive in the pharmaceuticals industry pointed at relatedness as being the key driver behind the desire to perform as part of a team. “When I knew that both boards were 1000
percent behind me, I was extra motivated to succeed in those merger negotiations.” (P19). The researcher explored this issue further and found additional evidence. For example, “I am an important part of my company, and that motivates me to get up every morning at 5:30 and go to work, get organised and go to work” (P1) or “we were very close knit. It manifested itself in being willing to commit much longer hours to the task.” (P1).

Category 6: Energy – a reservoir or resource participants draw on for investments, replenished by returns

The term ‘energy’ was used consistently by interviewees in relation to investment and return. Participants referred to two aspects of energy in the context of relatedness, a physical aspect and a mental aspect. A senior executive felt like, he did not want to change jobs as he did not want to “spend all that mental and physical energy on moving and creating new bonds and business contacts” (P4). Conversely, the managing partner of a management consultancy who had worked for his company for over 30 years contributed the following quote: “Working with people globally who you have grown up with in this firm gives you this particular energy boost, in your head and in your body” (P10).

Category 7: Physical distance – the role of physical proximity for feelings of relatedness

Participants consistently commented on the role of physical proximity for satisfying their need to belong. A female board member of a large listed insurance company described her perception on the role of physical distance as follows: “You can only have a certain amount
of connection when you are in different places. This is one of the challenges of global business, getting close enough to people to do good business with them, within the firm and externally”. (P13).

Category 8: Drain and burden – participants’ perceptions of investments without returns

Participants who felt that they invested without receiving appropriate returns frequently referred to a feeling of drain or burden. A female head of division of a large multinational energy company described a situation where she was mobbed by her boss. The following quote was taken from the principal researcher’s field notes as the interviewee did not want the life event to be voice-recorded. She was the only female head of a division in a management team of 11 men. She was really suffering, a “draining experience” as a male member of the management board was trying “to mob her out of the team”. She put in extra effort and hours to turn the situation around. Her entire life suffered from that, work, family and friends as she was trying to stabilise the situation. After around 12 months she resigned from the position as she did not have “anything left” from the drain the situation had taken on her life (P23).

Category 9: Unconditional return

The category of unconditional return was widely perceived by our participants, primarily in the context of the family environment. “To explain the difference, well I guess, you know that you are really loved by someone and this person does not always expect you to do something,
they just like you for who you are” (P12) was a comment contributed by the male banker. A female senior manager of a large multi-national company commented along the same lines: “I think back to that sense of just people that know you [pause], you know those people aren’t making judgments. That’s just a complete confidence that you can be with those people and just be completely relaxed [pause] knowing that they will help and support you regardless” (P16).

**Category 10: Investment focus – the degree to which participants invest in one area of life**

The category investment focus was identified by the researcher on the basis of participants regularly referencing one specific area of their lives, work/occupation, as focus for investing their energy, which was labelled exclusive investment. For example, “I am almost completely focusing on my job here” (P14), and “Over those years, I had dedicated almost my entire life to building that business” (P20).

**Category 11: Cross-subsidies**

In the process of coding the investment and return categories, it emerged from the data, that the investment-return relationship was not separate for each area of life but rather dynamic between life areas. “I guess the love and acceptance that comes from them [family and close friends] is a confidence that I feel that I could do anything. I literally feel like with their support I could take on anything - any challenge or whatever” (P10) and “But, yeah, I guess they are all interlinked, because if one area completely fails or falls down then it does
affect the other part of your life” (P4) supported that conclusion. According to the interview data there seems to be a dynamic relationship between the three areas of life. Investments into one area seem to have potential return effects that allow for investments in other life areas and vice versa.

4.4 Discussion

The research objective of this study was to explore the processes underlying relatedness need satisfaction in senior executives. First of all, the results identified a small group phenomenon. The group phenomenon has been well documented in social psychology (Blumberg, Hare, Kent, & Davies, 2009; Hogg, 2000; Tafjel & Turner, 1979; Turner, et al., 1987) and other disciplines such as anthropology (Barchas, 1986; Coon, 1946). Even though participants seemed to perceive individual relationships and interactions, on which existing conceptualisations of relatedness seemed to be based (Baumeister & Leary, 1995; Moller, et al., 2010; Ryan & Deci, 2008b), these individual relationships and interactions appeared to be aggregated to small groups in the context of relatedness. Secondly, the results in terms of areas of life provide another degree of extension to previous findings. The concept of individuals’ daily lives evolving around different areas has been researched under various labels, such as “spheres” (Baumeister & Leary, 1995, p. 500) or “life domains” (Deci & Ryan, 2008a, p. 14; Kirchmeyer, 2000, p. 81). The majority of empirical studies have focused on “two dominant spheres of life: work and family” (Greenhaus, Collins, & Shaw, 2003, p. 510). However, the
responses from participants support the proposition that the area of ‘social life’ should be treated as a third and separate, potentially equally important, field of investigation in the context of relatedness research.

The third finding was that cross-subsidising effects in terms of relatedness need satisfaction were detected between three areas of life. These findings support prior research about potential substitution effects between different spheres in life (Baumeister & Leary, 1995; Kahneman, Diener, & Schwarz, 1999). This finding represents an extension to previous research whose scope was limited to effects of “spill-over” from job to home and from home to work” (Kahneman, Diener, & Schwarz, 1999, p. 395) theorising that “strong family ties [should] compensate for aloneness at work” (Baumeister & Leary, 1995, p. 500).

Fourthly, results showed physical distance was identified as a social contextual factor by interviewees with an attenuating effect on feelings of relatedness. This finding adds to previous work in the field of proximity (Festinger, et al., 1950; Nahemow & Lawton, 1975; Wilder & Thompson, 1980) as well as more recent literature on social presence theory in the field of communication (Lombard & Ditton, 1997; Short, et al., 1976). SDT-based research investigated the impact of motivational aspects of presence on online community participation and found that the dimensions of presence were related to individual need satisfaction in online communities (Shen & Khalifa, 2008). However, most of the theorising predates the development of the internet. It is suggested to extend the present study to an investigation of
the role of computer-mediated communication for relatedness need satisfaction in senior executives.

Fifthly, applying Ryan and Deci’s (2000) term, results supported the concept of energy seems to represent an “inner resource” (p. 68) for senior executives’ relatedness need satisfaction process. However, the energy aspect has no mention in the framework of Baumeister and Leary (1995). Many scholars have grappled with the energy issue. Introduced by Freud (1900), psychic energy was first described as a limited psychic resource best modelled by an economic framework. Investing energy in defence or resistance was theorised to deplete an individual’s reserve of energy. More recently, the concept of energy has played a central role in the research of self-regulation failure (Baumeister, 2003; Muraven & Baumeister, 2000) and psychological well-being (Ryan & Deci, 2000; Thayer, 1996) where glucose has been identified as contributor to a store of self-regulatory energy (Gailliot & Baumeister, 2007). In case of depletion, individuals fail to self-regulate leading to anti-social and self-defeating behaviour (Baumeister, et al., 1994; Baumeister & Vohs, 2004). In the field of psychological well-being the construct of subjective vitality was introduced by SDT (Ryan & Frederick, 1997) as a form of measure for energy. Over the last decade, numerous studies have associated relatedness with subjective vitality (Adie, et al., 2008; Reinboth & Duda, 2006; Ryan, et al., 2010; Ryan, et al., 2006). The present results in terms of senior executives’ tendency to focus their energy on one life domain, namely, work/occupation, also show overlaps with literature on workaholism (Scott, Moore, & Miceli, 1997). The present findings may contribute new perspectives on research into self-regulation and psychological well-being.
Finally, taking the 11 core constituent categories into consideration, the relatedness loop is proposed as a process model for relatedness need satisfaction (see figure 4.1.). The process model integrates the categories of small groups in three areas of life with the circular causal investment/return relationship and accounts for a potential cross-subsidising effect between the areas of life regarding relatedness with investments in one area yielding returns that support motivation to invest in other areas. The categories of drain and burden, unconditional return and investment focus – exclusive investments and work-life-balance – are also captured by the relatedness loop.

![Relatedness Loop Model](image_url)

Figure 4.1. Relatedness Loop Model: Processes underlying relatedness need satisfaction in senior executives.
The proposed process model of a relatedness loop represents an adaptation of a feedback loop model (Carver & Scheier, 1981) to the field of relatedness need satisfaction in senior executives. The findings of a dynamic relationship between investment and return support and add to previous research in fields such as self-determination theory (Ryan & Deci, 2000), sequential process theory of psychological needs (Sheldon, 2011; Sheldon & Schueler, 2011), self-regulation theory (Baumeister & Vohs, 2004; Carver & Scheier, 1981), and social exchange theory (Homan, 1958).

On the one hand, there has been an increasing effort in SDT based research over the last 5 years investigating aspects of a potential dynamic conceptualisation between investment and return (Deci, et al., 2006; La Guardia & Patrick, 2008; Moller, et al., 2010; Ryan & Deci, 2008c; Sheldon, 2011; Sheldon & Schueler, 2011; Weinstein & Ryan, 2010). For example, two recent SDT papers, Sheldon (2011) as well as Sheldon and Schueler (2011), propose a sequential process theory of psychological needs suggesting needs as both, motives and requirements. Weinstein and Ryan’s (2010) paper “When helping helps” (p. 1) specifically supports the finding of this study in terms of the impact of ‘helping’ on helpers’ need satisfaction as “help” and “helping” were the most frequently used terms in this present study to describe participants’ own behaviour (investment or motive) targeted at relatedness need satisfaction (return, nutriment, or requirement).
Carver and Scheier (1981) have contributed their cybernetic control model to self-regulation research. Feedback loop models compare actual, measured values to reference values or goals in order to identify the difference for error and adjusting behaviour. In respect to Carver and Scheier’s (1981) model, the proposed relatedness loop model could be considered an adaptation of their model to the concept of relatedness need satisfaction. Aspects of Carver and Scheier’s (1981) feedback loop model have been applied to the construct of relatedness before. Lavigne, Vallerand, and Crevier-Braud’s (2011) belongingness orientation model (BOM) proposes two belongingness need orientations, a growth orientation and a deficit-reduction orientation, which appear consistent with Carver and Scheier’s (1981) distinction of discrepancy-enlarging and discrepancy-reducing feedback loops.

Finally, the process model also reflects aspects of Homan’s social exchange theory (Homan, 1958). The theory is particularly relevant as it integrates economics with small group psychology research to arrive at the proposition that individuals interact according to specific cost/reward expectations. Social behaviour is considered an exchange of material goods or non-material goods such as approval or prestige. The present findings of investment/return as well as tangible/intangible support reflect the above aspects of Homan’s theory.

In addition to the proposal of a relatedness loop it is suggested that senior executives operate within their individual portfolios of relatedness need satisfaction. Specifically, it is proposed that each small group, as identified in this study, represents a potential source of relatedness need satisfaction which is associated with a specific investment and return profile.
According to these profiles, a senior executive’s portfolio of potential sources of relatedness need satisfaction could be mapped graphically into a 2x2 Strength-Weaknesses-Opportunities-Balance (SWOB) matrix (see figure 4.2.).

Figure 4.2. Strength-Weaknesses-Opportunities-Balance Matrix: Graphical overview of a senior executive’s portfolio of potential sources of relatedness need satisfaction (points represent hypothetical examples).

The strength quadrant of the matrix presented in figure 4.2. would include small groups where individuals perceive significantly more return (high) than they invest (low). Weaknesses would describe the cluster of small groups where individuals feel that they invest significantly more (high) than they feel they receive in returns (low). Those small groups that individuals
Perceive low on both, return and investment, would account for opportunities as they could potentially turn into strengths or balances, once an individual started initially investing in them. Finally, balances would include small groups where individuals perceive similar levels of investment and return, i.e. individuals feel they are receiving adequate returns for their investments. The process model of relatedness and the SWOB matrix each could serve as conceptual framework for researchers as well as for practitioners in a variety of fields of clinical and applied psychology such as work and organisations, assessments, evaluations and appraisals, counseling, health, and sport.

Researchers and practitioners need to be able to measure the constituents of both frameworks, the relatedness loop and the SWOB matrix, in order for both models to be applied as part of future research. This exploratory research has useful contributions and implications for the conceptual and operational measurement of relatedness processes. Therefore, it is believed that data collected in an exploratory study such as this could be most suited to the construction and validation of a scale measuring the constituents of the relatedness loop model and the SWOB matrix.

While great effort was made to ensure the integrity of the data collection and interpretation process, this research project has limitations. These aspects include demographics and sample size. Firstly, the data were largely collected from participants of Anglo-Saxon descent. Therefore, the grounded data may be reflective of those cultures and belief system. Even though the process model showed consistency and validity over the
participants, there remains an inability to generalise the emergent model to this specific population or other cultures and belief systems. Secondly, the study was based on thirty-two interviews. Even though, the validity of qualitative research can be based on a single interview, the reliability can only be achieved through controlled sampling typically using quantitative research. This aspect was not part of this study and, therefore, the results cannot be interpreted as representative to other participants.

The present research study further suggests several areas for future research. Firstly, researchers are encouraged to replicate the study in other cultures as well as domains other than senior executives. This may add further aspects to an understanding of investment, return, and the relatedness loop model. Secondly, an appropriate measurement scale for the constituents of the relatedness feedback loop is needed to enable researchers to investigate phenomena in the context of the introduced process model, for example, its relations to psychological well-being or self-regulation failure. Thirdly, the apparent attenuation effect of physical distance on perceptions of relatedness suggests further research in terms of qualification and quantification. Furthermore, following this first exploratory study, the research objective of study two was stimulated; to explore the role of computer-mediated communication for relatedness need satisfaction in physically distant relationships of senior executives.
5 STUDY TWO – EXPLORING THE ROLE OF COMPUTER-MEDIATED COMMUNICATION FOR RELATEDNESS NEED SATISFACTION IN PHYSICALLY DISTANT RELATIONSHIPS OF SENIOR EXECUTIVES

5.1 Introduction

Research considering the impact of digital technologies such as the internet has gained momentum over the last 10 to 15 years (Riva, 2009). The majority of the research that has examined the impact of media such as the internet on its users has concentrated on economic benefits, such as productivity gains, rather than psychological aspects (Bonebrake, 2002; Ijsselsteijn, Freeman, & De Ridder, 2001; Lowry, et al., 2006; Sum, et al., 2008; Teske, 2002). In the context of understanding relatedness need satisfaction in senior executives, the present study aimed at contributing to the body of knowledge by exploring the role of CMC for relatedness need satisfaction in physically distant relationships in senior executives.

Academic literature has coined the term ‘CMC’ to distinguish between communication conducted through a technology or medium, mainly the internet, as distinct from face-to-face communication (FtF). When users go online, they are presented with a multitude of applications to choose from (Riva & Galimberti, 2001; Sum, et al., 2008). The internet represents a new social milieu, a new place to meet (Parks & Floyd, 1996). However,
psychological implications of CMC in terms of its usage have not been fully considered by empirical research (Riva & Galimberti, 2001).

Early research efforts in the 1980s and at the beginning of the 1990s suffered from the hypothesis that the internet had uniform and universal effects on all users (Weiser, 2001). Since then, research objectives have become more specific with empirical findings highlighting the potential benefits (Matsuba, 2006; Moody, 2001; Parks & Floyd, 1996) and harmful aspects (Bonebrake, 2002; Riva, 2002) of CMC. Research on personality types and internet communication contributed another dimension to the debate. Based on empirical studies on extroverts versus introverts, high versus low anxiety participants, older versus younger individuals, researchers concluded that personality was a significant mediator for psychological well-being in relation to the use of CMC (Matsuba, 2006). Social and psychological effects on a CMC user were found to be primarily dependent upon their reasons and intentions for using the technology or as Wallace stated: “The most important mediator of behaviour in these internet environments is the purpose of the people who visit and inhabit them” (Riva & Galimberti, 2001, p. 2; Weiser, 2001, p. 724).

Despite the sound work of Wallace and other psychology research considering CMC, the current body of knowledge related to psycho-social consequences of CMC is substantially limited (Riva & Galimberti, 2001). To help resolve these shortcomings, investigations into the role of CMC for the satisfaction of fundamental human needs, for example the need for relatedness, could advance our understanding of the psychological implications associated with
CMC. The theoretical framework of Ryan and Deci’s (2000) motivational theory of self-determination, including its conceptualisation of basic psychological need satisfaction, formed the basis for this study.

SDT is a macro-theoretical approach to human motivation. Three basic psychological needs, i.e. the need for autonomy, competence, and relatedness, form the basis for individuals’ optimal functioning and growth. Ryan and Deci (2000) postulate that the level of satisfaction of the three basic psychological needs predicts the optimal functioning and growth of individuals including performance and well-being. Conversely, when basic psychological needs are not satisfied, this can lead to anti-social and self-defeating behaviour. In SDT, both scenarios are related to the two extremes of a continuum of motivations. When an individual’s basic needs are met, the individual is described as being autonomously motivated, i.e. the individual perceives one’s action as originating from or congruent with one’s self. Alternatively, unmet needs lead to controlled motivation, i.e. the individual either feels self-imposed pressure or external control (Ryan & Deci, 2000). In conclusion, autonomous motivation predicts optimal functioning and well-being. In turn, controlled motivation is associated with ill-effects.

Furthermore, SDT suggests the three basic psychological needs to be natural, universal, and, innate, i.e. developmentally persistent (Ryan & Deci, 2008b). SDT compares psychological need satisfaction to nutriments essential for optimal physiological functioning. In conclusion, an individual’s level of autonomous motivation and optimal functioning depends upon two factors. The first factor is the availability of ‘nutriments’ in an individual’s various social contexts, i.e. the
level of need satisfaction provided by the respective environments in which people operate (Williams, Freedman, et al., 1998). Secondly, even though basic psychological needs are considered as invariant and innate aspects of the human psychological architecture, individuals differ in terms of their ability to extract nutrients from their respective social environments (Wong, 2000). That means, each individual interprets the same social contextual cues differently based on individual life experiences, which, in turn, leads to different levels of basic psychological need satisfaction from the same social contextual cue. Specifically, SDT introduced the concept of causality orientations (COT) suggesting that such orientations were “developmental outcomes in which the interaction of the active organism with a social environment results in a specifiable level of each orientation. Thus, people come to view themselves in relation to their environments as somewhat autonomous, somewhat controlled, and somewhat impersonal, and the three orientations can be used to predict various outcomes (Vallerand, 1997).” (Ryan & Deci, 2008b, p. 665).

In the field of work and organisations, SDT posits that work environments that support the satisfaction of the three basic psychological needs will facilitate employees’ autonomous work motivation, in turn, leading to better work outcomes such as performance, organisational citizenship behaviour, job satisfaction, or psychological well-being (Gagné & Deci, 2005). This postulate is supported by a long list of empirical research studies (Baard, et al., 2004; Blais & Briere, 1992; Breaugh, 1985; Deci, et al., 1989; Deci, et al., 2001; Gagné, et al., 2000; Grant & Berry, 2011; Sheldon & Elliot, 1998; Stone, et al., 2009). However, most of the work has
concentrated on autonomy need satisfaction. The impact of digital technologies on basic psychological need satisfaction in the organisational context is an under-researched area.

SDT-based research in the field of digital technologies has recently accelerated. Several studies validated SDT’s approach to basic need satisfaction in the context of video games (Przybylski, et al., 2009; Rigby & Przybylski, 2009; Ryan, et al., 2006). Shen and Khalifa’s (2008) investigation of the impact of motivational aspects of social presence (Short, et al., 1976) on online community participation is one of a few SDT studies in relation to CMC. At the intersection of CMC and the work environment, Venkatesh and Vitalari (1992) adopted an early formulation of SDT (Deci, et al., 1989) to show that computer based work from home was beneficial to achieving certain work related objectives as the formal work environment limited self-determined behaviour of employees.

In conclusion, the social context plays a significant role for psychological need satisfaction (Ryan & Deci, 2000). Major factors influencing senior executives’ work environments include high levels of mobility, i.e. extensive travel and re-locations (J. S. Black, Gregersen, et al., 1999; J. S. Black, Morrison, et al., 1999; Evans, et al., 2002), as well as the challenges of eLeadership (Annunzio & Liesse, 2001), ‘e’ for electronic, as a result of the development of CMC in response to global communication requirements. The role of CMC for basic psychological need satisfaction in organisations as well as senior executives as research population could be described as underexplored areas in SDT-based research. In study one of this thesis, a process model ("the relatedness loop model") was identified underlying senior
executives’ relatedness need satisfaction. In this present study the impact of CMC on senior executives’ relatedness need satisfaction was investigated in the context of the related loop model.

