

**ON INNOVATION AS AN AFFECT-DRIVEN WORK
BEHAVIOUR**

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Dedicated to Alvaro and Carlos, my grandparents

ABSTRACT

This thesis aims to theorise and examine whether moods stimulate innovative work behaviour. The latter comprises a construct denoting the generation, promotion and realisation of novel ideas, oriented to benefiting the effectiveness and well-being of an organisation. Over time, organisational behaviour scholars have described individual and contextual factors as relevant to understanding innovative behaviour. However, one topic that still requires more detailed attention is how affect is related to innovation. Several studies have found that moods are related to idea generation, but they have neglected to explore whether similar effects apply to idea promotion and idea realisation. Also, organisational behaviour research has been limited to moods differentiated by their valence (pleasure), even though psychological research has shown that moods necessarily involve both differences in valence and activation (energy). Furthermore, most theory of innovation assumes that affect mediates individual and contextual influences on innovative behaviour, but empirical research dealing with these issues is still rare. This thesis argues that the lack of research on idea promotion and realisation, in favour of idea generation, is a response to limited support for the multidimensionality of the innovative work behaviour construct. In turn, the circumplex model of affect is adopted to define diverse moods described by valence and activation, whilst arguing influences of these moods on innovative behaviour. Moreover, from the perspective of cognitive appraisal theory, moods are argued to be a meditational function between climate of support for innovation, openness to experience and innovative work behaviour. Five empirical studies supported the validity of innovative work behaviour as a multidimensional construct. In turn, results supported a positive relationship between high-activated positive mood and dimensions of innovative behaviour. Finally, multilevel analysis showed high-activated positive mood as a core construct for transforming support for innovation and openness to experience into innovative behaviour.

PUBLICATIONS AND PRESENTATIONS ARISING

Journal Papers

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TABLE OF CONTENTS

ABSTRACT.....	III
PUBLICATIONS AND PRESENTATIONS ARISING.....	IV
ACKNOWLEDGEMENTS	VI
TABLE OF CONTENTS.....	VII
LIST OF TABLES	1
LIST OF FIGURES.....	4
CHAPTER 1: THESIS OVERVIEW	6
CHAPTER 2: DEFINING INNOVATIVE WORK BEHAVIOUR	14
2.1 INTRODUCTION	14
2.2 DEFINING INNOVATION.....	14
2.3 INNOVATIVE WORK BEHAVIOUR	16
2.3.1 GENERAL ATTRIBUTES OF INNOVATIVE WORK BEHAVIOUR.....	21
2.3.2 ISSUES ON CONSTRUCT AND MEASUREMENT VALIDITY OF INNOVATIVE WORK BEHAVIOUR.....	25
2.4 CHAPTER SUMMARY	30
CHAPTER 3: RESEARCH ON ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR: A LITERATURE REVIEW	31
3.1 INTRODUCTION	31
3.2 INDIVIDUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR.....	33
3.2.1 PERSONALITY	33
3.2.2 INDIVIDUAL SKILLS	36
3.2.3 PERSONAL VALUES.....	37
3.2.4 SELF-EFFICACY	39
3.2.5 MOTIVATION	40
3.2.6 AFFECT AT WORK	42
3.2.7 SUMMARY OF INDIVIDUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR.....	44