In Baumeister and Leary’s (1995) seminal work, the features of relationships satisfying the need to belong were proposed as (a) frequent personal interactions marked by (b) stability, and mutual affective concern (Baumeister & Leary, 1995). This conceptualisation was derived from a meta-review of approximately 300 references. A substantial number of the studies included in the review pre-date the development of CMC. At the time of those pre-CMC investigations, most theories of human relationships were based on physical proximity and frequent interaction (Parks & Floyd, 1996). However, in the light of technological developments enabling individuals to interact independent of their respective locations, physical proximity is no longer required to convey a feeling of presence. Instead, empirical studies in the fields of presence theory (‘the sense of being there’) (Lombard & Ditton, 1997) and electronic propinquity (‘electronic nearness’) (Joseph B. Walther & Bazarova, 2008) show that the physical dimension of FtF communication can now be substituted, to certain extents, by a medium creating environmental cues and stimuli that lead to a perceptual illusion of ‘being there’ in CMC (Coelho, Tichon, Hine, Wallis, & Riva, 2006; Greenwood & Long, 2009; Riva, 2006; Joseph B. Walther & Bazarova, 2008).

In SDT literature, the need for relatedness has been defined as “feeling connected with others and having a sense of belonging within one’s community. Relatedness satisfaction
entails a sense that one is significant to others, which is often manifest in others' willingness to care for one or to receive the care one has to offer."(Ryan & Deci, 2008b, p. 658). Moller, Deci et al. (2010) provide a complementary definition which overlaps with Baumeister and Leary's (1995) proposal: “The need for relatedness [is] a psychological necessity that involves having positive interpersonal interactions and trusting relationships. Importantly, we further contend that social encounters contribute to the satisfaction of this need to the extent that the encounters foster feelings of trust and intimacy.”(p. 754).

In terms of SDT research studies there have been comparatively few investigations on the need for relatedness. Recent SDT-based work on relatedness includes La Guardia and Patrick’s (2008) study of close relationships and Moller, Deci et al.’s (2010) investigation of the processes around person-level relatedness and the incremental value of relating. In addition, relatedness need satisfaction has not received much attention in the context of organisations in particular (Sheldon & Filak, 2008). This is consistent with literature suggesting that studying individuals’ inner resources (Ryan & Deci, 2000, p. 68), for example, relatedness need satisfaction, was a “neglected dimension in organisational behaviour research” (Amabile & Kramer, 2007; Ashkanasy, 2003, p. 23).
Based on the highlighted omissions and limitations of previous research, as well as conclusions from the first study of this thesis, the present study investigated three research questions:

Research question 2a: What are the components of relatedness need satisfaction in senior executives post CMC introduction?

Research question 2b: What is the impact of physical distance on the features of senior executives’ perceptions of relatedness?

Research question 2c: What is the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships?

5.2 Method

5.2.1 Qualitative research design

Qualitative, inductive methodology has been suggested as appropriate for pursuing “bottom-up” type of research objectives (Strauss & Corbin, 1998). Therefore it was decided to apply an inductive approach, grounded theory, to the research design (Fassinger, 2005). Even though there is a frequently cited theoretical framework for relatedness (Baumeister & Leary, 1995), it was decided to take a bottom-up interview approach to capture any emergent concepts outside the theoretical framework of Baumeister and Leary as their conceptualisation was based on pre-CMC investigations (Goulding, 1998). Grounded theory technique requires constant comparison of data, “initially of data with data, progressing to comparisons between
their interpretations translated into codes and categories and more data. This constant comparison of analysis to the field grounds the researcher’s final theorising in the participants’ experiences” (Mills, et al., 2006, p. 27).

Grounded theory techniques have been developed predominantly in the fields of education and health research where data collection is comparatively flexible and easy. In contrast, collecting data from senior executives can represent additional challenges as outlined in section 3.3.1.2. Locke (2001) postulates that grounded theory technique needs to be adjusted to the requirements of the respective research environments. Jones (1985) suggests that interviews in management research require more structure to deal with the specific challenges of the field. For more unstructured approaches, like grounded theory, an interview checklist or topic guide is proposed leading to a semi-structured, guided open interview process (Easterby-Smith, et al., 2008; Jones, 1985).

The data collection process was structured into three phases: (a) face-to-face semi-structured interviews to identify emerging concepts and categories, followed by (b) face-to-face semi-structured interviews identifying relationships between concepts and categories, and finally (c) face-to-face structured interviews clarifying distinct issues for developing a theory. There is very little guidance in academic literature in terms of sample sizes prior to data collection in qualitative research. One of the main factors impacting qualitative sample sizes is the quality of collected data (Morse, 2000) which is difficult to be foreseen when designing an investigation. Twenty-two senior executives were interviewed face-to-face for this present
study: 10 interviews in phase one, nine interviews in phase two and three interviews in phase three. After 22 interviews, the researcher concluded that further data collection had become redundant as further participants did not contribute to the emergent theory (Strauss & Corbin, 1998). A sample size of 22 is also in accordance with the few guidelines offered by literature, for example Creswell (1998), and Griffin and Hauser (1993) who both suggest 20 to 30 interviews. Other sources conclude that “little new comes out of transcripts after 20 interviews” (Green & Thorogood, 2009, p. 120)

5.2.2 Recruitment and sampling

Participant eligibility was determined as only senior executives who, self-reportedly, fulfilled at least three of the following five criteria, which were based on the five core qualifications of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012) as outlined in table 5.1.
Table 5.1 Fulfilment of senior executive qualification criteria for study two as reported by senior executive participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Number of participants fulfilling the respective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading change</td>
<td>Establishing organisational visions and implementing them in a continuously changing environment</td>
<td>18 (82% of participants)</td>
</tr>
<tr>
<td>Leading people</td>
<td>Leading people toward meeting organisational vision, mission, and goals.</td>
<td>16 (73% of participants)</td>
</tr>
<tr>
<td>Results driven</td>
<td>Making decisions that produce high-quality results by applying technical knowledge, analysing problems and calculating risks</td>
<td>20 (91% of participants)</td>
</tr>
<tr>
<td>Business acumen</td>
<td>Managing human, financial, and information resources strategically</td>
<td>16 (73% of participants)</td>
</tr>
<tr>
<td>Building coalitions</td>
<td>Networking, identifying internal and external politics, persuading others, building consensus through give and take</td>
<td>22 (100% of participants)</td>
</tr>
</tbody>
</table>

Number of participants fulfilling 3 criteria: 4 (18% of participants)
Number of participants fulfilling 4 criteria: 4 (18% of participants)
Number of participants fulfilling all 5 criteria: 14 (64% of participants)

Additionally, participants were required to have spent more than 90 days of the previous year away from home, to have relocated over a distance of more than 300km within the last 10 years, to have used at least one form of CMC before, and to be fluent in English.
Nonprobability sampling (Babbie, 2007) was employed for the identification of senior executive interviewees. A combination of snowball sampling and purposive sampling was applied to the recruitment process. First of all, snowball sampling in phase one relied on the researcher’s network of senior executive contacts for recruiting participants for the interview process. Participants interviewed in phase two were still identified by snowball sampling. However, their selection was performed on the basis of their usefulness in terms of gathering data about the properties and dimensions of coded categories as well as how the categories were related to each other (Strauss & Corbin, 1998), which qualifies as purposive sampling. In phase three of the interview process, senior executives identified by previous interview candidates were only selected if the researcher felt that they could contribute data to a specific open issue to help refine and integrate a theory developed in phases one and two. This phase three process has also been referred to as theoretical saturation under Strauss and Corbin’s (1998) grounded theory technique.

5.2.2.1 Participants

Of the total of 22 interviewed participants, eight (36%) were female and 14 (64%) were male. Participants’ average age was 43.7 and ranged from 42 to 63 years. Their industry backgrounds included finance (banking [2], private equity [4]), chemicals [2], oil & gas [2], logistics [1] and services (legal and tax consulting [5], management consulting [6]). Eight participants were Australian, eight American, and six German. All spoke fluent English.
**5.2.2.2 Procedure**

Following informed consent, all interviews were conducted separately, with only the participant and the researcher present. Semi-structured interviews have been described as guided open interviews (Easterby-Smith, et al., 2008). A checklist was developed as guidance for the open interviews in phases one and two (Easterby-Smith, et al., 2008; Jones, 1985). In accordance with Rubin and Rubin (2005), three types of questions were applied to guide an interview: main questions, follow-up questions, and probes. However, the interview guide was “not a set of questions that must be asked with particular words and in a particular order” (Babbie, 2007, p. 306). Instead, as an open interview proceeded, the interviewer ticked the respective topic area as covered by the participant allowing for the exploration of specific areas without precluding interviewees from providing further information. By applying this procedure, interviews delivered responses to a standardised set of open questions plus additional unstructured information.

Phase three interviews had a structured format investigating specific issues for integrating and refining theory and model. Interview duration was between 32 and 45 minutes in phase one, between 37 and 45 minutes in phase two, and between 31 and 35 minutes in phase three. All interviews were audio recorded and subsequently transcribed. In addition to the interview transcripts, the researcher took notes as a form of complementary data collection. These notes were, for example, based on the interviewer’s observation of participants’ body language (Silverman, 1993).
5.2.3 Data Coding and Analysis

Data coding and analysis was based on Strauss and Corbin's (1998) grounded theory technique which proposes a three level process of coding: (a) open coding, (b) axial coding and (c) selective or theoretical coding. The NVivo software package (Miles & Huberman, 1994; Richards, 2005) was used to analyse interview transcripts with regards to the above technique. Firstly, open coding identified individual nodes which correspond to concepts that emerge from data. The researcher reviewed the concepts, grouped them into categories by means of tree nodes. Subsequently, appropriate names were selected for nodes, concepts and categories (Miles & Huberman, 1994). As a next step, axial coding identified potential relationships between various nodes, concepts and categories. Following axial coding, selective or theoretical coding was performed which has been defined as “the process of integrating and refining the theory” (Strauss & Corbin, 1998, p. 143). This was based on the previous two stages of coding and represented the point in the process where no new “properties, dimensions, or relationships emerge during analysis” (Strauss & Corbin, 1998, p. 143), also referred to as theoretical saturation. This third stage of the coding process was aimed at condensing the analysis to a dynamic, interrelated set of categories that best supported the evolving and emergent theory.
5.3 Results

Table 5.2 outlines the findings.

Table 5.2 Summary of findings - study two

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Representative comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research question 2a: What are the components of relatedness need satisfaction in senior executives post CMC introduction?</strong></td>
<td></td>
</tr>
<tr>
<td>Category 1:</td>
<td></td>
</tr>
<tr>
<td><strong>Joint activity:</strong> Groups as well as one-on-one interaction</td>
<td>“working together”, “have fun together”, “spend time together”, “sharing experiences”, “travel and work together”, “succeed as a team”, “socialising outside the office”(P4,8,12,13,14,18,20)</td>
</tr>
<tr>
<td>Category 2:</td>
<td></td>
</tr>
<tr>
<td><strong>Time:</strong> Hours, days, years known each other or interacted with each other</td>
<td>“we grew up together”, “people I went to school with”, “married for 24 years”, “a lifelong relationship”, “I have known them all my life”(P3,4,11,12,16)</td>
</tr>
<tr>
<td>Category 3:</td>
<td></td>
</tr>
<tr>
<td><strong>Continuity:</strong> Regular nature of interaction</td>
<td>“going along each week”, “a weekly commitment”, “three times a year”, “catch up every weekend”, “regular occurrence”, “we meet on a quarterly basis”, “regular updates from the divisional heads” (P1,2,5,10,11,14,15)</td>
</tr>
<tr>
<td>Category 4:</td>
<td></td>
</tr>
<tr>
<td><strong>Common concern:</strong> Pursuing common goals, caring for each other</td>
<td>“you stick together as you are going through tough times”, “all we wanted was to invest in that company, that gelled”(P7), “the business almost went under, it was tough, but it also gave everyone on the board a sense of belonging”(P13)</td>
</tr>
<tr>
<td><strong>Research question 2b: What is the impact of physical distance on the features of senior executives’ perceptions of relatedness?</strong></td>
<td></td>
</tr>
<tr>
<td>Category 1:</td>
<td></td>
</tr>
<tr>
<td><strong>Lack of joint activity and common concern</strong> leading to attenuation effect with regards to feelings of relatedness</td>
<td>“we do not see each other and talk anymore as often as we used to since I moved to another office”, “I miss the face to face contact”(P1), “we used to work on the same transactions what meant that we had a much closer relationship back then”(P4)</td>
</tr>
<tr>
<td>Category 2:</td>
<td></td>
</tr>
<tr>
<td><strong>Time and continuity</strong> impact on effect of attenuation</td>
<td>“we have strong bonds given that we grew up together, therefore, the relationship will always be there in the background, maybe not quite as strong as if I was there”(P12), “I had not known him that long, so after moving away, we drifted apart”(P14)</td>
</tr>
<tr>
<td><strong>Research question 2c: What is the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships?</strong></td>
<td></td>
</tr>
<tr>
<td>Category 1:</td>
<td></td>
</tr>
<tr>
<td><strong>Close relationships:</strong> Participants use telephone to maintain family and close friend relationships</td>
<td>“I often call my family and my close friends and we talk for hours, “I actually prefer the telephone, to me it feels more personal and intimate than email or facebook”(P8)</td>
</tr>
</tbody>
</table>
Category 2: **Lower level relationships**: Participants “I use a lot of social media, email, skype or facebook to keep in contact with my other friends and acquaintances”, “you have got all these facebook friends but a certain few people, you know, the ones that are really important to you, and you to them, you just pick up the phone and talk to them – sometimes for hours” (P1)

Throughout the interview process participants provided rich data on research question 2a (“What are the components of relatedness need satisfaction in senior executives post CMC introduction?”) with regards to life events associated with feelings of relatedness. A female banker commented on the group versus one-on-one dimension of perceived relatedness as follows: “I probably think of connecting with others more in terms of a group thing, you know, like a joint group activity.......I like to have everyone there and be able to have lots of individual talks all at once.” (P4).

The above quote provides supporting evidence for relatedness being perceived on the basis of ‘joint activities’. It appeared that despite the fact that research participants consistently commented on relatedness as a “group thing”, they also described both joint individual and group activities as contributing to their perceptions of relatedness to a group or groups.

Following the analysis on *joint activities*, the concept of ‘time’ emerged from the interview data. Taking the interview data into consideration it was concluded that the participants felt that *time* spent together was an important factor contributing to perceived relatedness. The managing partner of a management consultancy who had moved continents 5 years ago commented: “I have not really had the time to establish that sort of close relationships with people here.” (P13). Furthermore, participants’ data revealed several *time*
clusters. Interview candidates appeared to consider up to three years as a short period of time. Ten years were considered appropriate to build a close relationship. However, those relationships could never be as close as close lifelong relationships.

A further concept underlying perceived relatedness was identified and labelled as ‘continuity’. Participants consistently referred to the regular nature of interactions, required to maintain and further develop relationships. It emerged from the analysis that the participants felt that the lower the level of a relationship, the more regular the interaction had to be in order to maintain it. On the other hand, when close relationships get back in touch, even after extended periods of time, “it just starts where you left it, last time you interacted.” (P5).

Several participants referred to the “goal” and “purpose” of interaction in the context of perceived relatedness. Comments referring to such concepts were summarised by the term ‘common concern’. Senior executive interviewees reported feelings of relatedness drawn from shared experiences, common goals and mutual concern. A female board member of a multi-national chemicals conglomerate commented:

Being part of something would be having the idea that whoever I’m in this team with there is a mutual concern and mutual respect. I know them and they know me and we are all putting in our individual efforts to reach a common goal. (P11)
At the initial stages of the analysis on research question 2b ("What is the impact of physical distance on the features of senior executives’ perceptions of relatedness?") it emerged from the data that physical distance was associated with perceived levels of relatedness. A male banker outlined the impact of physical distance on his feeling of connection and belonging:

That’s probably physical because I’m here and they’re in XXXX. So when I visited our offices in XXX in that month in July when I was there. It was fantastic as I had a real sense of being part of that team over there. However, back home again, after a couple of days it feels like they are so far away again. Almost like a foreign company. I guess you can only build close working relationships when you are in the same place. Therefore, I am really trying to get over there as often as I can. (P17)

Based on the interview data it was concluded that participants felt physical distance had an attenuating effect on perceptions of relatedness. In a second step, it was investigated which of the features identified under the research objective 2a this attenuating effect could be attributed to. The following quote from a male senior executive who was heading a foreign office for a services firm provided a good insight:

What I am missing sometimes is the physical interaction with people from head office. Sometimes we all here feel a bit excluded from the activities in our corporate headquarters. Also head office management seems to pursue different agendas at times. (P7)
The lack of *joint activity* and *common concern* due to physical distance were identified as key factors leading to attenuated feelings of relatedness. However, whether physically distant relationships are perceived as "continued strong bonds" (P17) or as "drifting apart" (P3) appeared to be dependent upon the *time* and *continuity* attributes of the respective relationships. It appeared that the more stable and history-loaded relationships were, the higher the likelihood of the relationships to sustain physical distance. *Time* and *continuity* could be suggested as impacting on the effects of a lack of *joint activity* and *common concern*.

We started together in this firm, about 26 years ago. Therefore, we have this trust, this respect, a relationship which does not require to be maintained on a continuous basis. When I see him, we start where we left it last time we met. (P3)

I moved jobs about 6 months ago. I still talk to some of the people over there [in his old firm], but over time it requires too much energy to keep up with all those contacts and, as a result, you kind of start drifting apart. This is my experience from previous moves. (P17)

In conclusion, the impact of physical distance on perceptions of relatedness appeared to be associated with the respective level of relationships as outlined in figure 5.1..
Figure 5.1. Attenuation effects of physical distance and level of relationships for senior executives.

Analysis of interview data on research question 2c (“What is the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships?”) yielded results that appeared to vary according to the relationship clusters identified under research objective 2b: close, stable relationships with a long history, namely family and close friends, versus lower level relationships such as “other friends, acquaintances, people on the net and complete strangers.” (P4). Participants outlined how they kept in contact with their close relationships, family and friends, mainly via telephone and occasional face-to-face contact. A 45 year old female senior executive commented on the use and impact of CMC associated with those relationships:
I often call my parents, and my siblings and chat to them over the phone. I also call my close friends over the phone and see what they are up to down there....they are all online by now but I prefer the phone.....for all the other friends and acquaintances I have, I use the social media on the net, like email or Facebook. It is easier to keep in contact with a lot of people that way because you do not have to talk to them individually. In terms of support, I would say, that is coming almost exclusively from the special connection with my family and close friends. Unfortunately, they are removed and even Skype could not beam them up here to my doorstep, so I rather talk to them on the phone. (P12)

However, the same senior executive admitted the occasional use of CMC.

Every once in a while I get up and have a Skype conversation with XXX (her closest school time friend who lives on a different continent), [pause], maybe every 2 to 3 months, and we catch up over family, friends, and all that stuff. (P12)

When investigated further, the female executive commented more explicitly on the use of Skype:

Yeah, it feels like making an effort on my part, [pauses], you know, turning on the machine, adjusting the camera, then, you know, something is not working, video or sound, or whatever, it can be a real nuisance, [pauses, looks at his laptop, pauses again, picks up the receiver from his landline telephone] why not dial the number and start talking?[starts laughing] (P12)

Not all interviewees’ close relationships had access to, or were used to, CMC in which case they had no other choice but to use the telephone to get in touch with them.
Conversely, CMC appeared as preferred choice of communication to interact with lower level relationships such as friends, acquaintances or relationships initially developed via CMC. Several participants commented along the same lines as this 33 year old male lawyer:

I came up with the thought of Facebook, you’ve got all these Facebook friends but they’re not real, no real feelings of support there - you’ve got a certain few close friends that you know that are really important to you and you are to them. They also use Facebook but I call them over the phone when I want to speak to them. It feels more private, confidential, and somehow normal. So there’s that and then you’ve got kind of artificial Facebook friends. (P6)

A female board member from a multi-national services firm supported this view:

We use a lot of Skype in our firm for global communication, for example, when we have international projects with teams consisting of experts from various geographies. However, when I need to speak to my close contacts in overseas office, I just pick up the phone. I don’t know [pause], maybe, there is a level of trust which does not require eye contact for communication [laughs]. (P15)

When participants’ lower level relationships did not have access to, or were not used to CMC, the relationships were described as “drifting apart” (P3) over time. Figure 5.2. summarises the results for the investigation under research objective 2c.
Figure 5.2. Preferred mode of communication and level of relationships for senior executives.

5.4 Discussion

The research objective of this study was to explore the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships.

In terms of research question 2a (“What are the components of relatedness need satisfaction in senior executives post-CMC introduction?”), the findings support Baumeister and Leary’s (1995) conceptualisation of the need for relatedness. Joint activity, time, continuity and common concern, as empirically identified post CMC by the present investigation, correspond to Baumeister and Leary’s meta-theoretical, two-dimensional pre-CMC framework of frequent, personal interactions and stability and mutual affective concern.
With regard to research objective 2b (“What is the impact of physical distance on the features of senior executives’ perceptions of relatedness?”), the research results show that physical distance appears to have an attenuating effect on the perception of relatedness with the extent of attenuation differing between close and lower level relationships. There are two streams of academic literature investigating the phenomenon of physical distance in the context of relationships. Literature in the field of social presence theory approaches the phenomenon from a communication perspective (Gerstel & Gross, 1984; Short, et al., 1976; Vygotsky, 1978). For social psychologists physical distance is a question of social attachment (Festinger, et al., 1950). Both perspectives, communications and social psychology, contribute to the understanding of the relationship between physical distance and relationships. The more physically close individuals feel the more beneficial for relationships even though the feeling is based on real proximity in F2F communication and on a perceptual illusion in the case of presence and CMC (Greenwood & Long, 2009; Riva, 2002).

In the context of SDT, the results could be interpreted as follows. Participants appeared to extract the more nutriments for relatedness need satisfaction from the same level of ‘joint-activity-cues’ and ‘common-concern-cues’ the more their physically distant social context was determined by time and continuity attributes (see figure 5.3. Scenario A). Alternatively, interview data support the conclusion that senior executives require the less joint activity and common concern for the same level of relatedness need satisfaction the more their physically distant relationships are based on time and continuity (see figure 5.3. scenario B).
Figure 5.3. Level of relatedness need satisfaction associated with level of physically distant relationships in senior executives (illustration only).

This model prompts the question of how the conceptualisation of causality orientations can be reconciled with the ‘High’ and ‘Low’ clusters in scenarios A and B. For example, to what extent causality orientations mediate or moderate the effect of ‘time’ and ‘continuity’ attributes on relatedness need satisfaction in senior executives in physically distant relationships? This was not the focus of the present exploratory study, however, is suggested as a field of further investigation.

In summary, the findings of this exploratory study are consistent with literature in terms of the significance of proximity or presence for relationships. However, the research results extend the understanding of the impact of physical distance on relationships to the causes of
attenuation as deprivation of *joint activity* and *common concern* with the extent of attenuation differing by level of relationship as determined by their respective *time* and *continuity* attributes.

The findings in terms of research question 2c ("What is the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships?") seemed to distinguish between close and lower level physically distant relationships with regards to the role of CMC and its impact on perceived relatedness for senior executives. The results of this research study suggest that there was a tendency for senior executives not to use CMC as preferred medium to maintain close relationships even though perceived physical distance was reported as cause for attenuated feelings of relatedness drawn from close relationships. Conversely, senior executives were inclined to use CMC to maintain a network of lower level physically distant relationships. There are two perspectives on this finding which relate to (a) the availability of CMC and (b) the perceived functionality of CMC in the context of relatedness need satisfaction.

First of all, for communicating via CMC, both ends of the communication line need to have access to the technology as well as need to know how to use it. Even though the senior executives included in this study had access to and made extensive use of CMC, there were several participants whose parents were not connected to CMC. However, after excluding those cases, a tendency could still be detected for using the telephone, for example, for communicating with siblings, children or close friends, despite the availability of CMC.
Conversely, the availability of CMC appeared to be a pre-requisite for senior executives to maintain lower level physically distant relationships. Both aspects seemed to be associated to the second perspective, the perceived functionality of CMC in the context of relatedness need satisfaction.

When most senior executive participants used the telephone for communicating with close relationships, despite the potential deficiencies of telephone conversations in terms of social interactions (Gerstel & Gross, 1984), their preference may be attributed to one of two potential factors. Either the level of attenuation of relatedness need satisfaction was not perceived large enough to swap the telephone for CMC which is suggested to provide further channels of communication such as video (Mantovani, Agliati, Mortillardo, Vescovo, & Zurloni, 2006). Alternatively, the additional functionality of CMC may not have been considered significant enough to make up for the extra effort, like a ‘barrier-to-entry’, or for the relatedness need satisfaction differential. However, a few senior executives used CMC in the context of close physically distant relationships. This means that the level of *time* and *continuity* attributes of relationships are not the only factors influencing senior executives’ use of CMC. For example, individual differences in terms of interpreting social cues for relatedness need satisfaction, as suggested by SDT’s causality orientation, as well as other social contextual factors, may be moderating or mediating the relationship between level of relationship and use of CMC.
Most senior executives used CMC to maintain a network of lower level physically distant relationships which, however, were not considered as providing meaningful levels of relatedness need satisfaction individually. These findings are consistent with previous research identifying CMC relationships as shallow or impersonal (Amichai-Hamburger, 2005; Bonebrake, 2002), unable to satisfy socio-emotional and relational communication, because of a lack of relational features, summarised by the “cues-filtered-out” concept (Riva, 2002). Therefore, it could be concluded that CMC’s functionality helps increase levels of joint activity and common concern to prevent senior executives’ lower level relationships from drifting apart. Alternatively, CMC facilitates point-to-multipoint communication. That means that keeping in shallow contact with larger numbers of lower level relationships requires much less effort and resources than communicating individually. At the same time, this mode of communication could facilitate the aggregation of small individual portions of relatedness need satisfaction. As in the case of close relationships, not all senior executives reported congruent behavioural patterns with respect to the use of CMC. Some participants occasionally used the telephone instead. This shows that relationship levels are not exclusive predictors for senior executives’ use of CMC in physically distant relationships. It is suggested that concepts such as SDT’s causality orientations as well as other social contextual factors may have a moderating or mediating effect on the use of CMC.

The relatedness loop model, that was identified in study one (page 146 of this thesis) of this thesis, could be applied to interpret the results of this present study. Using CMC instead of the telephone appeared to require additional perceived effort or investment on behalf of senior executives. In the case of close physically distant relationships, there are several potential
perspectives on interview data. First of all, senior executives may have felt that the attenuation effect on return was not significant enough to justify the extra-effort of using CMC. Secondly, participants did not want to make an extra effort and use CMC in order to generate unconditional return (return without investment, see page 141 study one) which senior executives predominantly associated with close relationships in study one. In terms of lower level physically distant relationships, senior executives appeared to use the CMC as an efficiency tool. A single investment, for example, writing an email or posting on facebook, allowed for the aggregation of many, small returns, which, on an individual basis, would not have justified the investment of a phone-call.

In summary, this exploratory study identified the level of relationship as factor for senior executives’ use of CMC in physically distant relationships. Even though the data of this investigation were high in terms of their validity, the research results may not be generalisable. Differences between participants were detected, which, for example, could be attributed to SDT’s postulate of individual orientations in terms of psychological need satisfaction as well as other social contextual factors. Quantitative investigations into the relationship of individual differences, CMC functionality, relationship levels, levels of joint activity and common concern as well as relatedness need satisfaction are suggested to further knowledge in this field. As a first step in this direction, the following study three will investigate the relationship between senior executives’ individual orientations and their levels of relatedness need satisfaction.
6  STUDY THREE – INVESTIGATING THE RELATIONSHIP BETWEEN SENIOR EXECUTIVES’ CAUSALITY ORIENTATIONS AND THEIR LEVEL OF RELATEDNESS NEED SATISFACTION

6.1  Introduction

Employees’ inner life plays a crucial role for organisational performance and effectiveness (Amabile & Kramer, 2007). However, inner life investigations have been described as an underexplored field in organisational behaviour research (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008). Senior executives represent a special category of employees (Hambrick & Finkelstein, 1995; Moutafi, et al., 2007). Business scholars, most notably Harvard University’s Abraham Zaleznik (for example 1992, 1995) and Harry Levinson (for example 1990, 1991) as well as INSEAD’s Manfred Kets de Vries (Kets De Vries, 2007a, 2007b, 2010; Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), have been highlighted by Harvard Business Review as leading researchers in the field of senior executives psychology with “uncompared exposure to the mind of the business leader”(Coutu, 2004, p. 64), who “know what really goes on inside the mind of the leader”(Coutu, 2004, p. 64). Despite these ample claims, a review of published literature appears to suggest that these business scholars’
contributions have been based on little empirical data, lacked a comprehensive research framework, and focused on the consequences of senior executive behaviour rather than the “inner resources for (senior executives’) personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68). For example, most of Kets de Vries’ contribution to literature is based on data generated by his executive coaching practice focusing on “the interface between international management, psychoanalysis, psychotherapy, and dynamic psychiatry” in the context of “leadership development, top executive team building, organisational change, and cross-cultural management” (www.ketsdevries.com). In conclusion, claims of a lack of inner-resource investigations in organisational psychology research (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008) can be extended to the field of senior executives.

Gagné and Deci’s (2005) SDT model of work motivation provides a cohesive theoretical research framework for inner-resource investigations, i.e. studying the “inner resources for personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68), into senior executives. The model adapts previous empirical non-organisational SDT research findings to organisational settings proposing that environmental factors (job content, job context, work climate) and individual differences (causality orientations) predict basic psychological need satisfaction leading to autonomous work motivation, which, in turn, is associated with work outcomes (performance, job satisfaction, organisational trust and commitment, psychological well-being). Applying the SDT model of work motivation to senior executives, it could be suggested that senior executives’ individual differences, as expressed by
SDT’s general causality orientations, and senior executives’ level of relatedness need satisfaction predict their optimal functioning, i.e. favourable work outcomes such as performance, job satisfaction, organisational trust and commitment, and psychological well-being. However, only few studies have tested SDT in the organisational context (Gagné & Deci, 2005), none of them in the field of senior executives. Furthermore, SDT-based research in the context of basic need satisfaction has largely concentrated on the need for autonomy, neglecting the needs for competence and relatedness (Sheldon & Filak, 2008).

According to Conti and O’Neil’s (2007) definition of elites, i.e. “people who inhabit the highest strata of global power” (p. 63), senior executives qualify as part of global elites. The challenges of studying elites (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008; Odendahl & Shaw, 2002) may have contributed to a lack of inner-resource investigations in the field of senior executives. For example, “access to elites can be difficult to obtain and typically requires extensive preparation, homework, creativity on the part of the researcher, as well as the right credentials and contacts, not to mention a little luck.” (Odendahl & Shaw, 2002, p. 306). Furthermore, time available for filling out questionnaires is a critical issue (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008). In an environment where senior executive hours are frequently calculated at well over USD 1,000, most researchers will not be able to purchase these hours but will have to rely on a “donation of time” from participants (Conti & O’Neil, 2007, p. 71). The present study 3 of this thesis was designed to fill a part of these hiatus in published literature. Specifically, the research objective was to investigate the relationship between senior executives’ causality orientations and their level of relatedness need satisfaction.
SDT is a conceptual framework for predicting human behaviour and its consequences for the individual and their social contexts (Ryan & Deci, 2008b). As such SDT is based on the concept of internalisation which could be described as an individual’s assimilation of external values into the individual’s self (Deci & Ryan, 1985b). The extent to which such internalisation occurs corresponds to a continuum of types of motivations (Ryan & Deci, 2000). When social contextual values are fully internalised, SDT describes individuals as being self-determined, intrinsically or autonomously motivated. In turn, this leads to optimal functioning, constructive social development and well-being (Ryan & Deci, 2000).

At the other end of the continuum, individuals are amotivated when the external values are not internalised, leading to a lack of motivation, self-defeating, socially dysfunctional behaviour, and ill-being (Ryan & Deci, 2000). SDT theorises that an individual’s level of self-determination depends upon the degree to which their basic psychological needs are satisfied, which, in turn, is related to an individual’s ability of satisfying one’s basic psychological needs from the social context from which external values arise (Deci & Ryan, 1985b; Ryan & Deci, 2000). SDT suggests the needs for autonomy, competence, and relatedness as basic psychological needs which are innate, universal, and developmentally stable (Ryan & Deci, 2002, 2008b) and basic psychological need satisfaction as the provision of psychological nutriments (Ryan & Deci, 2008b, p. 657) required for optimal levels of motivation leading to optimal individual as well as social outcomes (Ryan & Deci, 2002).
When basic psychological needs are thwarted, individuals can display self-defeating and anti-social behaviour including disproportionate risk taking. Such behaviour, also referred to as ‘self-regulation failure’ (Baumeister & Heatherton, 1996), has been particularly well documented in the case of a lack of relatedness need satisfaction (Baumeister, et al., 1994; Schueler & Kuster, 2011; Twenge, et al., 2001; Twenge, et al., 2007). SDT research in the field of basic psychological needs has gained momentum over the last ten years. With regards to organisations, basic psychological need satisfaction was found to be associated with positive work outcomes such as employees’ psychological well-being (Deci, et al., 2001), pro-social behaviour (Gagné, 2003), and performance (Baard, et al., 2004).

There are only a few SDT research studies specifically investigating the need for relatedness (Lavigne, et al., 2011; Sheldon & Filak, 2008). Only recently, SDT researchers have started to address this gap in published literature. Such investigations include LaGuardia and Patrick’s (2008) work on close relationships, Moller et al.’s (2010) study investigating the processes around person-level relatedness and the incremental value of relating as well as Lavigne et al.’s (2011) belongingness orientation model (BOM). SDT points out, that individuals differ in their ability to detect, perceive, and internalise available psychological nutriments (Ryan & Deci, 2008b) from environmental cues. These individual differences represent a main factor for the satisfaction of individuals’ basic psychological needs. This phenomenon is captured by SDT’s causality orientation theory (COT; Deci & Ryan, 1985a).
COT suggests three causality orientations, namely autonomous, controlled, and impersonal orientation, corresponding to individual differences in terms of internalising social contextual values (Deci & Ryan, 1985a). For example, autonomously oriented individuals are theorised to detect or perceive higher levels of nutriments, i.e. psychological need satisfaction, from the same environmental cues than control oriented individuals. In turn, control oriented individuals are predicted to generate more psychological nutriments from the same social context than impersonally oriented individuals. In summary, SDT postulates that individuals interpret situational cues according to all three causality orientations, even though the strength of each orientation has been suggested to differ by individual (Wong, 2000). Individuals stronger on autonomy orientation are proposed to be more self-starting, self-responsible, and seeking challenging activities (Deci & Ryan, 1985a). Controlled oriented individuals are likely to be dependent on rewards and to place extreme importance on wealth and fame (Ryan & Deci, 2008b). When impersonally oriented, individuals feel that outcomes are beyond their control, they are likely to be anxious, and consider achievements as matters of luck or fate (Ryan & Deci, 2008b). Applying the definitions of causality orientations to senior executives, it may be hypothesised that, given their key decision-making organisational roles (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), senior executives may be higher on autonomy orientation and lower on impersonal orientation, and, given the important role of monetary rewards (Kets De Vries, 2007b), higher on control orientation than non-executive employees.
Since its development by Deci and Ryan (1985a), the General Causality Orientation Scale (GCOS) has been widely used in SDT research. For example, autonomy orientation has been associated with a lack of guilt and hostility (Deci & Ryan, 1985a), surgery as being perceived as challenging rather than threatening (King, 1984), positive self-evaluation (Deci & Ryan, 1985a), self-starting (Sheldon & Kasser, 1995), more honest and interpersonal (Hodgins, et al., 1996), more persistent (Koestner & Zuckerman, 1994), and displaying higher levels of performance (Wong, 2000).

COT has also been applied in the context of work and organisations. Lam and Gurland’s (2008) study with 160 non-faculty college employees showed a positive correlation between autonomy orientation and self-determination as well as a negative correlation between control orientation and self-determination. Several studies have investigated the relationship between causality orientations and basic psychological need satisfaction in work environments. Gagné (2003) found that 118 undergraduate students’ autonomy orientation was positively correlated with all three basic psychological needs, with relatedness need satisfaction showing the strongest effect. Baard et al.’s (2004) investigation of a sample of 528 investment bankers supported Gagné’s (2003) findings. However, no previous SDT studies have examined senior executives’ causality orientations in the context of relatedness need satisfaction as potential contributor to senior executive’s behavioural self-regulation. Interpreting previous literature in the context of the GFC may suggest that if senior executives engaged in self-defeating and anti-social behaviour, for example questionable financial products and transactions, a lack of senior
executives’ relatedness need satisfaction may have contributed to such potential self-regulation failure, which, in turn, may be associated with senior executives’ causality orientations.

The present study three was designed to contribute to the body of knowledge at the inner-resource level of psychological analysis of senior executives. For the first time, SDT was applied to a sample of senior executives. After investigating the processes underlying senior executives’ relatedness need satisfaction (study one) and the impact of CMC as social contextual factor on senior executives’ relatedness need satisfaction (study two), study three examined the relationship between causality orientations and the level of relatedness need satisfaction in a sample of senior executives. Specifically, the investigation addressed the following research questions:
Research question 3a: Are senior executives higher on autonomy and control orientation, and lower on impersonal orientation than other individuals?

Research question 3b: Is senior executives’ autonomy orientation positively correlated with their level of relatedness need satisfaction?

Research question 3c: Are senior executives’ control and impersonal orientations negatively correlated with their level of relatedness need satisfaction?

Research question 3d: Does senior executives’ autonomy orientation correlate stronger with their level of relatedness need satisfaction than with their levels of competence and autonomy need satisfaction?

6.2 Method

6.2.1 Participants

All 88 eligible senior executive participants (23 female; 26%, 65 male; 74%) were over 18 years old and fulfilled, self-reportedly, at least three of the five senior executive qualification criteria (see table 6.1). The basis for these eligibility criteria were the five core qualifications of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012).
### Table 6.1 Fulfilment of senior executive qualification criteria for study three as reported by senior executive participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Number of participants fulfilling the respective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading change</td>
<td>Establishing organisational visions and implementing them in a continuously</td>
<td>69 (78% of participants)</td>
</tr>
<tr>
<td></td>
<td>changing environment</td>
<td></td>
</tr>
<tr>
<td>Leading people</td>
<td>Leading people toward meeting organisational vision, mission, and goals.</td>
<td>78 (89% of participants)</td>
</tr>
<tr>
<td>Results driven</td>
<td>Making decisions that produce high-quality results by applying technical</td>
<td>84 (95% of participants)</td>
</tr>
<tr>
<td></td>
<td>knowledge, analysing problems and calculating risks</td>
<td></td>
</tr>
<tr>
<td>Business acumen</td>
<td>Managing human, financial, and information resources strategically</td>
<td>77 (88% of participants)</td>
</tr>
<tr>
<td>Building coalitions</td>
<td>Networking, identifying internal and external politics, persuading others,</td>
<td>85 (97% of participants)</td>
</tr>
<tr>
<td></td>
<td>building consensus through give and take</td>
<td></td>
</tr>
</tbody>
</table>

Number of participants fulfilling 3 criteria: 18 (21% of participants)
Number of participants fulfilling 4 criteria: 11 (13% of participants)
Number of participants fulfilling all 5 criteria: 59 (66% of participants)

The average age of the participants was 44.3 years ($SD = 6.51$), with the minimum and maximum ages being 27 and 65 respectively. The mean score for the level of English language proficiency was 4.60 ($SD = 0.62$) on a 5 point Likert scale (5 = excellent, 1 = poor) with no score
lower than 3. The size of a participant’s company was assessed by the number of employees and the distribution is reported in figure 6.1.

Figure 6.1. Distribution of participants by company size - study three.

Forty-seven (53%) of the participants were Germans, 21 (24%) were Australian, 8 (9%) came from the US, 6 (7%) from the UK, 2 (2%) from Austria and the Netherlands respectively, 1 from South Africa and 1 from Ireland.
6.2.2 Procedure

An email containing a link to the web-based surveys of studies three and four (SurveyMonkey) with a participant information sheet and informed consent was sent to all participants from studies one and two of this thesis inviting them to take part in the survey and forward the email to contacts they considered potential eligible participants for this study. The survey was completed online and consisted of two questionnaires collecting senior executives’ causality orientations, basic psychological need satisfaction, and additional demographic information. The entire survey took approximately 15 minutes. Prior to going live with the survey, it was piloted upon volunteers to check the clarity of the survey and to ensure that questions were suitable to the target population. No incentives were provided for senior executives participating in the survey.

6.2.3 Materials

6.2.3.1 General causality orientations

Participants’ general causality orientation was measured by the General Causality Orientation Scale (GCOS) (Deci & Ryan, 1985a) which includes 12 vignettes that describe everyday life situations. For each vignette, participants indicate how likely they would be to engage in three possible responses, each of which represents a type of causality orientation: (a) autonomy, (b) control, or (c) impersonal. For example, in response to the scenario of being offered a new job, participants rate how likely they would be to respond autonomously (e.g., by considering how interested they are in the kind of work at the new job), in a control-oriented
way (e.g., by wondering whether there are good possibilities for advancement), and impersonally (e.g., by wondering whether they can do the work without getting in over their head). Respondents indicated, on 7-point Likert-type scales, the extent to which each response was typical for them. Higher scores indicated higher amounts of the particular orientation represented by the response. Thus, the scale has three subscales (the autonomy, the controlled, and the impersonal subscales) with subscale scores generated by summing the individual's 12 responses on items corresponding to each subscale. The GCOS has been shown to be a reliable and valid tool (A. E. Black & Deci, 2000; Deci & Ryan, 1985a; Gagné, 2003). Table 6.2 shows Cronbach’s $\alpha$ for the three GCOS subscales as reported by a selection of previous investigations and the data for this present study. The internal consistency of the autonomy and impersonal subscales in this study were above .7 what Allen and Bennett (2010) describe as an acceptable level. Cronbach’s $\alpha$ for the control subscale was low at .61, but not considered to be a threat to the validity of the data.

Table 6.2 Cronbach’s $\alpha$ for GCOS subscales

<table>
<thead>
<tr>
<th>Study</th>
<th>Autonomy Orientation</th>
<th>Control Orientation</th>
<th>Impersonal Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deci and Ryan (1985a)</td>
<td>.74</td>
<td>.69</td>
<td>.74</td>
</tr>
<tr>
<td>A.E. Black and Deci (2000)</td>
<td>.79</td>
<td>.69</td>
<td>.75</td>
</tr>
<tr>
<td>Gagné (2003)</td>
<td>.82</td>
<td>.73</td>
<td>.85</td>
</tr>
<tr>
<td>Present study</td>
<td>.81</td>
<td>.61</td>
<td>.79</td>
</tr>
</tbody>
</table>
6.2.3.2 Basic psychological needs

The 21-item Basic Psychological Need Satisfaction Scale-General (BPNS-G) (Gagné, 2003) assessed satisfaction of autonomy (seven items; e.g., I generally feel free to express my ideas and opinions), competence (six items; e.g., People I know tell me I am good at what I do), and relatedness (eight items; e.g., I get along with people I come into contact with). Responses were made on a 7-point Likert-type scale, ranging from 1 (not at all true) to 7 (very true). The three subscale scores for autonomy, competence, and relatedness need satisfaction were used to compute an intrinsic need-satisfaction score for each respondent by averaging the three subscale scores. The BPNS-G has been shown to be a reliable and valid tool. Table 6.3 shows Cronbach’s α for the three BPNS-G subscales as reported by a selection of previous research and the data for this present study. The internal consistency of the three subscales in this study was at an acceptable level (P. Allen & Bennett, 2010).

Table 6.3 Cronbach’s α for BPNS-G (21-items, 7-point Likert-type) subscales and intrinsic need-satisfaction

<table>
<thead>
<tr>
<th>Study</th>
<th>A-NS(a)</th>
<th>C-NS(a)</th>
<th>R-NS(a)</th>
<th>I-NS(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gagné (2003)</td>
<td>.69</td>
<td>.71</td>
<td>.86</td>
<td>.89</td>
</tr>
<tr>
<td>Wei, et al. (2005)</td>
<td>.68</td>
<td>.75</td>
<td>.85</td>
<td>.90</td>
</tr>
<tr>
<td>Vansteenkiste et al. (2006)</td>
<td>.61</td>
<td>.66</td>
<td>.79</td>
<td>.87</td>
</tr>
<tr>
<td>Meyer, et al. (2007)</td>
<td>.63</td>
<td>.75</td>
<td>.74</td>
<td>.84</td>
</tr>
<tr>
<td>Schueler and Kuster (2011)</td>
<td>.81</td>
<td>.77</td>
<td>.77</td>
<td>.88</td>
</tr>
<tr>
<td>Present study</td>
<td>.80</td>
<td>.74</td>
<td>.83</td>
<td>.89</td>
</tr>
</tbody>
</table>

(a)NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness, I = Intrinsic
6.2.3.3 Demographic information

Participants were asked to indicate their gender, age, nationality, level of English proficiency, size of firm, and level of seniority. The level of seniority was based on participants’ self-reported fulfilment of the respective senior executive qualification criteria as outlined under 6.2.1 For example, a level three senior executive self-reportedly fulfilled three of the five qualification criteria and a most senior level five senior executive self-reportedly fulfilled all five of the qualification criteria.

6.3 Results

The IBM Statistical Package for Social Sciences (SPSS) version 19.0 was used for statistical analyses.

6.3.1 Preliminary analyses

Data screening was conducted to ensure that assumptions for the associated statistical analyses were met. Descriptive statistics indicated that all data were within expected ranges, with plausible mean and standard deviation scores. Data from the same initial 105 participants as in study four were screened and corrected for missing values. Cases with >5% missing data were inspected, with 15 participants ultimately being deleted due to large scale, non-random,
missing values. Two more participants were deleted as they did not fulfil the minimum requirement of at least three of the five senior executive qualification criteria. The retained sample size was $N = 88$. Missing data points for the remaining 88 participants were considered random. Mean substitutions were used to estimate missing values on continuous variables, while mode substitutions were used for categorical variables. Although mean substitution is a conservative procedure which reduces variance, any method for replacing missing values utilised in large samples with <5% missing data points yields similar results (Tabachnik & Fidell, 2007).

All variables were examined for fit between the distributions and assumptions for parametric tests. Both Shapiro-Wilk and Kolmogorov-Smirnov tests of normality were significant for all variables ($p < .001$). Field (2009) points out that statistical normality is rarely achieved in large samples. A visual examination of distributions indicated no gross deviations from normality for all variables. In conclusion, use of parametric tests were considered justified.

6.3.2 Descriptive statistics

Table 6.4 presents the means and standard deviations for participants’ causality orientation and basic psychological need scores grouped by demographic information.
Table 6.4 Means and standard deviations for participants’ causality orientation and basic psychological need scores grouped by demographic information (scores for groups with fewer than two cases are not included)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>General Causality Orientations</th>
<th>Basic Psychological Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
<td>Control</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (N = 65)</td>
<td>69.83(8.79)</td>
<td>47.72(9.28)</td>
</tr>
<tr>
<td>Female (N = 23)</td>
<td>73.61(6.91)</td>
<td>48.22(7.12)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29 (N = 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39 (N = 16)</td>
<td>67.25(8.02)</td>
<td>47.88(11.23)</td>
</tr>
<tr>
<td>40-49 (N = 57)</td>
<td>70.25(8.59)</td>
<td>48.68(8.18)</td>
</tr>
<tr>
<td>50-59 (N = 12)</td>
<td>77.33(5.19)</td>
<td>43.67(7.63)</td>
</tr>
<tr>
<td>60-65 (N = 2)</td>
<td>74.00(8.49)</td>
<td>45.00(4.24)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany (N = 47)</td>
<td>68.85(8.58)</td>
<td>48.04(8.51)</td>
</tr>
<tr>
<td>Australia (N = 21)</td>
<td>71.67(7.62)</td>
<td>47.43(6.92)</td>
</tr>
<tr>
<td>US (N = 8)</td>
<td>72.13(10.43)</td>
<td>44.83(7.08)</td>
</tr>
<tr>
<td>UK (N = 6)</td>
<td>78.50(3.51)</td>
<td>49.13(12.39)</td>
</tr>
<tr>
<td>Austria (N = 2)</td>
<td>69.00(1.41)</td>
<td>56.50(0.71)</td>
</tr>
<tr>
<td>Netherlands (N = 2)</td>
<td>73.00(9.90)</td>
<td>49.00(8.49)</td>
</tr>
<tr>
<td>South Africa (N = 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland (N = 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior executive level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (N = 18)</td>
<td>69.83(7.79)</td>
<td>50.56(8.09)</td>
</tr>
<tr>
<td>Level 4 (N = 11)</td>
<td>71.64(9.06)</td>
<td>46.82(5.83)</td>
</tr>
<tr>
<td>Level 5 (N = 59)</td>
<td>70.97(8.68)</td>
<td>47.22(9.30)</td>
</tr>
</tbody>
</table>
Table 6.4 (continued)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>General Causality Orientations</th>
<th>Basic Psychological Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
<td>Control</td>
</tr>
<tr>
<td>Firm size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 10 (N = 28)</td>
<td>73.71(8.05)</td>
<td>44.86(8.15)</td>
</tr>
<tr>
<td>11 - 25 (N = 12)</td>
<td>67.50(9.85)</td>
<td>42.83(11.54)</td>
</tr>
<tr>
<td>26 – 100 (N = 9)</td>
<td>73.78(7.21)</td>
<td>48.78(7.53)</td>
</tr>
<tr>
<td>101 – 500 (N = 7)</td>
<td>71.00(10.17)</td>
<td>49.71(9.01)</td>
</tr>
<tr>
<td>501 – 1000 (N = 7)</td>
<td>67.86(10.34)</td>
<td>52.43(10.37)</td>
</tr>
<tr>
<td>&gt;1000 (N = 25)</td>
<td>68.88(6.92)</td>
<td>51.48(5.50)</td>
</tr>
<tr>
<td>Level of English proficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (N = 4)</td>
<td>69.75(11.44)</td>
<td>43.50(11.09)</td>
</tr>
<tr>
<td>Level 4 (N = 27)</td>
<td>67.70(8.52)</td>
<td>48.70(8.08)</td>
</tr>
<tr>
<td>Level 5 (N = 57)</td>
<td>72.37(7.97)</td>
<td>47.75(8.93)</td>
</tr>
</tbody>
</table>
To test whether all participants’ data could be analysed together, the mean causality orientation scores and basic psychological need scores, broken down by gender, age, nationality, level of English proficiency, size of firm, and level of seniority, as outlined in Table 6.4, were compared. Following Tabachnik and Fidell’s (2007, p. 244) suggestion for the identification of significant group differences as well as Lam and Gurland (2008) as an example, one-way ANOVA, t-test, and regression analyses were performed to test for mean differences. Results showed no significant differences between any of the different participant demographic classifications. The inference form this finding was that there were no significant systematic variations between participant demographic classification that required different participant groups to be analysed separately and such factors to be included as co-variates. Therefore, all participants’ data were analysed together, i.e. collapsed across all demographic variables.

In terms of the internal correlation of the general causality orientation scale, participants’ autonomy orientation scores were negatively correlated with control orientation scores \( r = -.21, p < .05 \) [2-tailed] and impersonal orientation scores \( r = -.25, p < .05 \) [2-tailed]), and both control and impersonal orientation scores were positively correlated \( r = .47, p < .01 \) [2-tailed]). The means, standard deviations and internal correlations for participants’ basic psychological needs are presented in table 6.5.
Table 6.5 Means, standard deviations and internal correlations for participants’ basic psychological needs

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>A-NS(^{(a)})</td>
<td>5.36</td>
<td>0.92</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>C-NS(^{(a)})</td>
<td>5.56</td>
<td>0.90</td>
<td>.64**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>R-NS(^{(a)})</td>
<td>5.60</td>
<td>0.88</td>
<td>.51**</td>
<td>.54**</td>
<td>-</td>
</tr>
<tr>
<td>4.</td>
<td>I-NS(^{(a)})</td>
<td>5.51</td>
<td>0.76</td>
<td>.86**</td>
<td>.87**</td>
<td>.80**</td>
</tr>
</tbody>
</table>

\(\text{** } p < .01\), \(\text{NS} = \text{Need Satisfaction}, A = \text{Autonomy}, C = \text{Competence}, R = \text{Relatedness}, I = \text{Intrinsic}\)

6.3.3 Research questions

In terms of research question 3a ("Are senior executives higher on autonomy and control orientation, and lower on impersonal orientation than other individuals?"), a meta-analysis of seven previous research studies which investigated 11 samples, all together \(N = 2218\) participants, was performed (see table 6.6). The senior executive participants of this study showed a higher mean autonomy orientation score, a higher mean control orientation score, and lower mean impersonal orientation score than the weighted average mean score of the meta-analysis. One sample \(t\)-tests with an \(\alpha\) of .05 were used to test the differences for significance. The differences in autonomy (higher for the sample of senior executives) and impersonal (lower for the sample of senior executives) orientation were found to be significant, \(t(87) = 2.81, p = .006\) and \(t(87) = -8.34, p < .001\) respectively. The difference in autonomy
orientation had a small to medium effect size, $d = 0.30$, while impersonal orientation had a large effect size, $d = 0.89$.

In a second step of the analysis of autonomy orientation mean scores, the meta-analytical sample of $N = 2218$ was split into a work-related sample, i.e. bank employees, engineers, research scientists, investment bankers and non-faculty college employees ($N = 849$) and a non-work-related sample, i.e. students and obese adults ($N = 1369$). The $t$-tests showed significantly higher autonomy orientation scores for the sample of senior executives ($M = 70.82$, $SD = 8.47$) compared to both the work-related sample ($M = 67.47$), $t(87) = 3.71$, $p < .001$, $d = 0.40$, and the non-work-related sample ($M = 68.79$), $t(87) = 2.25$, $p = .027$, $d = 0.24$ respectively.

There was almost no difference in the level of control orientations of the senior executive sample ($M = 47.85$, $SD = 8.73$) and the meta-analytical sample ($M = 47.20$), $t(87) = .70$, $p = .485$, $d = 0.07$. 


Table 6.6 Means and standard deviations for general causality orientations as reported by comparable previous research and compared to this study’s data

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Autonomy O.</th>
<th>Control O.</th>
<th>Impersonal O.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deci and Ryan (1985a)</td>
<td>Undergrad students ($N = 636$)</td>
<td>70.54 (6.62)</td>
<td>49.05 (8.13)</td>
<td>39.03 (8.99)</td>
</tr>
<tr>
<td></td>
<td>Engineers ($N = 83$)</td>
<td>70.20 (6.90)</td>
<td>45.60 (8.10)</td>
<td>34.30 (8.40)</td>
</tr>
<tr>
<td></td>
<td>Research scientists ($N = 19$)</td>
<td>72.00 (7.60)</td>
<td>40.80 (7.30)</td>
<td>32.50 (7.80)</td>
</tr>
<tr>
<td>Williams, et al. (1996)</td>
<td>Severely obese adults ($N = 128$)</td>
<td>58.70 (6.90)</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td>Williams and Deci (1996)</td>
<td>Medical students ($N = 96$)</td>
<td>72.13 (6.59)</td>
<td>50.20 (7.79)</td>
<td>37.17 (8.99)</td>
</tr>
<tr>
<td>Wong (2000)</td>
<td>High school students ($N = 161$)</td>
<td>66.83 (7.59)</td>
<td>44.19 (7.57)</td>
<td>not reported</td>
</tr>
<tr>
<td>Gagné (2003)</td>
<td>Undergrad students ($N = 118$)</td>
<td>67.56 (7.21)</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td></td>
<td>Volunteers ($N = 227$)</td>
<td>70.20 (6.72)</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td>Baard, et al. (2004)</td>
<td>Bank employees ($N = 59$, pilot study)</td>
<td>70.13 (6.67)</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td></td>
<td>Investment bankers ($N = 528$)</td>
<td>65.82 (8.04)</td>
<td>not reported</td>
<td>not reported</td>
</tr>
<tr>
<td>Lam and Gurland (2008)</td>
<td>Non-faculty college employees ($N = 160$)</td>
<td>69.97 (8.33)</td>
<td>42.66 (7.83)</td>
<td>not reported</td>
</tr>
<tr>
<td>Weighted Average</td>
<td>$N = 2218$</td>
<td>68.28</td>
<td>47.20 ($N = 1155$)</td>
<td>38.20 ($N = 834$)</td>
</tr>
<tr>
<td>Maximum</td>
<td>72.13</td>
<td></td>
<td>50.20</td>
<td>39.03</td>
</tr>
<tr>
<td>Minimum</td>
<td>65.82</td>
<td></td>
<td>40.80</td>
<td>32.50</td>
</tr>
<tr>
<td>Present study</td>
<td>Senior executives ($N = 88$)</td>
<td>70.82 (8.47)</td>
<td>47.85 (8.73)</td>
<td>29.16 (10.17)</td>
</tr>
</tbody>
</table>
For research questions 3b, 3c, and 3d the scores of the BPNS-G and GCOS scales were correlated (Baard et al., 2004; Gagné, 2003). Table 6.7 summarises the correlations.

Table 6.7 Correlations between causality orientations and basic psychological need satisfaction in senior executives

<table>
<thead>
<tr>
<th>General Causality Orientation</th>
<th>Basic Psychological Need Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A-NS(^{(a)})</td>
</tr>
<tr>
<td>Autonomy Orientation</td>
<td>.30**</td>
</tr>
<tr>
<td>Control Orientation</td>
<td>-.38**</td>
</tr>
<tr>
<td>Impersonal Orientation</td>
<td>-.57**</td>
</tr>
</tbody>
</table>

**\(p < .01\), \(^{(a)}\) NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness, I = Intrinsic

In terms of research questions 3b (“Is senior executives’ autonomy orientation positively correlated with their level of relatedness need satisfaction?”) and 3c (“Are senior executives’ control and impersonal orientations negatively correlated with their level of relatedness need satisfaction?”), participants’ relatedness need satisfaction was significantly positively correlated with the autonomy orientation \(r = .39, p < .01\) and significantly negatively correlated with both the control \(r = -.24, p < .01\) and impersonal \(r = -.36, p < .01\) orientations. The same trend was evident for autonomy need satisfaction \(r = .30, p < .01\) for autonomy orientation, \(r = -.38, p < .01\) for control orientation, \(r = -.57, p < .01\) for impersonal orientation) and competence need satisfaction \(r = .42, p < .01\) for autonomy orientation, \(r = -.32, p < .01\) for control orientation, \(r = -.53, p < .01\) for impersonal orientation). Regarding research question 3d (“Does senior executives’ autonomy orientation correlate stronger with their level of relatedness need
satisfaction than with their levels of competence and autonomy need satisfaction?"),
competence need satisfaction ($r = .42, p < .01$) correlated stronger with autonomy orientation
than did relatedness need satisfaction ($r = .39, p < .01$). Although relatedness need satisfaction
correlated more strongly with autonomy orientation than did autonomy need satisfaction ($r$
$= .30, p < .01$). These results contradict previous findings by Gagné (2003) and Baard et al.
(2004).

6.4 Discussion

The present study’s research objective was to examine the relationship between senior
executives’ causality orientations and their level of relatedness need satisfaction.

The results of this investigation support the proposition that SDT, its constructs of
general causality orientations and basic psychological needs as well as their relationship as
proposed by Gagné and Deci’s (2005) SDT model of work motivation, is an applicable research
framework for senior executives. The findings suggest SDT as a new approach to contributing to
the body of knowledge at the inner-resource level of psychological analysis of senior executives.

Research question 3a (“Are senior executives higher on autonomy and control
orientation, and lower on impersonal orientation than other individuals?”) hypothesised that
senior executives would be higher on autonomy and control orientation as well as lower on
impersonal orientation than other individuals. It was found that senior executives had
significantly higher scores for autonomy orientation than the weighted average of a meta-analysis. Even though the effect size was small-to-medium, senior executives appeared to feel more autonomously oriented than both work-related \( (N = 849) \) and non-work-related \( (N = 1369) \) individuals. This finding supports SDT which proposes that individuals high on autonomy orientation display greater self-initiative, seek activities that are interesting and challenging, and take greater responsibility for their own behaviour (Deci & Ryan, 1985a), a behavioural pattern that has been associated with senior executives (Hahn, et al., 2010; Moutafi, et al., 2007). At the same time, senior executives’ control orientation scores appear to suggest that their feelings of being controlled by rewards, deadlines, or structures (Deci & Ryan, 1985a) is similar to other individuals participating in previous SDT research \( (N = 1155, \text{ students, engineers, non-faculty college employees}) \) which is a new finding suggesting further investigation.

One potential explanation may be related to the internal consistency of the control orientation subscale which has historically been lower than that of the other two subscales (Deci & Ryan, 1985a). At least two previous studies have found Cronbach’s \( \alpha \) for the control orientation subscale even lower than the present study \( (\alpha = .61) \). Wong (2000) as well as Lam and Gurland (2008) found Cronbach’s \( \alpha \) of .59 for the control orientation subscales in their respective studies. Even though other studies have found higher Cronbach’s \( \alpha \) (.69: A. E. Black & Deci, 2000; .69; Deci & Ryan, 1985a; .73; Gagné, 2003), it may be that the scale is due either for a general re-examination of its psychometric properties or requires specific adaptation for
the purpose of senior executive research. Senior executives were significantly lower on impersonal orientation compared to the review of other SDT studies’ participants ($N = 834$, students, engineers). The difference had a large size of effect. This means that senior executives would not qualify as “people who see themselves as incompetent and unable to master situations”, experiencing “tasks as being too difficult”, and whose “behaviour is being initiated by impersonal forces rather than personal intentions” (Deci & Ryan, 1985a, p. 112). Future SDT research may focus on the examination of differences in the levels of causality orientations of senior executives and other individuals.

In terms of research question 3b (“Is senior executives’ autonomy orientation positively correlated with their level of relatedness need satisfaction?”), it was found that senior executives’ autonomy orientation was positively correlated with relatedness need satisfaction. This empirical evidence is consistent with previous SDT research investigating the relationship between autonomy orientation and relatedness need satisfaction (Baard, et al., 2004; Gagné, 2003). The results also support the SDT model of work motivation proposed by Gagné and Deci (2005) which suggests individuals’ general causality orientations as predictor of autonomous work motivation through satisfaction of basic psychological needs which includes relatedness need satisfaction (Ryan & Deci, 2008b). One implication is that senior executives’ self-determination may be determined, not only by their social environment as suggested by Baard et al. (2004), Gagné and Deci (2005), or Williams et al. (1998), but also by their own characteristics. Indeed, previous SDT research studies propose that autonomously oriented
individuals are more likely to derive basic psychological need satisfaction, including relatedness need satisfaction, from their social contextual factors (A. E. Black & Deci, 2000; Deci & Ryan, 1985a). This present study suggests that senior executives’ individual differences play a key role in their self-determination through relatedness need satisfaction, and may do so in interaction with their social environments. Future SDT research may extend the present findings to the role of social contextual factors together with individual difference variables for relatedness need satisfaction in the field of senior executives.

Regarding research question 3c (“Are senior executives’ control and impersonal orientations negatively correlated with their level of relatedness need satisfaction?”), the results for control and impersonal orientation were different from autonomy orientation. As expected, both negatively correlated with basic psychological need satisfaction which supports SDT’s theoretical framework (Deci & Ryan, 1985a; Ryan & Deci, 2008b) as well as previous empirical findings (Lam & Gurland, 2008). On the one hand, senior executives were found to be significantly lower on impersonal orientation (large effect size) but very similar on control orientation compared to the meta-analytical samples under research question 3a of this study. On the other hand, senior executives’ impersonal orientation scores displayed stronger negative correlations with their basic psychological need satisfaction scores under research question 3b of this study. Senior executives’ control and impersonal orientation scores may be suggested as suitable ‘risk indicators’ for a potential lack of relatedness need satisfaction, which, in turn, could be associated with potential self-regulation failures in senior executives. In
addition, statistical considerations are unlikely to satisfy practical, organisational requirements in the case of senior executives. Given the potentially far-reaching implications of senior executives’ decisions for organisations and society, the general causality orientation measure may need to be applied on an individual case basis to identify potentially ‘risky’ individual senior executives, i.e. at risk of potential self-regulation failure, with comparatively high control and impersonal orientation scores.

The findings on research question 3d (“Does senior executives’ autonomy orientation correlate stronger with their level of relatedness need satisfaction than with their levels of competence and autonomy need satisfaction?”) contribute empirical evidence in terms of the BPNS-G subscales’ internal correlations in support of previous SDT studies (Gagné, 2003; B. Meyer, et al., 2007; Vansteenkiste, et al., 2006; Wei, et al., 2005). However, the rank order of correlations between senior executives’ autonomy orientation and their levels of satisfaction of the three basic psychological needs contradicted previous studies. Several investigations had found that autonomy orientation correlated stronger with relatedness need satisfaction (for example, .21, \( p < .001 \), Baard, et al., 2004; .51, \( p < .001 \), Gagné, 2003) than with autonomy need satisfaction (for example, .12, \( p < .001 \), Baard, et al., 2004; .27, \( p < .001 \), Gagné, 2003) and competence need satisfaction (for example, .16, \( p < .001 \), Baard, et al., 2004; .35, \( p < .001 \), Gagné, 2003).

The results of this present study showed the highest correlation between autonomy orientation and competence need satisfaction (.42, \( p < .01 \)), which was stronger than the
correlation with relatedness need satisfaction (.39, \( p < .01 \)) which, in turn, was stronger than the correlation with autonomy need satisfaction (.30, \( p < .01 \)). However, when using Fisher’s Z-transformation to test for significance (Tabachnick & Fidell, 2007), only the correlation between autonomy orientation and competence need satisfaction in Baard, et al.’s study (2004) differed significantly (.16, \( p < .001 \)) from the findings of this study (.42, \( p < .001 \)). Other factors associated with senior executives may have contributed to this finding. Firstly, empirical investigations have found that the work context plays a particularly significant role for competence need satisfaction (Deci, et al., 2001; Hofer & Busch, 2011; Levesque, Zuehlke, Stanek, & Ryan, 2004). Given that study one of this thesis found that senior executives tended to focus their ‘investment’ for relatedness need satisfaction in the area of work/occupation, this ‘investment’ in the work context may have caused ‘spill-over returns’ in terms of competence need satisfaction. However, even though Baard et al.’s (2004) data were collected from investment bankers, they did not produce results consistent with this present study.

Another factor may provide further insight. Several recent studies have identified a close association between the need for competence and the need for achievement. For example, Schueler et al. (2011) postulate a moderating role of the need for achievement for the relationship between competence need satisfaction, subsequent motivation, and outcomes. In addition, Sheldon and Schueler (2011) found that individuals higher in need for achievement have more competence experiences. It may be hypothesised that a higher need for achievement in this study’s senior executive participants may have contributed to the highest
correlation between autonomy orientation and competence instead of relatedness need satisfaction. Study 4 of this thesis will follow up on the above finding and further investigate senior executives’ levels of basic psychological need satisfaction and their association with outcomes based on Gagné and Deci’s (2005) SDT model of work motivation. As a first step, the final study will identify the relative contribution of senior executives’ relatedness need satisfaction to their total levels of need satisfaction and compare it to the relative contributions of autonomy and, particularly, competence need satisfaction. Secondly, the study will investigate the role of senior executives’ level of relatedness need satisfaction for their psychological well-being.

Several limitations should be noted. Firstly, the current study did not measure senior executives’ social environmental factors. Future studies might assess whether senior executives’ causality orientations predict basic psychological need satisfaction, autonomous work motivation and outcomes in interaction with environmental variables. However, new measurement tools will be needed for senior executives as they usually do not have “managers” they can draw autonomy support from. Secondly, participants were a diverse sample of senior executives from eight nationalities, some from very small private firms and others from very large publicly listed corporations. Thus, the sample sizes per subgroup were very small. Future studies would benefit from larger samples. Finally, like other studies in this area, the current study is correlational in nature; experimental designs are needed to test for causal effect of general causality orientations on basic psychological need satisfaction. Despite
these limitations, this study contributes an important step towards inner-resource investigations into senior executives and, specifically, applying SDT to the field of senior executives.
7 STUDY FOUR – INVESTIGATING THE ROLE OF SENIOR EXECUTIVES’ RELATEDNESS NEED SATISFACTION FOR THEIR PSYCHOLOGICAL WELL-BEING

7.1 Introduction

The psychological well-being of employees has been described as a key success factor for organisational effectiveness and performance (Amabile & Kramer, 2007; Cryer, McCraty, & Childre, 2003). Organisational research has a long tradition of studying psychological well-being in both dysfunctional contexts such as stress (Chan & Wan, 2012; Delbecq & Friedlander, 1995; Worrall & Cooper, 1995) or burnout (Dolan & Renaud, 1992; Gonzalez-Morales, Peiro, Rodriguez, & Bliese, 2012; van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012) and, increasingly, positive psychological contexts, for example, health (Demerouti, Bakker, Sonnentag, & Fullagar, 2012; Mommersteeg, Denollet, & Martens, 2012; Nelson & Burke, 2000) or happiness (Beard & Hornik, 2011; Cameron, Mora, Leutscher, & Calarco, 2011; Rego, Ribeiro, Cunha, & Jesuino, 2011). However, a review of literature reveals that organisational psychology research has focused on the consequences of employees’ psychological well-being for organisational outcomes rather than on the inner resources for employees’ psychological well-being. This is consistent with postulates describing such inner-resource investigations, i.e. studying “the inner
resources for personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68), as a neglected dimension in organisational psychology research (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008).

Senior executives, a special category of employees (Hambrick & Finkelstein, 1995; Moutafi, et al., 2007), have also been studied with regards to their psychological well-being (Fry, 1995; Kets De Vries, 2002; Levinson, 1990). In his book ‘the happiness equation’, Kets de Vries (2002) reveals senior executives’ four keys to happiness: a positive state of mind, self-reliance and initiative, avoidance of self-pity and quitting, and feeling in control. The lack of a social relational item on this list appears surprising at first, given the role of social relationships, social belongingness, or relatedness as predictors of psychological well-being (Baumeister & Leary, 1995; Ryan & Deci, 2000). However, a further review of Kets de Vries’ published literature seems to suggest that, like many of his colleagues such as Abraham Zaleznik (for example 1992, 1995) and Harry Levinson (for example 1990, 1991), Kets de Vries predominantly studied the implications of psychological well-being for organisational outcomes (Kets De Vries, 2007a, 2007b, 2010; Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005) rather than senior executives’ inner resources as predictors of their psychological well-being. This gap in published literature has been previously identified by organisational psychology researchers (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008). The present study 4 of this thesis was designed to overcome the challenges of senior executive research (Conti & O’Neil, 2007; Easterby-Smith, et al., 2008; Odendahl & Shaw, 2002) and fill part of the above
gaps in literature. Specifically, the research objective was to investigate the role of senior executives’ relatedness need satisfaction for their psychological well-being.

Gagné and Deci’s (2005) SDT model of work motivation provides a research framework for an inner-resource investigation into senior executives’ psychological well-being. The model adapts previous empirical non-organisational SDT research findings to organisational settings proposing that basic psychological need satisfaction predicts positive work outcomes such as performance, job satisfaction, organisational trust and commitment, and psychological well-being. However, only a limited number of research studies have tested SDT in the organisational context (Gagné & Deci, 2005), none of them in the field of senior executives. In addition, previous SDT-based organisational research has largely concentrated on the need for autonomy, neglecting the needs for competence and relatedness (Sheldon & Filak, 2008).

SDT research in the field of basic psychological needs has gained momentum over the last ten years. With regards to organisations, basic psychological need satisfaction was found to be associated with positive work outcomes such as employees’ psychological well-being (Deci, et al., 2001), pro-social behaviour (Gagné, 2003), and performance (Baard, et al., 2004). Also, the balance of the three individual basic psychological need levels has been shown to contribute to psychological well-being independent of the absolute amounts of individual need satisfaction (Milyavskaya, et al., 2009; Sheldon & Niemiec, 2006). In terms of individual basic psychological needs, Ryan and Deci (2000) added to previous non-SDT literature (Baumeister & Leary, 1995) highlighting the significance of relatedness need satisfaction for optimal
functioning. Also, the findings of study 3 of this thesis were consistent with previous postulates of higher competence need satisfaction levels originating from work contexts than from other social environments (Deci, et al., 2001; Hofer & Busch, 2011; Levesque, et al., 2004). The question arises in how far the level of relatedness need satisfaction differs from the level of autonomy and competence need satisfaction in senior executives, and whether the level of senior executives’ relatedness need satisfaction, in turn, has a distinct effect on senior executives’ psychological well-being.

When it comes to psychological well-being, Ryan and Deci (2001), and later, Huta and Ryan (2010) divide the academic community into two schools of thought, hedonic and eudaimonic psychology. Hedonism has been described as the concept of ‘feeling good’ and outcome focused, with all pleasure producing outcomes contributing to individual well-being (Ryan & Deci, 2001). Scholars supporting the hedonic psychology school of thought have suggested that hedonism, happiness, and well-being are basically equivalent (Kahneman, Diener, & Schwarz, 1999). In contrast, eudaimonia focuses on ‘living well’ (Ryan & Deci, 2001), realising one’s potential (Waterman, 1993), and being more life content and process oriented than hedonism (Huta & Ryan, 2010). In conclusion, Huta and Ryan (2010) propose “that hedonia and eudaimonia occupy both overlapping and distinct niches within a complete picture of well-being, and their combination may be associated with the greatest well-being.”(p.735). Therefore, when investigators conduct research into well-being, they need to clarify from which perspective the phenomena are to be studied: hedonic, eudaimonic, or both. As part of SDT
research into psychological well-being, empirical studies have established the construct of vitality, “a positive and phenomenologically accessible state of having energy available to the self” (Ryan & Deci, 2001, p. 152). Furthermore, Ryan and Deci (2001) describe vitality as “more closely aligned with eudaimonic [than hedonic] well-being” (p. 147).

Well-being has been extensively studied by SDT-based research from both perspectives, hedonia and eudaimonia. For example, early studies investigated the impact of materialism on well-being (T. Kasser & Ryan, 1993, 1996; Ryan, et al., 1999; Schmuck, et al., 2000). Sheldon et al. (1997) examined the relations between big five personality traits and well-being. In sports, a field study found that gymnasts’ well-being was related to the satisfaction of their basic psychological needs (Gagné, et al., 2003). Furthermore, within-person fluctuations of basic psychological need satisfaction were linked to positive affect and vitality (Reis, et al., 2000). Nix et al.’s (1999) study, showing an association between well-being and positive and negative mood states, supported previous research which had proposed that higher levels of vitality were related to less negative and more positive mood states (Ryan & Frederick, 1997). More recently, helping and volunteering has been shown as contributing to basic psychological need satisfaction and, in turn, contributing to well-being (Weinstein & Ryan, 2010). A study on weekend effects showed that day-to-day fluctuations in well-being were related to the day of the week as well as the work activity itself (Ryan, et al., 2010).

The need for relatedness has often been associated with well-being. When surveying factors that impact on well-being, aspects of relatedness have been consistently ranked
amongst the items on the top of such lists (Argyle, 1987; Bok, 2010; D.G. Myers, 1999). Theoretical frameworks proposing a relationship between the two constructs of relatedness need satisfaction and well-being have been well documented in literature (Baumeister & Leary, 1995; Ryan & Deci, 2000).

Study three examined the relationship between senior executives’ causality orientations and their level of relatedness need satisfaction. In turn, the present study four was designed to contribute to academic literature by investigating the role of senior executives’ relatedness need satisfaction levels for their psychological well-being. In this context, a eudaimonic perspective on senior executives’ psychological well-being was adopted. Gagné and Deci’s (2005) SDT model of work motivation was used to define the research objective of investigating the role of senior executives’ relatedness need satisfaction for their psychological well-being. Specifically, the investigation addressed the following research questions:

Research question 4a: Do absolute levels of relatedness need satisfaction differ between senior executives and other individuals?

Research question 4b: Does the contribution of relatedness need satisfaction to total need satisfaction differ between senior executives and other individuals?
Research question 4c: Does the level of senior executives’ relatedness need satisfaction have a significant relationship with their psychological well-being?

Research question 4d: Is the unique contribution of senior executives’ relatedness need satisfaction levels to their psychological well-being higher than the unique contribution of autonomy and competence need satisfaction levels?

Research question 4e: Does mood play a mediating role in the relationship between senior executives’ basic psychological need satisfaction levels and their psychological well-being?

Research question 4f: Does balanced basic psychological need satisfaction [i.e. less variation in individual basic need satisfaction levels] predict senior executives’ psychological well-being independently of the total amounts of individual basic need satisfaction levels?
7.2 Method

7.2.1 Participants

All 93 eligible senior executive participants (26 female; 28%, 67 male; 72%) were over 18 years old and fulfilled, self-reportedly, at least three of the five senior executive qualification criteria (see table 7.1). The basis for these eligibility criteria were the five core qualifications of the senior executive service of the U.S. Government (SeniorExecutiveService, 2012).
Table 7.1 Fulfilment of senior executive qualification criteria for study four as reported by senior executive participants

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
<th>Number of participants fulfilling the respective criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading change</td>
<td>Establishing organisational visions and implementing them in a continuously changing environment</td>
<td>75 (81% of participants)</td>
</tr>
<tr>
<td>Leading people</td>
<td>Leading people toward meeting organizational vision, mission, and goals.</td>
<td>83 (89% of participants)</td>
</tr>
<tr>
<td>Results driven</td>
<td>Making decisions that produce high-quality results by applying technical knowledge, analysing problems and calculating risks</td>
<td>90 (97% of participants)</td>
</tr>
<tr>
<td>Business acumen</td>
<td>Managing human, financial, and information resources strategically</td>
<td>82 (88% of participants)</td>
</tr>
<tr>
<td>Building coalitions</td>
<td>Networking, identifying internal and external politics, persuading others, building consensus through give and take</td>
<td>91 (98% of participants)</td>
</tr>
</tbody>
</table>

Number of participants fulfilling 3 criteria: 14 (15% of participants)

Number of participants fulfilling 4 criteria: 16 (17% of participants)

Number of participants fulfilling all 5 criteria: 63 (68% of participants)

The average age of the participants was 44.1 years ($SD = 6.49$) with the minimum and maximum ages being 27 and 65 respectively. The mean score for the level of English language proficiency was 4.59 ($SD = 0.63$) on a 5 point Likert scale (5 = excellent, 1 = poor) with no score
lower than 3. The size of a participant’s company was assessed by the number of employees and the distribution is reported in figure 7.1.

![Figure 7.1. Distribution of participants by company size - study four.](image)

Fifty-two (56%) of the participants were Germans, 24 (26%) were Australian, 10 (11%) came from the UK, 5 (5%) from the US, and 2 (2%) from Ireland.

### 7.2.2 Procedure

An email containing a link to the web-based surveys of studies three and four (SurveyMonkey) with a participant information sheet and informed consent was sent to all participants from studies one and two of this thesis inviting them to take part in the survey and
forward the email to contacts they considered potential eligible participants for this study. The
survey was completed online, and consisted of three questionnaires collecting senior
executives’ mood, basic psychological need satisfaction, psychological well-being, and
additional demographic information. The entire survey took approximately 10 minutes. Prior to
going live with the survey, it was piloted upon volunteers to check the clarity of the survey and
to ensure that questions were suitable to the target population. No incentives were provided
for senior executives participating in the survey.

7.2.3 Materials

7.2.3.1 Mood

Based on Ryan and Frederick’s (1997) seminal work on subjective vitality, The Positive
And Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to assess
participants’ mood. Specifically, The International Positive And Negative Affect Schedule Short
Form (I-PANAS-SF; Thompson, 2007) was employed to measure senior executives’ positive (5
items; “alert”, “inspired”, “determined”, “attentive”, “active”) and negative (5 items; “upset”,
“hostile”, “ashamed”, “nervous”, “afraid”) affect (“To what extent do you generally feel:”) on a
5-point Likert-type scale ranging from 1 (never) to 5 (always). Positive and negative affect sub-
scores were computed by adding the individual scores of the respective item responses. The I-
PANAS-SF has been shown to be a reliable and valid tool with Cronbach’s $\alpha$ at around .80
(Thompson, 2007). For the current sample Cronbach’s $\alpha$ of .78 and .75 for the positive and
negative affect subscales were observed which are considered acceptable for most research purposes (P. Allen & Bennett, 2010).

### 7.2.3.2 Basic psychological needs

The 21-item Basic Psychological Need Satisfaction Scale-General (BPNS-G) (Gagné, 2003) assessed satisfaction of autonomy (seven items; e.g., I generally feel free to express my ideas and opinions), competence (six items; e.g., People I know tell me I am good at what I do), and relatedness (eight items; e.g., I get along with people I come into contact with). Responses were made on a 7-point Likert-type scale, ranging from 1 (not at all true) to 7 (very true). Table 2 shows Cronbach’s $\alpha$ for the three BPNS-G subscales as reported by a selection of previous research. The internal consistency of the three subscales in this study were at acceptable levels (P. Allen & Bennett, 2010).

<table>
<thead>
<tr>
<th>Study</th>
<th>A-NS&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>C-NS&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>R-NS&lt;sup&gt;(a)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gagné (2003)</td>
<td>.69</td>
<td>.71</td>
<td>.86</td>
</tr>
<tr>
<td>Wei, et al. (2005)</td>
<td>.68</td>
<td>.75</td>
<td>.85</td>
</tr>
<tr>
<td>Vansteenkiste et al. (2006)</td>
<td>.61</td>
<td>.66</td>
<td>.79</td>
</tr>
<tr>
<td>Meyer, et al. (2007)</td>
<td>.63</td>
<td>.75</td>
<td>.74</td>
</tr>
<tr>
<td>Schueler and Kuster (2011)</td>
<td>.81</td>
<td>.77</td>
<td>.77</td>
</tr>
<tr>
<td>Present study</td>
<td>.78</td>
<td>.74</td>
<td>.83</td>
</tr>
</tbody>
</table>

<sup>(a)</sup>NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness
The three subscale scores for autonomy, competence, and relatedness need satisfaction were used to compute a total need satisfaction score for each respondent by adding the three subscale scores. A relative contribution score was calculated for each subscale by dividing the respective individual subscale score by the total need satisfaction score. Relative contribution scores were multiplied by 100 to express them as percentages. Sheldon and Niemiec’s (2006) technique was applied to assess the divergence of the three relative contribution scores. Firstly, the differences between each pair of relative sub-score contributions to total need satisfaction were computed. Subsequently, the absolute values of these differences were summed up, which gave a measure (divergence score, research question 4b) of the total divergence among the three relative contributions. The divergence score could range from 0 (indicating equal relative contributions to total need satisfaction) to 200 (indicating the maximum summed difference among relative contributions).

To assess the balance of need satisfaction, the differences between each pair of absolute need satisfaction scores were computed. Subsequently, the absolute values of these differences were summed, which gave a measure of the total divergence among the three scores (balance score, research question 4f). This algorithm followed the procedure used by Sheldon and Niemiec (2006) for their investigation on the balance of need satisfaction. Given the 7-point scale, the balance score could range from 0 (indicating equal satisfaction levels among the three needs) to 12 (indicating the maximum summed difference among the needs). The balance score was transformed by subtracting each participant’s score from the highest observed score.
of 5.57; this created a variable in which higher scores corresponded to greater balance among the three needs.

7.2.3.3 Psychological well-being

Senior executives’ psychological well-being was assessed with the general trait Subjective Vitality Scale (SVS, Ryan & Frederick, 1997). Even though the original scale had 7 items, subsequent work by Bostic, Rubio, and Hood (2000) using confirmatory factor analyses indicated that a 6-item version, which was used in this study, worked even better. Responses were made on a 7-point Likert-type scale indicating the degree to which a statement (e.g. “I feel alive and vital”) is true in general, ranging from 1 (not true at all) to 7 (very true). The score was computed by averaging the individual item scores. The SVS has been extensively validated showing a high reliability. Cronbach’s α for the SVS in previous studies have ranged between .84 and .91 (Muraven, et al., 2008; Nix, et al., 1999; Ryan, et al., 2010; Vansteenkiste, et al., 2006; Weinstein & Ryan, 2010). The internal consistency of the SVS of .90 in this study was at an acceptable level (P. Allen & Bennett, 2010).

7.2.3.4 Demographic information

Participants were asked to indicate their gender, age, nationality, level of English proficiency, size of firm, and level of seniority. The level of seniority was based on participants’ self-reported fulfilment of the respective senior executive qualification criteria as outlined under 7.2.1. For example, a level three senior executive self-reportedly fulfilled three of the five
qualification criteria and a most senior level five senior executive self-reportedly fulfilled all five of the qualification criteria.

7.3 Results

The IBM Statistical Package for Social Sciences (SPSS) version 19.0 was used for statistical analyses.

7.3.1 Preliminary analyses

Data screening was conducted to ensure that assumptions for the associated statistical analyses were met. Descriptive statistics indicated that all data were within expected ranges, with plausible mean and standard deviation scores. Data from the same initial 105 participants as in study three were screened and corrected for missing values. Cases with >5% missing data were inspected, with 10 participants ultimately being deleted due to large scale, non-random, missing values. Four more participants were deleted as they did not fulfil the minimum requirement of at least three of the five senior executive qualification criteria. The retained sample size was $N = 93$. Missing data points for the remaining 93 participants were considered random. Mean substitutions were used to estimate missing values on continuous variables, while mode substitutions were used for categorical variables. Although mean substitution is a conservative procedure which reduces variance, any method for replacing missing values
utilised in large samples with <5% missing data points yields similar results (Tabachnik & Fidell, 2007).

All variables were examined for fit between the distributions and assumptions for parametric tests. Both Shapiro-Wilk and Kolmogorov-Smirnov tests of normality were significant for all variables ($p < .001$). Field (2009) points out that statistical normality is rarely achieved in large samples. A visual examination of distributions indicated no gross deviations from normality for all variables. In conclusion, the use of parametric tests was considered justified.

### 7.3.2 Descriptive statistics

Table 7.3 presents the means and standard deviations for participants’ positive and negative affect, basic psychological need satisfaction, and subjective vitality scores grouped by demographic information.
### Table 7.3 Means and standard deviations for participants’ positive and negative affect, basic psychological need, and subjective vitality scores grouped by demographic information (scores for groups with fewer than two cases are not included)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Basic Psychological Needs</th>
<th>Subjective Vitality</th>
<th>Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
<td>Competence</td>
<td>Relatedness</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (N = 67)</td>
<td>5.35(0.85)</td>
<td>5.52(0.80)</td>
<td>5.56(0.86)</td>
</tr>
<tr>
<td>Female (N = 26)</td>
<td>5.46(1.07)</td>
<td>5.67(1.09)</td>
<td>5.72(0.91)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29 (N = 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39 (N = 17)</td>
<td>5.50(0.82)</td>
<td>5.51(0.90)</td>
<td>5.69(0.93)</td>
</tr>
<tr>
<td>40-49 (N = 59)</td>
<td>5.25(0.99)</td>
<td>5.56(0.94)</td>
<td>5.58(0.93)</td>
</tr>
<tr>
<td>50-59 (N = 14)</td>
<td>5.63(0.60)</td>
<td>5.58(0.74)</td>
<td>5.52(0.55)</td>
</tr>
<tr>
<td>60-65 (N = 2)</td>
<td>5.90(0.47)</td>
<td>5.92(0.59)</td>
<td>5.69(0.27)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany (N = 52)</td>
<td>5.36(0.84)</td>
<td>5.52(0.77)</td>
<td>5.48(0.73)</td>
</tr>
<tr>
<td>Australia (N = 24)</td>
<td>5.28(1.03)</td>
<td>5.58(1.02)</td>
<td>5.79(0.85)</td>
</tr>
<tr>
<td>UK (N = 10)</td>
<td>5.64(1.03)</td>
<td>5.62(1.12)</td>
<td>5.95(1.20)</td>
</tr>
<tr>
<td>US (N = 5)</td>
<td>5.45(0.96)</td>
<td>5.60(1.10)</td>
<td>4.90(1.18)</td>
</tr>
<tr>
<td>Ireland (N = 2)</td>
<td>5.57(1.21)</td>
<td>6.08(1.30)</td>
<td>6.69(0.44)</td>
</tr>
<tr>
<td>Senior executive level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (N = 14)</td>
<td>5.13(0.71)</td>
<td>5.43(0.71)</td>
<td>5.79(0.61)</td>
</tr>
<tr>
<td>Level 4 (N = 16)</td>
<td>5.37(0.98)</td>
<td>5.55(0.89)</td>
<td>5.55(0.84)</td>
</tr>
<tr>
<td>Level 5 (N = 63)</td>
<td>5.44(0.93)</td>
<td>5.64(0.92)</td>
<td>5.58(0.93)</td>
</tr>
</tbody>
</table>
### Table 7.3 (continued)

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Basic Psychological Needs</th>
<th>Subjective Vitality</th>
<th>Mood</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Autonomy</td>
<td>Competence</td>
<td>Relatedness</td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 10 (N = 28)</td>
<td>5.69(0.79)</td>
<td>5.82(0.95)</td>
<td>5.82(0.77)</td>
<td>5.06(1.22)</td>
</tr>
<tr>
<td>11 - 25 (N = 12)</td>
<td>5.72(1.14)</td>
<td>5.57(1.12)</td>
<td>5.75(0.74)</td>
<td>5.35(0.82)</td>
</tr>
<tr>
<td>26 – 100 (N = 9)</td>
<td>5.50(0.73)</td>
<td>5.51(0.72)</td>
<td>5.71(1.21)</td>
<td>5.51(1.37)</td>
</tr>
<tr>
<td>102 – 500 (N = 7)</td>
<td>5.39(0.75)</td>
<td>5.45(0.82)</td>
<td>5.35(1.06)</td>
<td>5.24(1.19)</td>
</tr>
<tr>
<td>502 – 1000 (N = 7)</td>
<td>4.93(0.84)</td>
<td>5.57(0.82)</td>
<td>5.30(0.88)</td>
<td>4.68(1.22)</td>
</tr>
<tr>
<td>&gt;1000 (N = 25)</td>
<td>4.96(0.94)</td>
<td>5.33(0.83)</td>
<td>5.49(0.73)</td>
<td>5.04(1.04)</td>
</tr>
<tr>
<td>Level of English proficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3 (N = 4)</td>
<td>5.95(0.47)</td>
<td>5.56(0.59)</td>
<td>5.29(0.68)</td>
<td>5.03(0.78)</td>
</tr>
<tr>
<td>Level 4 (N = 27)</td>
<td>5.16(0.96)</td>
<td>5.52(0.87)</td>
<td>5.52(0.56)</td>
<td>5.33(0.76)</td>
</tr>
<tr>
<td>Level 5 (N = 57)</td>
<td>5.43(0.90)</td>
<td>5.58(0.93)</td>
<td>5.68(1.00)</td>
<td>5.05(1.31)</td>
</tr>
</tbody>
</table>
To test whether all participants’ data could be analysed together, the mean positive and negative affect scores, basic psychological need scores, and subjective vitality scores, broken down by gender, age, nationality, level of English proficiency, size of firm, and level of seniority, as outlined in table 7.3, were compared. Following Tabachnik and Fidell’s (2007, p. 244) suggestion for the identification of significant group differences as well as Lam and Gurland (2008) as an example, one-way ANOVA, t-test, and regression analyses were performed to test for mean differences. Results showed no significant differences between any of the different participant demographic classifications. The inference from this finding was that there were no significant systematic variations between participant demographic classification that required different participant groups to be analysed separately and such factors to be included as co-variates. Therefore, all participants’ data were analysed together, i.e. collapsed across all demographic variables.

Descriptive statistics for the BPNS-G and inter-correlations between the BPNS-G subscales of autonomy, competence, and relatedness in this study are presented in table 7.4.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A-NS&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>5.38</td>
<td>0.91</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C-NS&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>5.56</td>
<td>0.89</td>
<td>.63**</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>R-NS&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>5.61</td>
<td>0.87</td>
<td>.49**</td>
<td>.54**</td>
</tr>
</tbody>
</table>

*<sup>**</sup>p < .01 (2-tailed), *<sup>(a)</sup>NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness
In terms of the inter-correlations between the BPNS-G subscales, participants’ autonomy need satisfaction was significantly positively correlated with competence need satisfaction scores \( (r = .63, p < .01 \text{ [2-tailed]}) \) and relatedness need satisfaction scores \( (r = .49, p < .01 \text{ [2-tailed]}) \). Competence and relatedness need satisfaction scores were significantly positively correlated at \( r = .54, p < .01 \text{ (2-tailed)} \).

### 7.3.3 Research questions

In terms of research question 4a (“Do absolute levels of relatedness need satisfaction differ between senior executives and other individuals?”), a meta-analysis of 10 previous research studies which investigated 14 samples (10 non-work-related, 4 work-related samples), all together \( N = 2815 \) participants, was performed (see table 7.5). In terms of absolute scores, it was observed that scores for relatedness need satisfaction were the highest among the three individual need satisfaction scores across environmental contexts such as students, models, adults, or bankers, in 12 of the 14 samples. For the analysis of potential mean differences in absolute need satisfaction scores, weighted average need satisfaction scores were computed for the non-work-related samples. The four work-related samples were not included in the comparative analysis as they had used varying types of scales whose scores did not provide for a meaningful comparison of mean differences. Also, of the non-work-related samples, only those were included which had used the general 7-point Likert-type BPNS. The weighted average means of need satisfaction scores for the remaining nine samples \( (N = 1209 \) participants of which 960 [79%] were students ‘student sample’\) were 5.25, 5.15, and 5.65 for
autonomy, competence and relatedness need satisfaction. One sample t-tests with an α of .05 were used to test for significant differences between the meta-analytical student sample scores and the senior executive sample scores. The mean differences in autonomy need satisfaction and relatedness need satisfaction were both higher for the senior executive sample but not statistically significant, \( t(92) = 1.38, p = 0.171, d = 0.14 \) and \( t(92) = -0.48, p = 0.63, d = 0.05 \) respectively. The mean difference in competence need satisfaction was found to be significantly higher for the senior executive sample, \( t(92) = 4.49, p < .001, d = 0.47 \).
### Table 7.5 Means and standard deviations for basic psychological need satisfaction as reported by comparable previous research and compared to this study’s data

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>A-NS$^{(a)}$</th>
<th>C-NS$^{(a)}$</th>
<th>R-NS$^{(a)}$</th>
<th>Type of Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-work-related studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gagné (2003)</td>
<td>Undergrad students (N = 121)</td>
<td>5.00(0.80)</td>
<td>4.97(0.93)</td>
<td>5.60(1.20)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td>Wei, et al. (2005)</td>
<td>Undergrad students (N = 299)</td>
<td>5.05(0.82)</td>
<td>5.04(0.93)</td>
<td>5.67(0.92)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td>Ntoumanis (2005)</td>
<td>High school students (N = 460)</td>
<td>4.12(1.08)</td>
<td>4.34(1.13)</td>
<td>4.74(1.06)</td>
<td>21-item, PE, 7-point</td>
</tr>
<tr>
<td>Sheldon and Niemiec (2006)</td>
<td>Undergrad students (N = 315)</td>
<td>5.56(0.98)</td>
<td>5.40(1.08)</td>
<td>5.81(1.06)</td>
<td>9-item, G, 7-point</td>
</tr>
<tr>
<td>Vansteenkiste et al. (2006)</td>
<td>Chinese student applicants (N = 42)</td>
<td>5.51(0.77)</td>
<td>5.52(0.84)</td>
<td>5.93(0.61)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td></td>
<td>Chinese student sojourners (N = 79)</td>
<td>5.09(0.79)</td>
<td>4.85(0.85)</td>
<td>4.97(0.83)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td>Meyer, et al. (2007)</td>
<td>Models (N = 56)</td>
<td>4.94(0.78)</td>
<td>4.69(0.90)</td>
<td>5.60(0.70)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td></td>
<td>Non-models (N = 53)</td>
<td>5.32(0.78)</td>
<td>5.33(0.98)</td>
<td>5.90(0.76)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td>Schueler and Kuster (2011)</td>
<td>Adults (N = 140)</td>
<td>5.20(0.85)</td>
<td>5.30(0.88)</td>
<td>5.54(0.76)</td>
<td>21-item, G, 7-point</td>
</tr>
<tr>
<td>Sheldon and Schueler (2011)</td>
<td>Undergrad students (N = 104)</td>
<td>5.38(1.00)</td>
<td>4.98(1.00)</td>
<td>5.65(0.83)</td>
<td>9-item, G, 7-point</td>
</tr>
</tbody>
</table>

$^{(a)}$NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness
Table 7.5 (continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>A-NS(^{(a)})</th>
<th>C-NS(^{(a)})</th>
<th>R-NS(^{(a)})</th>
<th>Type of Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work-related studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deci, et al. (2001)</td>
<td>Bulgarian workers (N = 431)</td>
<td>3.58(0.65)</td>
<td>3.86(0.65)</td>
<td>3.94(0.74)</td>
<td>21-item, W, 5-point</td>
</tr>
<tr>
<td></td>
<td>US workers (N = 128)</td>
<td>3.15(0.85)</td>
<td>3.74(0.75)</td>
<td>3.89(0.69)</td>
<td>21-item, W, 5-point</td>
</tr>
<tr>
<td>Baard, et al. (2004)</td>
<td>Bank employees (N = 59)</td>
<td>15.17(2.60)</td>
<td>15.44(3.45)</td>
<td>14.61(3.56)</td>
<td>23-item, W, 5-point</td>
</tr>
<tr>
<td></td>
<td>Investment bankers (N = 528)</td>
<td>29.99(7.08)</td>
<td>39.09(8.14)</td>
<td>40.13(7.63)</td>
<td>23-item, W, 7-point</td>
</tr>
<tr>
<td><strong>Weighted average of non-work-related samples (N = 1209)</strong>(^{(b)})</td>
<td>5.25</td>
<td>5.15</td>
<td>5.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Present study</strong></td>
<td>Senior executives (N = 93)</td>
<td>5.38(0.91)</td>
<td>5.56(0.89)</td>
<td>5.61(0.87)</td>
<td>21-item, G, 7-point</td>
</tr>
</tbody>
</table>

\(^{(a)}\) NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness

\(^{(b)}\) Weighted average scores were calculated by multiplying each mean score by the number of participants in that study, adding these numbers and dividing the sum by the total number of participants for all meta-analytical samples (N = 1669)
For the investigation of research question 4b ("Does the contribution of relatedness need satisfaction to total need satisfaction differ between senior executives and other individuals?"), a total need satisfaction score was computed by adding the individual BPNS-G subscale mean scores for each of the 14 samples in the meta-analysis. Also, relative contribution scores were calculated by dividing each individual BPNS-G subscale mean score by the total need satisfaction score. The results are presented in table 7.6.
Table 7.6 Relative contributions of individual subscale scores to total need satisfaction as reported by comparable previous research and compared to this study’s data

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>A-NS /T-NS(%) (^{(a)})</th>
<th>C-NS /T-NS(%) (^{(a)})</th>
<th>R-NS /T-NS(%) (^{(a)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-work-related studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gagné (2003)</td>
<td>Undergrad students (N = 121)</td>
<td>32.11</td>
<td>31.92</td>
<td>35.97</td>
</tr>
<tr>
<td>Wei, et al. (2005)</td>
<td>Undergrad students (N = 299)</td>
<td>32.04</td>
<td>31.98</td>
<td>35.98</td>
</tr>
<tr>
<td>Ntoumanis (2005)</td>
<td>High school students (N = 460)</td>
<td>31.21</td>
<td>32.88</td>
<td>35.91</td>
</tr>
<tr>
<td>Sheldon and Niemiec (2006)</td>
<td>Undergrad students (N = 315)</td>
<td>33.15</td>
<td>32.20</td>
<td>34.65</td>
</tr>
<tr>
<td>Vansteenkiste, et al. (2006)</td>
<td>Chinese student applicants (N = 42)</td>
<td>32.49</td>
<td>32.55</td>
<td>34.96</td>
</tr>
<tr>
<td></td>
<td>Chinese student sojourners (N = 79)</td>
<td>34.14</td>
<td>32.53</td>
<td>33.33</td>
</tr>
<tr>
<td>Meyer, et al. (2007)</td>
<td>Models (N = 56)</td>
<td>32.44</td>
<td>30.79</td>
<td>36.77</td>
</tr>
<tr>
<td></td>
<td>Non-models (N = 53)</td>
<td>32.15</td>
<td>32.21</td>
<td>35.65</td>
</tr>
<tr>
<td>Schueler and Kuster (2011)</td>
<td>Adults (N = 140)</td>
<td>32.42</td>
<td>33.04</td>
<td>34.54</td>
</tr>
<tr>
<td>Sheldon and Schueler (2011)</td>
<td>Undergrad students (N = 104)</td>
<td>33.60</td>
<td>31.11</td>
<td>35.29</td>
</tr>
</tbody>
</table>

\(^{(a)}\)NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness, T = Total
Table 7.6 (continued)

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>A-NS /T-NS(%)&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>C-NS/T-NS(%)&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>R-NS /T-NS(%)&lt;sup&gt;(a)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Work-related studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deci, et al. (2001)</td>
<td>Bulgarian workers (&lt;i&gt;N&lt;/i&gt; = 431)</td>
<td>31.46</td>
<td>33.92</td>
<td>34.62</td>
</tr>
<tr>
<td></td>
<td>US workers (&lt;i&gt;N&lt;/i&gt; = 128)</td>
<td>29.22</td>
<td>34.69</td>
<td>36.09</td>
</tr>
<tr>
<td>Baard, et al. (2004)</td>
<td>Bank employees (&lt;i&gt;N&lt;/i&gt; = 59)</td>
<td>33.55</td>
<td>34.14</td>
<td>32.31</td>
</tr>
<tr>
<td></td>
<td>Investment bankers (&lt;i&gt;N&lt;/i&gt; = 528)</td>
<td>30.16</td>
<td>34.46</td>
<td>35.38</td>
</tr>
<tr>
<td>Weighted average of non-work-related samples (&lt;i&gt;N&lt;/i&gt; = 1669)&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td></td>
<td>32.28</td>
<td>32.31*</td>
<td>35.41*</td>
</tr>
<tr>
<td>Weighted average of work-related samples (&lt;i&gt;N&lt;/i&gt; = 1146)</td>
<td></td>
<td>30.72*</td>
<td>34.27*</td>
<td>35.01*</td>
</tr>
<tr>
<td>Present study</td>
<td>Senior executives (&lt;i&gt;N&lt;/i&gt; = 93)</td>
<td>32.51 (SD = 3.11)</td>
<td>33.60 (2.82)</td>
<td>33.90 (3.49)</td>
</tr>
</tbody>
</table>

* Significant differences to senior executive sample

<sup>(a)</sup> NS = Need Satisfaction, A = Autonomy, C = Competence, R = Relatedness, T = Total

<sup>(b)</sup> Weighted average scores were calculated by multiplying each mean score by the number of participants in that study, adding these numbers and dividing the sum by the total number of participants for all meta-analytical samples (<i>N</i> = 1669)
One sample t-tests with an $\alpha$ of .05 were used to test for significant differences between relative contributions of the meta-analytical sample scores and the senior executive scores of this study. Except for the non-work-related sample’s mean scores for the relative contribution of autonomy need satisfaction to total need satisfaction, all other mean scores were significantly different from the senior executive sample scores. The relative contribution of relatedness need satisfaction was significantly higher for both non-work-related, $t(92) = 4.07$, $p < .001$, $d = 0.42$, and work-related samples, $t(92) = 2.96$, $p = 0.004$, $d = 0.31$ than for the sample of senior executives. The relative contribution of competence need satisfaction was significantly lower for the non-work-related samples, $t(92) = -4.39$, $p < .001$, $d = 0.45$, and significantly higher for the work-related samples, $t(92) = 2.31$, $p = 0.004$, $d = 0.31$, than for the sample of senior executives. Finally, the relative contribution of autonomy need satisfaction was significantly lower for the work-related samples, $t(92) = -5.42$, $p < .001$, $d = 0.56$, than for the sample of senior executives.

Senior executives’ relatedness need satisfaction contributed significantly less (small to medium size of effect) to their total need satisfaction than in the case of both non-work-related and work-related samples. Additionally, the relative contribution of competence scores was significantly higher for both senior executives (medium effect size) and the work-related sample (large effect size) than for the non-work-related sample, with the work-related sample’s contribution of competence need satisfaction being significantly higher than in the case of senior executives (small effect size). Also, senior executives’ contribution of autonomy need satisfaction was not significantly different from the participants of the non-work-related sample, however, significantly different (medium effect size) from the work-related sample. When the
divergence of relative sub-score contributions to total need satisfaction was assessed the analysis resulted in a divergence score of 6.26 for the non-work-related sample and 8.53 for the work-related sample. The relative contributions of senior executives’ individual need satisfaction appeared more balanced with a divergence score of 2.78. A potential association between balanced need satisfaction and outcomes such as senior executives’ psychological well-being will be investigated in research question 4f.

In terms of research question 4c (“Does the level of senior executives’ relatedness need satisfaction have a significant relationship with their psychological well-being?”), the scores of BPNS-G and SVS were correlated. All correlations were significant at $p < .01$ (2-tailed) with autonomy need satisfaction showing the strongest effect ($r = .48$), then competence need satisfaction ($r = .43$) and relatedness need satisfaction ($r = .42$).

For the investigation of research question 4d (“Is the unique contribution of senior executives’ relatedness need satisfaction levels to their psychological well-being higher than the unique contribution of autonomy and competence need satisfaction levels?”), a standard multiple regression analysis (MRA) was performed to estimate the proportion of variance in senior executives’ subjective vitality that can be uniquely accounted for by each of the three basic psychological need satisfaction levels, i.e. autonomy, competence, and relatedness, independent of the other two. Unstandardised ($B$) and standardised ($\beta$) regression coefficients,
and squared semi-partial (or ‘part’) correlation ($sr^2$) for each predictor in the regression model are reported in Step 1 in table 7.7.

### Table 7.7 Unstandardised ($B$) and standardised ($\beta$) regression coefficients, and squared semi-partial correlation ($sr^2$) for each predictor on each step of a hierarchical multiple regression predicting subjective vitality in senior executives

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>[95% CI]</th>
<th>$\beta$</th>
<th>$sr^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 (research questions 4d, 4e, 4f), dependent variable: subjective vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy Need Satisfaction</td>
<td>.373</td>
<td>[.075, .672]*</td>
<td>.297</td>
<td>.05</td>
</tr>
<tr>
<td>Competence Need Satisfaction</td>
<td>.175</td>
<td>[-.142, .492]</td>
<td>.136</td>
<td>.01</td>
</tr>
<tr>
<td>Relatedness Need Satisfaction</td>
<td>.263</td>
<td>[-.022, .548]</td>
<td>.201</td>
<td>.027</td>
</tr>
<tr>
<td>Step 2 (research question 4e), dependent variable: subjective vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy Need Satisfaction</td>
<td>.304</td>
<td>[.040, .568]*</td>
<td>.242</td>
<td>.032</td>
</tr>
<tr>
<td>Competence Need Satisfaction</td>
<td>.007</td>
<td>[-.280, .294]</td>
<td>.005</td>
<td>.00002</td>
</tr>
<tr>
<td>Relatedness Need Satisfaction</td>
<td>.175</td>
<td>[-.078, .429]</td>
<td>.134</td>
<td>.012</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.173</td>
<td>[.106, .239]***</td>
<td>.460</td>
<td>.165</td>
</tr>
<tr>
<td>Step 2 (research question 4f), dependent variable: subjective vitality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy Need Satisfaction</td>
<td>.379</td>
<td>[.054, .705]*</td>
<td>.242</td>
<td>.043</td>
</tr>
<tr>
<td>Competence Need Satisfaction</td>
<td>.175</td>
<td>[-.143, .494]</td>
<td>.136</td>
<td>.01</td>
</tr>
<tr>
<td>Relatedness Need Satisfaction</td>
<td>.261</td>
<td>[-.028, .551]</td>
<td>.201</td>
<td>.026</td>
</tr>
<tr>
<td>Balance Score</td>
<td>-.009</td>
<td>[-.197, .179]</td>
<td>-.009</td>
<td>.000006</td>
</tr>
</tbody>
</table>

Note. $N = 93$, CI = confidence interval, * $p < .05$, *** $p < .001$
The results of the MRA showed that changes in senior executives’ autonomy need satisfaction levels accounted for the largest unique contribution \((B = .373, \beta = .297, sr^2 = .05)\) to their psychological well-being variations. The effect was significant at \(p < .05\). The unique contributions of competence \((B = .175, \beta = .136, sr^2 = .01)\) and relatedness \((B = .263, \beta = .201, sr^2 = .027)\) need satisfaction were lower and non-significant at \(p < .05\). In combination, autonomy, competence and relatedness need satisfaction accounted for a significant 28.7% of variability in subjective vitality, \(R^2 = .287\), adjusted \(R^2 = .263\), \(F(3, 89) = 11.93, p < .001\) with a large size of effect (Cohen’s \(f^2 = .40\); Cohen, 1988).

For research question 4e (“Does mood play a mediating role in the relationship between senior executives’ basic psychological need satisfaction levels and their psychological well-being?”), the correlations between senior executives’ basic psychological need scores, subjective vitality scores, and positive and negative affect scores were investigated. The results are presented in table 7.8.

Table 7.8 Correlations between senior executives’ basic psychological need scores, subjective vitality scores, and positive and negative affect scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>Positive Affect</th>
<th>Negative Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy Need Satisfaction</td>
<td>.372**</td>
<td>-.558**</td>
</tr>
<tr>
<td>Competence Need Satisfaction</td>
<td>.438**</td>
<td>-.432**</td>
</tr>
<tr>
<td>Relatedness Need Satisfaction</td>
<td>.358**</td>
<td>-.128</td>
</tr>
<tr>
<td>Subjective Vitality</td>
<td>.600**</td>
<td>-.328**</td>
</tr>
</tbody>
</table>

** \(p < .01\) (2-tailed)
All correlations for positive affect were significant at $p < .01$ (2-tailed) and positive. The highest of these correlation coefficients was with subjective vitality ($r = .600$), followed by competence need satisfaction ($r = .438$), autonomy need satisfaction ($r = .372$), and relatedness need satisfaction ($r = .358$). The correlations for negative affect were all negative with coefficients of $r = -.558$ for autonomy need satisfaction, $r = -.432$ for competence need satisfaction, $r = -.328$ for subjective vitality, and $r = -.128$ for relatedness need satisfaction. The relationships with negative affect were all significant at $p < .01$ with the exception of relatedness need satisfaction.

To investigate whether mood accounted for a significant proportion of the variance in senior executives' subjective vitality, beyond that already accounted for by basic psychological need satisfaction levels, hierarchical multiple regression analysis (MRA) was used. Step 1 of the hierarchical MRA had been performed under research question 4d, and found that the satisfaction levels of the needs for autonomy, competence, and relatedness, in combination, accounted for a significant 28.7% of variability in subjective vitality (see table 7.7). On step 2, positive affect was added to the regression equation, and accounted for an additional 16.5% of the variance in senior executives' subjective vitality, $\Delta R^2 = .165$, $\Delta F (1, 88) = 26.45$, $p < .001$. In combination, positive affect together with basic psychological need satisfaction variables explained 45.2% of the variance in senior executives' subjective vitality, $R^2 = .452$, adjusted $R^2 = .427$, $F (4, 88) = 18.11$, $p < .001$. By Cohen’s (1988) conventions, a combined effect of this magnitude can be considered ‘large’ ($f^2 = .82$). When negative affect was added to the
The final research question 4f of this study ("Does balanced basic psychological need satisfaction [i.e. less variation in individual basic need satisfaction levels] predict senior executives’ psychological well-being independently of the total amounts of individual basic need satisfaction levels?") was addressed, first, by correlating the balance score ($M = 3.63$, $SD = 1.23$) with the levels of basic psychological need satisfaction and subjective vitality. The balance score significantly correlated with autonomy ($r = .44$, $p < .01$) and competence ($r = .26$, $p < .05$) need satisfaction. The correlations with relatedness need satisfaction and subjective vitality scores were non-significant with $r = .10$ and $r = .18$ respectively. Secondly, a further hierarchical regression analysis was conducted based on Step 1 already performed under the previous research question 4d; subjective vitality was regressed on the three measures of need satisfaction. In Step 2, the balance score was added to the hierarchical regression model, but did not explain further significant variance in senior executives’ subjective vitality. Unstandardised ($B$) and standardised ($\beta$) regression coefficients, and squared semi-partial (or ‘part’) correlation ($sr^2$) for each predictor on each step of the hierarchical MRA are reported in table 7.7.
7.4 Discussion

The present study’s research objective was to investigate the role of senior executives’ relatedness need satisfaction for their psychological well-being. In approaching this research objective, this investigation applied SDT to a sample of senior executives. This was considered a novel approach to examining senior executives as reviews of literature had not identified any previous research upon senior executives adopting this theoretical framework. Findings from this investigation suggest that SDT’s constructs of basic psychological needs and psychological well-being, as well as their relationships as proposed by Gagné and Deci’s (2005) SDT model of work motivation is an applicable theoretical framework for researching senior executives. The findings also further contribute to the body of knowledge in the context of inner-resource focused psychology research into senior executives.

The results of research question 4a (“Do absolute levels of relatedness need satisfaction differ between senior executives and other individuals?”) appear to suggest that need satisfaction levels follow a non-significant trend of being higher for relatedness than for autonomy and competence independent of social contexts, e.g. students, adults, models, bankers, or senior executives. The findings support previous literature emphasising the role of the need for relatedness for optimal human functioning (Baumeister & Leary, 1995; Ryan & Deci, 2000). However, relatedness need satisfaction levels have so far mainly been studied in terms of their association with other psychological constructs. Previous investigations have not compared absolute levels of basic psychological need satisfaction scores. In conclusion, this
study’s findings suggest further comparative examinations of individuals’ absolute levels of relatedness need satisfaction.

As part of the analysis of absolute need satisfaction scores, competence need satisfaction scores were found to be significantly higher for senior executives than for the meta-analytical, non-work-related sample. The results are consistent with literature suggesting a particular role of work contexts for competence need satisfaction (Deci, et al., 2001; Hofer & Busch, 2011; Levesque, et al., 2004) as well as the findings in study 3 of this thesis. Unfortunately, the measurement scores of the meta-analytical work-related samples did not allow for an analysis of their absolute need satisfaction scores. Therefore, senior executives’ absolute need satisfaction scores could not be compared to those of other work-related samples. Future SDT studies should address this issue and investigate potential differences in absolute competence need satisfaction scores between senior executives and individuals in other work-related contexts.

The findings under research question 4b (“Does the contribution of relatedness need satisfaction to total need satisfaction differ between senior executives and other individuals?”) propose that relatedness need satisfaction was significantly less important for senior executives’ total need satisfaction than it was for both non-work-related and work-related samples despite similar absolute relatedness need satisfaction scores. This was demonstrated in table 7.6. This result could be attributed to the balance of the relative contributions of individual need satisfaction scores to total need satisfaction in the senior executive sample. For
senior executives, the relative contribution scores of each basic psychological need were less divergent (2.78) than in the meta-analytical non-work-related (6.26) and work-related (8.53) samples. This finding will be further discussed in the context of research question 4f of this thesis where a balance need satisfaction score was computed consistent with the study of Sheldon and Niemiec (2006), and the impact of senior executives’ balanced need satisfaction scores on their psychological well-being was investigated.

Further data analysis suggested that the senior executive sample and the non-work-related student sample had similar scores for the relative contribution of autonomy need satisfaction to total need satisfaction, which in turn, were both significantly higher than the comparative score for the work-related sample. This was shown in table 7.6. This finding could suggest that the relative contribution of autonomy, competence, and relatedness need satisfaction to senior executives’ total need satisfaction may change when senior executives’ careers progress over time from student (higher share of autonomy need satisfaction) to non-executive employee (lower share of autonomy need satisfaction) and senior executive (higher share of autonomy need satisfaction). Further research, for example longitudinal life-cycle studies on basic psychological need satisfaction, could contribute to the body of knowledge in this field.

In terms of research question 4c (“Does the level of senior executives’ relatedness need satisfaction have a significant relationship with their psychological well-being?”), senior executives’ relatedness need satisfaction levels were significantly positively correlated with
their subjective vitality. Additionally, senior executives’ autonomy and competence need satisfaction were also significantly positively correlated with their subjective vitality. However, the relative strength of each measure differed from previous research. For example, senior executives’ relatedness need satisfaction showed the lowest correlation of the three need satisfaction measures with subjective vitality which contrasts similar studies with student samples (Reis, et al., 2000; Vansteenkiste, et al., 2006) where relatedness need satisfaction had either the highest (Reis, et al., 2000) or second highest coefficient (Vansteenkiste, et al., 2006). In turn, autonomy need satisfaction displayed the highest correlation with subjective vitality in this study’s sample of senior executives. In summary, senior executives’ relatedness need satisfaction levels are significantly associated with their psychological well-being. Further research is required to further investigate the rank order differences in correlation levels between this examination of senior executives and previously published research studies.

Autonomy need satisfaction appears to play the strongest role of the three basic psychological needs for senior executives’ subjective vitality. Also, the significantly higher levels of absolute competence need satisfaction and relative contribution of competence need satisfaction to total need satisfaction in senior executives, as identified under research question 4a and 4b of this study, did not seem to translate into a comparable level of significance of competence need satisfaction for senior executives’ subjective vitality.

The analysis for research question 4d (“Is the unique contribution of senior executives’ relatedness need satisfaction levels to their psychological well-being higher than the unique
relatedness need satisfaction in senior executives

contribution of autonomy and competence need satisfaction levels?”) removed potential overlapping variance of the three basic psychological needs from the correlation analysis under research question 4c. After removal, autonomy need satisfaction displayed the largest and only significant, unique contribution of senior executives’ three basic psychological needs to their subjective vitality. This contrasts previous SDT research (Vansteenkiste, et al., 2006) that had identified the autonomy measure as the lowest and, instead, the relatedness measure as the largest unique predictor of subjective vitality in student samples with the contributions of all three basic need satisfaction levels to subjective vitality being significant. In conclusion, the role of autonomy, competence, and relatedness need satisfaction for subjective vitality appears to be different for senior executives and students. Further research is required to investigate these differences.

The analysis for research question 4e (“Does mood play a mediating role in the relationship between senior executives’ basic psychological need satisfaction levels and their psychological well-being?”) showed correlations between positive and negative affect, need satisfaction measures, and subjective vitality that were similar to previous SDT research (B. Meyer, et al., 2007; Ryan & Frederick, 1997; Sheldon & Schueler, 2011). Relatedness need satisfaction displayed the lowest positive correlation with positive affect contrasting Reis, et al. (2000) who had found the highest correlation for relatedness among the three need satisfaction measures. However, an explanation of this inconsistency may be that Reis, et al. (2000) had measured state level need satisfaction instead of the trait level analysis utilised in
this study. Overall, positive affect contributed significantly to senior executives’ subjective vitality which is consistent with the role of positive mood states for psychological well-being as suggested by literature (Nix, et al., 1999). After entering positive affect into the hierarchical regression model, the impact of autonomy need satisfaction on senior executives’ subjective vitality was still significant. Relatedness need satisfaction still contributed positively to subjective well-being.

The significant role of autonomy need satisfaction for senior executives’ psychological well-being supports the findings under research questions 4c and 4d of this study and suggests further research into senior executives’ autonomy need satisfaction. In addition to this thesis’ investigation of individual difference and basic psychological needs (see study 3) senior executive environments need to be studied to identify factors influencing their autonomy need satisfaction. Existing SDT measurement tools may need to be adapted to this environment given that senior executives could be characterised as ultimate decision-makers, usually dealing with shareholders or financial analysts instead of ‘being managed’.

The final research question 4f (“Does balanced basic psychological need satisfaction [i.e. less variation in individual basic need satisfaction levels] predict senior executives’ psychological well-being independently of the total amounts of individual basic need satisfaction levels?”) applied Sheldon and Niemiec’s (2006) analysis of the differences in basic psychological need satisfaction levels and their role for psychological well-being. The balance score was calculated according to the algorithm proposed by Sheldon and Niemiec (2006). The
divergence of need satisfaction scores was significantly smaller for the senior executives (\(M = 3.63, SD = 1.23\)) than for the students in Sheldon and Niemiec’s (2006) study (\(M = 6.89, SD = 1.72\)). This finding was consistent with the results under research question 4b of this study which showed that the relative contributions of individual need satisfaction to total need satisfaction was significantly more balanced for the sample of senior executives than the meta-analytical samples. However, in contrast to literature, senior executives’ balance of needs did not display an effect on their subjective vitality independent of the amounts of the individual need satisfaction levels. One potential interpretation, even though unlikely, is that Sheldon and Niemiec’s (2006) balanced need satisfaction effect may not apply to senior executives. A more plausible explanation may be that this study used an eudaimonic measurement tool, the trait subjective vitality scale (SVS; Ryan & Frederick, 1997), for psychological well-being whereas Sheldon and Niemiec (2006) used hedonic measures of subjective well-being (SWB; Diener & Lucas, 1999) and subjective happiness (SHS; Lyubomirsky & Lepper, 1999). The correlation scores between the individual basic need satisfaction scores and the balance score were similar in both studies. However, the correlations between the balance score and measures of psychological well-being were significantly positive in Sheldon and Niemiec’s (2006) study, SWB (\(r = .29, p < .05\)) and SHS (\(r = .30, p < .05\)) whereas the correlation between the balance score and SVS in this study was non-significant at \(r = .18\). In summary, the balanced need satisfaction effect may be a hedonic phenomenon or one of specific research populations. Future research
needs to test the effect by applying SWB and SHS to senior executive samples, and, SVS to student samples for clarification.

Several limitations should be noted. Firstly, although the sample of participants were homogenous in terms of their roles and duties as a senior executive, they were diverse upon other variables such as nationality and size of firm. Future studies would benefit from larger samples, however, the difficulties associated with obtaining even modest samples in this difficult to recruit area should be well noted. Secondly, the current study used correlations and hierarchical regression for data analysis; therefore, only relationships were assessed not causality. Despite these limitations, this study contributes an important step towards understanding the inner psychological resources of senior executives, specifically, in the context of senior executives’ psychological well-being.
Senior executives’ decisions can have profound implications for their respective organisations as well as for society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005). For example, many commentators have blamed senior executives’ behaviour for the extent of the 2008 global financial crisis (Altman, 2009; Gould, 2008). However, very little empirical research has been accomplished on what Ryan and Deci (2000) describe as senior executives’ “inner resources for personality development and behavioural self-regulation” (p. 68) (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008). In addition, relatedness need satisfaction has been described as under-explored in the context of SDT (Moller, et al., 2010; Sheldon & Filak, 2008). This is particularly relevant in terms of senior executives’ behavioural self-regulation given the well documented role of relatedness need satisfaction for self-regulation failure. To address these limitations of previous research, this thesis represented an inner-resource investigation into senior executives to contribute to a better understanding of senior executive behaviour, which, in turn, may support senior executives, other practitioners, and policy makers in terms of interpreting and overcoming existing challenges as well as preventing futures ones. Specifically, the aim of this thesis was to study relatedness need satisfaction in senior executives. In a series of four studies, the
framework of SDT and its associated research agenda for the SDT model of work motivation (Gagné & Deci, 2005) were, for the first time, applied to senior executives.

8.1 Research Objective 1

The research objective of study one was to explore the processes underlying relatedness need satisfaction in senior executives. Individual findings such as the small group phenomenon, senior executives operating in three cross-subsidising areas of life, an impact of physical distance on need satisfaction, the construct of energy, and the dynamic relationship between investment and return, added to previous literature from other disciplines as well as psychology. For example, the small group phenomenon has been well documented in social psychology (Blumberg, et al., 2009; Hogg, 2000; Tafjel & Turner, 1979; Turner, et al., 1987) as well as anthropology (Barchas, 1986; Coon, 1946). Also, the concept of different, potentially inter-related, areas of life has been studied previously (Baumeister & Leary, 1995; Kahneman, Diener, & Schwarz, 1999). Furthermore, SDT-based research by Shen and Khalifa (2008) found that physical distance played a role for need satisfaction and the aspect of energy has gained increasing attention in the fields of self-regulation failure and psychological well-being. Finally, the dynamic relationship between ‘investment’ and ‘return’ corresponds to aspects of Carver and Scheier’s cybernetic feedback loop model (Carver, 2004; Carver & Scheier, 1981), self-determination theory (Ryan & Deci, 2000), SDT’s research model of work motivation (Gagné &
Based on the above individual findings, the proposed models of a relatedness loop as well as a relatedness SWOB matrix for senior executives represent new conceptualisations. Both conceptualisations on relatedness need satisfaction in senior executives contribute to the body of knowledge in terms of understanding the “inner resources for [senior executives’] personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68). Gagné and Deci (2005) suggest relatedness need satisfaction as a predictor for “important work outcomes such as job satisfaction, organisational trust and commitment, psychological well-being, and performance” (p. 337). Therefore, given senior executives' profound role for organisations and society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), both models identified in study one provide an opportunity for academic researchers, practitioners, policy makers, and senior executives themselves to better understand and motivate senior executive behaviour towards better outcomes for organisations and society. Furthermore, the relatedness loop model as well as the SWOB matrix could be applied across a range of settings in research and practice, beyond the scope of organisations and senior executives, where relatedness need satisfaction may be salient, for example, clinical, health, counselling, or sport psychology.
8.2 Research Objective 2

Physical distance was identified in study one as a social environmental factor impacting upon senior executives’ related need satisfaction. In study two of this thesis, the research objective was to further investigate this finding by exploring the role of CMC for senior executives’ relatedness need satisfaction in physically distant relationships. ‘Joint activity’, ‘time’, ‘continuity’, and ‘common concern’ were identified as features of relatedness in senior executives. This finding added an empirical, post-CMC perspective to Baumeister and Leary’s (1995) meta-theoretical pre-CMC framework. Furthermore, the results of study two displayed an attenuating effect of physical distance on senior executives’ relatedness need satisfaction with the extent of attenuation depending on relationship level, i.e. less attenuation for close and more attenuation for lower level relationships. This observation extended previous literature investigating the phenomenon of physical distance (Festinger, et al., 1950; Gerstel & Gross, 1984; Short, et al., 1976; Vygotsky, 1978). Finally, the data in study two suggested that senior executives tend to use CMC for maintaining lower level physically distant relationships but not close physically distant relationships. Applying the relatedness loop model, as identified in study one, it could be hypothesised that senior executives perceived the use of CMC as an additional ‘investment’ which they may have considered unjustified in the context of a lower attenuation effect on relatedness ‘returns’ from close physically distant relationships. On the other hand, study one’s SWOB matrix seems to suggest that senior executives used CMC for maintaining lower level physically distant relationship as a portfolio approach in terms of
aggregating larger numbers of small relatedness ‘returns’ which may not have justified individual non-CMC investments such as a phone-call.

The findings under research objective two contribute a new perspective on the inner resources of senior executive as physical distance, and the use of CMC to overcome it, represent increasing challenges to senior executive behaviour as social environmental factors in a globalising business world (Annunzio & Liesse, 2001; J. S. Black, Gregersen, et al., 1999; J. S. Black, Morrison, et al., 1999; Evans, et al., 2002). Given the role of relatedness need satisfaction for important work outcomes (Gagné & Deci, 2005), CMC does not appear to be an all-purpose solution for senior executives’ global communication requirements. Instead, the results of study two suggest that the application of CMC deserves a more differentiated examination as a determining factor of senior executives’ social environments. Academic researchers, practitioners, policy makers, and senior executives are encouraged to take these findings into consideration when investigating and regulating senior executive behaviour as well as designing work environments in terms of better outcomes for organisations and society.

8.3 Research Objective 3

Study two of this thesis suggested that relationship level was not the only factor influencing senior executives’ use of CMC. Instead, it was hypothesised that individual differences between senior executives may have contributed to varying behavioural patterns.
The research objective of study three was to examine senior executives’ causality orientations, specifically, to investigate the relationship between senior executives’ causality orientations and their level of relatedness need satisfaction. For the first time, SDT including its constructs and measurement tools for causality orientation and basic psychological need satisfaction was applied to a sample of senior executives. Firstly, senior executives were found to be significantly higher on autonomy orientation, similar on control orientation, and significantly lower on impersonal orientation than meta-analytical samples of work-related and non-work-related individuals. Secondly, senior executive data were consistent with previous studies that showed a significant positive correlation between autonomy orientation and relatedness need satisfaction (Baard, et al., 2004; Gagné, 2003) as well as negative correlations between control and impersonal orientations and relatedness need satisfaction (Lam & Gurland, 2008). Thirdly, competence need satisfaction in senior executives had an even stronger significant association with their autonomy orientation than relatedness need satisfaction.

The results of study three extend previous literature in terms of senior executives being different from other individuals (Hahn, et al., 2010; Moutafi, et al., 2007) by adding supporting evidence from an SDT perspective, i.e. senior executives’ causality orientations. Furthermore, similar control orientation scores between senior executives and the meta-analytical samples seem to indicate that, statistically, senior executives are as controlled by rewards as other individuals. On the one hand, this finding appears to contradict commentators labeling senior executives as greedy (Altman, 2009; Gould, 2008). On the other hand, given the material impact
of senior executives’ decisions on organisations and society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), statistics may not provide the necessary guidance for practice in terms of senior executives’ behavioural self-regulation. Instead, senior executives’ inner resources may deserve consideration on a case by case basis. For example, self-regulation failure leading to criminal activity or disproportionate risk-taking of a single highly control oriented senior executive, otherwise concealed by the means and standard deviations of statistical analysis, could have far-reaching detrimental implications for corporations and citizens on a global scale. In conclusion, study 3 suggests SDT as a useful framework for academic scholars, corporate governance, regulators, and senior executives in terms of assessing and evaluating potential risks and opportunities in the context of individual senior executive behaviour on the basis of their individual differences and associated basic psychological need satisfaction levels including relatedness need satisfaction.

8.4 Research Objective 4

The research objective of study four, the final study of this thesis, was to investigate the role of senior executives’ relatedness need satisfaction for their psychological well-being. For the first time, data were collected using SDT’s subjective vitality scale from a sample of senior executives and analysed in the context of senior executives’ relatedness need satisfaction scores. Initially, need satisfaction levels appeared to be higher for relatedness than for
autonomy and competence in most of the investigated senior executive and meta-analytical samples of students, adults, models, or bankers. This finding seems to support the significant role attributed to relatedness need satisfaction for optimal human functioning by academic scholars (Baumeister & Leary, 1995; Ryan & Deci, 2000). In addition, the level of relatedness need satisfaction scores was similar for senior executives and meta-analytical samples. Instead, competence need satisfaction levels were significantly higher for senior executives compared to non-work-related meta-analytical samples, a finding that adds to previous literature proposing a particular role of work contexts for competence need satisfaction (Deci, et al., 2001; Hofer & Busch, 2011; Levesque, et al., 2004). Also the contribution of autonomy, competence, and relatedness need satisfaction to total need satisfaction seemed significantly more balanced for senior executives than for the meta-analytical samples. However, senior executives’ balanced need satisfaction could not be identified as an independent contributor to their psychological well-being as previously found by Sheldon and Niemic (2006). Instead, senior executives’ relatedness need satisfaction was significantly positively correlated with, and also contributed independently, to their psychological well-being. In contrast to previous literature (Reis, et al., 2000; Vansteenkiste, et al., 2006), senior executives’ autonomy and competence need satisfaction showed slightly higher positive correlation coefficients with their psychological well-being than relatedness need satisfaction and senior executives’ autonomy need satisfaction was a stronger independent contributor to their psychological well-being than relatedness need satisfaction. Furthermore, senior executives’ positive affect was found to be a
significant predictor of their psychological well-being which is consistent with previous findings (Nix, et al., 1999).

The results of study four further the current body of knowledge in the fields of SDT as well as inner-resource investigations into senior executives by emphasising the role of senior executives’ relatedness need satisfaction for their psychological well-being. In addition, these findings support Gagné and Deci’s (2005) SDT model of work motivation in terms of the role of basic psychological need satisfaction for important work outcomes. Research, practice, and senior executives can benefit from these results by including relatedness need satisfaction as a potential indicator and predictor of work outcomes in future academic examinations as well as organisational considerations in the context of senior executive motivation, behaviour, and well-being.

8.5 Limitations

This thesis successfully collected qualitative and quantitative data from comparatively large samples of senior executives to whom access has been described as “difficult to obtain” and “typically requiring extensive preparation, homework, creativity on the part of the researcher, as well as the right credentials and contacts” (Odendahl & Shaw, 2002, p. 306). Nonetheless, the four studies of this thesis have their limitations. In the case of the first two qualitative studies, these limiting aspects include demographics and sample size. Data were
largely collected from participants primarily of Anglo-Saxon descent. Therefore, the grounded data may be reflective of those cultures and belief systems. Even though the relatedness loop model showed consistency and validity over the participants, there remains an inability to generalise the emergent model of this specific sample to other cultures and belief systems. Furthermore, the qualitative studies were based on 32 and 22 interviews respectively. Even though the validity of qualitative research can be based on a single interview, the reliability can only be achieved through controlled sampling typically using a quantitative method. This aspect was not part of studies one and two and, therefore, the results cannot be interpreted as representative of other populations. In studies three and four, participants were a diverse sample of senior executives from eight nationalities, some from very small private firms and others from very large publicly listed corporations. Thus, the sample size per subgroup was very small. Also, like other research in this area, studies three and four were correlational in nature; experimental designs would be needed to test for causal effects. Despite these limitations, the four studies of this thesis contributed an inner-resource perspective to gaps in literature by studying the underlying processes, antecedents, and consequences of relatedness need satisfaction in senior executives.
9 CONCLUSIONS AND FUTURE RESEARCH

The aim of this thesis was to study relatedness need satisfaction in senior executives. Key stimuli for this examination were (a) the potentially profound impact of senior executive actions on organisations and society (Kets De Vries & Florent-Treacy, 2002; Kets De Vries & Korotov, 2005), (b) a lack of inner-resource investigations, i.e. studying “inner resources for personality development and behavioural self-regulation” (Ryan & Deci, 2000, p. 68), in the field of organisational psychology (Amabile & Kramer, 2007; Ashkanasy, 2003; Ashkanasy & Jordan, 2008), and (c) the relative under-exploration of relatedness need satisfaction in SDT (Moller, et al., 2010; Sheldon & Filak, 2008).

Relatedness need satisfaction levels were found to be higher than autonomy and competence need satisfaction levels in senior executives and in most of the samples of students, adults, models or bankers examined in meta-analysis which underlines relatedness need satisfaction as an important phenomenon to be considered in organisational psychology. Future research may further investigate this finding in terms of its further validation as well as its potential causes. In addition, senior executives’ relatedness need satisfaction was identified as a significant indicator and predictor of their psychological well-being. However, the relative effect of relatedness need satisfaction was less significant when compared to autonomy and competence need satisfaction which differed from previous studies. Further examination will
be required to study these diverging levels of importance as well as the role of senior executives’ related need satisfaction for work outcomes other than their psychological well-being. When studying senior executives’ relatedness need satisfaction in the context of their total need satisfaction, the findings suggested that basic psychological need satisfaction may follow a life cycle pattern and that senior executives’ need satisfaction levels were more balanced than the need satisfaction levels of the investigated samples other than senior executives. Future longitudinal research may address the potential life-cycle phenomenon. Furthermore, the potential effect of balanced need satisfaction for psychological well-being deserves further research attention as this thesis could not reproduce Sheldon and Niemic’s (2006) student results in the examined sample of senior executives.

Senior executives’ individual differences and social environmental factors were investigated for potential relationships with their relatedness need satisfaction. As expected, senior executives were found to be significantly higher on autonomy orientation and significantly lower on impersonal orientation. The results of similar control orientation scores were unexpected and should be subject to further investigations. Significantly negative correlations between senior executives’ control and impersonal orientations and their level of relatedness need satisfaction confirmed expectations and suggest senior executives’ control and impersonal orientation scores as potential ‘risk-indicators’ in an ‘early detection system’ for potential senior executive self-regulation failure. Future senior executive research, both at trait- and state-level of analysis, should further examine the indicative role of control and impersonal
orientation in association with the level of relatedness need satisfaction for potential senior executive self-regulation failure. In addition, the role of senior executives’ autonomy orientation, autonomy and competence need satisfaction, and social environmental factors should be further investigated as, perhaps, ‘inhibitors’ of potential self-regulation failure.

The social environmental factor of physical distance was found to have an attenuating effect on senior executives’ relatedness need satisfaction. However, the findings are based on an exploratory study and further examination with quantitative methods is suggested for quantification of the attenuation effect. Nonetheless, the findings suggest that the design of senior executives’ family, work, and social life environments should consider the potential impact of physical distance on senior executives’ relatedness need satisfaction, and in turn, on their optimal functioning. For example, aspects of job content and context as well as work climates, should be investigated in terms of their relationship with senior executives’ relatedness need satisfaction. SDT’s measurement tools may need to be adapted for such a purpose as their wording may be inconsistent with the attributes of senior executives’ environments.

Finally, this thesis proposes a process model underlying senior executives’ relatedness need satisfaction (relatedness loop model) and portfolio approach to senior executives’ relatedness need satisfaction (SWOB matrix). Both conceptualisations add important aspects to the understanding of and potential influence on the ‘inner dynamics’ of senior executives’ relatedness need satisfaction, and, in turn, can help organisations as well as senior executives
themselves with regards to senior executive motivation, behaviour, and well-being. Both the relatedness loop model and the SWOB matrix were based on data collected in an exploratory study and future research may use existing measurement tools as well as develop additional measures to quantify constituents of both models. In addition, researchers are encouraged to replicate this study in other cultures as well as domains other than senior executives.

In conclusion, the findings contribute to both (a) academic research and (b) practice. On a), future research can benefit from this thesis by identifying and testing new hypotheses based on this thesis’ quantitative results. In addition, the new conceptualisations identified by the qualitative work of this thesis (i.e. relatedness loop model and SWOB matrix) may promote new streams of research in the field of relatedness need satisfaction with regards to senior executives as well as other research populations. Furthermore, the results may support researchers in other disciplines such as clinical, health, Counseling, or sports psychology. On b), this thesis suggests the relatedness loop, the SWOB matrix, and the framework of SDT as useful tools for practitioners in fields such as corporate governance, financial regulation, organisational design, executive counseling, as well as for senior executives themselves. For example, these conceptualisations can help monitor and influence senior executives’ motivation, behaviour, and well-being. Potential applications could include the assessment of business risk based on senior management’s basic need satisfaction levels. In addition, the findings may be used for the evaluation and assessment of senior executives with regard to candidate selection as well as talent and career management.
REFERENCES


APPENDICES
Appendix A: Information Sheet - Studies One and Two
Relatedness Need Satisfaction in Senior Executives

University of the Sunshine Coast
Queensland, Australia

Research Project – Information Sheet

Ethics Approval Number: HREC: S/09/225

Voluntary participation & Consent
Participation in this research project is voluntary. There are no consequences for choosing not to participate in the research. Participants consent by participating in the study, specifically through a recorded interview, of approximately one hour, with the researcher. Discussion will be recorded for further analysis, however any identifying personal information (e.g. names, places etc.) will be removed from any stored record. Participants may withdraw from the research project at any time without penalty or the need to provide an explanation.

Participation Age
This project is intended for those who are currently 18 years of age and above.

Researcher details

Principal Researcher
Details about the research project
The feeling of relatedness plays an important role for motivation and performance in senior executives. This study primarily investigates what components relatedness is based upon. If there was a conclusive process model of relatedness, tools for intervention and coaching could be developed on that basis to increase motivation and performance for teams and individuals. As participant in this project you can make a material contribution to the investigation of this phenomenon and we greatly appreciate your input.

Concerns about conduct of research
If you have any complaints about the way this research project is being conducted you can raise them with the Principal Researcher or, if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: (c/- the Research Ethics Officer, Teaching and Research Services, University of the Sunshine Coast, Maroochydore DC 4558; telephone (07) 5459 4574; facsimile (07) 5430 1177; email humanethics@usc.edu.au).

Confidentiality and use of data
The information collected from you will be de-identified and only used to address the aims of this research project. Original recordings will be erased immediately following the generation of de-identifiable records of the discussion. Only the primary researcher and supervisor will hold access to the de-identified information collected. Data of participants
who withdraw from the research will not be used. Only de-identifiable information will be referred to in the disseminated research results.

**Feedback**
As data collected will be de-identified, it will be impossible to directly inform and provide feedback to participants of the research findings. However, the overall results of the research will be presented in the form of a research article and it is also intended that publication in a relevant journal will be sought. If you wish to receive summary of the findings, please contact the principal researcher at the beginning of 2010.

**Incentives**
No incentive/payback or reimbursement is being offered to participants.

**Disclosure of funding sources**
No financial or in-kind support has been sought for this research project.

**Involvement in the research**
You are able to take your time to think about whether you wish to participate in this study. If you do wish to participate or if you require additional information before making a decision please contact the Principal Researcher at the telephone number/email address given above.

**University of the Sunshine Coast Psychology Clinic**
Should you wish to seek assistance for any mental health concerns, please contact the USC Psychology Clinic, Level 1 T Building, or phone: (07) 5459 4514.

**Appreciation**
The Principal Researcher, Supervisor and University of the Sunshine Coast sincerely appreciate your assistance with this research project.
Appendix B: Information Sheet - Studies Three and Four
Invitation - Academic Research Project – Business and Corporate Executives

Research Project Information Sheet

Principal Researcher:
Marcus Mueller  
*BSc, DPBA, MBA, DPsychology*  
(former corporate executive in large multi-national organisations)

10 minutes that will get you thinking...and help an international research project!

I am pleased to invite you to take part in an international research project on work motivation and performance, conducted by Marcus B. Mueller, a former senior business executive and now a research student at the University of the Sunshine Coast.

Your participation will only take about 10 mins and involves you taking a confidential online survey focusing on business and corporate executives and their workplace motivations. This research study is an innovative and leading edge approach to organisational motivation and performance based on over 35 years of academic research, over 15 years of work experience as a senior executive, and 2 years of conceptual work integrating both worlds into a practical and theoretically well founded framework.

In return for your participation in this survey, I will be very happy to share a summary of key findings.

To complete the survey please click on the link below:

(http://...).
Voluntary participation

Participation in this research project is voluntary. There are no adverse consequences for choosing not to participate in this research. Participants may withdraw at any time without penalty or the need to provide an explanation.

Researcher details

Principal Researcher
Marcus Mueller (MBA)
Faculty of Arts and Social Sciences
Phone: +61 (7) 5459 4624
Email: mmueller@usc.edu.au

Supervisor
Dr Peter Innes
Faculty of Arts and Social Sciences
Phone: +61 (7) 5459 4802
Email: pinnes@usc.edu.au

Details about the project

Historically, academic research into aspects of organizational behaviour has focused on potential factors ultimately impacting organisational performance. These studies have included research on leadership behaviour, the work environment, or employee engagement and well-being. Research in the field of senior executives has almost exclusively focused on how senior industry leaders perform but not on how they feel. However, how senior executives feel is a factor impacting their performance. The University of the Sunshine Coast is conducting research to further knowledge in that field. This research is intended to provide a theoretical platform for organizations to create win/win situations with regards to their senior management: Increased psychological well-being and motivation leading to high and sustainable levels of performance. Specifically, the study is investigating the role of senior executives’ social networks for their health, well-being, and motivation.

As a participant in this research study you will be required to complete a questionnaire and provide relevant demographic information. No risk is anticipated in completing the survey and no immediate benefits are expected for participation. However, it is expected this research may assist in understanding the role of social networks in relation to health, well-being, and
motivation which can support senior executives’ and organisations’ achievement and sustainability of performance.

**Concerns about conduct of research**

If you have any complaints about the way this research is being conducted you can raise them with the Principal Researcher or, if you prefer an independent person, contact the Chairperson of the Human Research Ethics Committee at the University of the Sunshine Coast: Research Ethics Officer, Teaching and Research Services, University of the Sunshine Coast, Maroochydore DC, QLD 4558; Telephone +61 (0)7 5459 4574; Facsimile +61 (0)7 5430 1177; Email: humanethics@usc.edu.au.

**Confidentiality and use of data**

Your identity will remain completely confidential and you will not be identifiable in any way. The information collected will be used to help address the aims of this research and associated future research. Only the primary researcher will hold access to the information collected. Data of participants who withdraw from the research will not be used. Only total group data will be referred to in disseminated research results.

**Feedback**

As data collected will not be identifiable, it will be impossible to directly inform and provide feedback to you of the research findings. However, the overall results of the research will be presented in the form of a research article and it is also intended that publication in a relevant journal will be sought. If you wish to receive summary of the findings, please contact the research team.

**Incentives**

No incentive/payback or reimbursement is being offered to participants.

**Disclosure of funding sources**

No financial or in-kind support has been sought for this research project.

**Involvement in the research**
If you do wish to participate, please follow the online indicators to proceed. If you require additional information before making your decision please contact the Principal Researcher.

**University of the Sunshine Coast Psychology Clinic**

Should you wish to seek assistance for any mental health concerns, please contact the USC Psychology Clinic, Level 1, Building T, or phone: +61 (0)7 5459 4514.

**Appreciation**

The Principal Researcher, Supervisor and the University of the Sunshine Coast sincerely appreciate your assistance with this research project.

**It is assumed that by completing the questionnaire you have given your free consent to participate and you are at least 18 years of age.**
Appendix C: Interview Guide - Studies One and Two
Appendix D: NVivo Coding - Studies One and Two
RELATEDNESS NEED SATISFACTION IN SENIOR EXECUTIVES

Definitions

Interaction

Investment

Return

Areas of Life

Social Life

Work/Occup

Family

Rel. Labels

Levels

Focus

High/exclusive

Other

Family

Work/Occup

Social Life

WorkLife B.
Appendix E: Questionnaire - Studies Three and Four