3.3	CONTEXTUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR	46
3.3.1	JOB CHARACTERISTICS AND JOB DEMANDS	47
3.3.2	LEADERSHIP	49
3.3.3	CLIMATE FOR INNOVATION	53
3.4	GENERAL DISCUSSION OF PAST RESEARCH ON ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR AND THE RESEARCH PROBLEM OF THIS THESIS .	55
<u>CHAPTER 4: MOODS AND WORK BEHAVIOUR</u>		59
4.1	INTRODUCTION	59
4.2	DEFINING AFFECT	59
4.3	MOODS AND BEHAVIOUR AT WORK	70
4.3.1	DIRECTIVE PROPERTIES OF MOODS	71
4.3.2	DISTAL ANTECEDENTS OF THE PROCESSES BETWEEN MOODS AND BEHAVIOUR	75
4.4	RESEARCH QUESTIONS OF THIS THESIS	82
<u>CHAPTER 5: RESEARCH METHODOLOGY</u>		86
5.1	INTRODUCTION	86
5.2	RESEARCH APPROACH AND PHILOSOPHICAL ASSUMPTIONS	86
5.3	METHODS	89
5.3.1	METHODS UTILISED IN PAST RESEARCH ON AFFECT AND INNOVATIVE WORK BEHAVIOUR	90
5.3.2	METHODS ADOPTED IN THIS THESIS	92
5.4	SAMPLES	96
5.5	ETHICAL CONSIDERATIONS	97
5.6	SUMMARY	98
<u>CHAPTER 6: VALIDATION OF THEORETICAL AND MEASUREMENT MODELS OF INNOVATIVE WORK BEHAVIOUR AND JOB-RELATED MOODS</u>		100
6.1	INTRODUCTION	100
6.2	THEORETICAL AND MEASUREMENT MODEL OF INNOVATIVE WORK BEHAVIOUR	100
6.3	MEASURING JOB-RELATED MOODS	105
6.4	METHOD	110
6.4.1	STUDY 1: REVIEW OF INSTRUMENTS TO MEASURE INNOVATIVE WORK BEHAVIOUR	111

Procedure	111
Results	112
Conclusions Study 1	116
6.4.2 STUDY 2: VALIDATION OF INNOVATIVE WORK BEHAVIOUR MODEL AND MEASURES OF JOB-RELATED MOODS.....	118
Procedure and Data	118
Measures	119
Analytical Strategy	121
Results	123
Conclusions Study 2	132
6.5 GENERAL DISCUSSION	135
<u>CHAPTER 7: TESTING THE RELATIONSHIP BETWEEN JOB RELATED MOODS AND INNOVATIVE WORK BEHAVIOUR.....</u>	138
7.1 INTRODUCTION	138
7.2 MOODS AND IDEA GENERATION	138
7.3 MOODS, IDEA SUGGESTION AND COALITION BUILDING	145
7.4 MOODS AND IDEA REALISATION	147
7.5 METHOD.....	149
7.5.1 STUDY 3: CROSS-SECTIONAL METHOD.....	149
Procedure and Data	149
Measures	151
Analytical Strategy	153
Results	153
Discussion Study 3	156
7.5.2 STUDY 4: DIARY METHOD.....	159
Procedure	159
Measures	160
Analytical Strategy	162
Results	163
Post-Hoc Analyses.....	167
Discussion Study 4	171
7.6 GENERAL DISCUSSION	174
7.7 LIMITATIONS, FUTURE RESEARCH AND CONCLUSION.....	180

**CHAPTER 8: SUPPORT FOR INNOVATION AND OPENNESS TO EXPERIENCE AS
CONTEXTUAL AND INDIVIDUAL ANTECEDENTS OF MOODS AND INNOVATIVE
WORK BEHAVIOUR 182**

8.1 INTRODUCTION 182

8.2 SUPPORT FOR INNOVATION, HIGH-ACTIVATED POSITIVE MOOD AND
INNOVATIVE WORK BEHAVIOUR 183

8.3 OPENNESS TO EXPERIENCE AS A BOUNDARY CONDITION 186

8.4 METHOD 190

8.4.1 PROCEDURE, DATA AND SAMPLE 190

8.4.2 MEASURES 190

8.4.3 ANALYTICAL STRATEGY 192

8.4.4 RESULTS 194

8.5 DISCUSSION 201

8.6 LIMITATIONS, FUTURE RESEARCH AND CONCLUSION 205

CHAPTER 9: DISCUSSION 208

9.1 INTRODUCTION 208

9.2 THEORETICAL CONTRIBUTIONS 208

9.2.1 INNOVATIVE WORK BEHAVIOUR DENOTES A MULTIDIMENSIONAL BEHAVIOURAL
CONSTRUCT 208

9.2.2 DIMENSIONS OF INNOVATIVE WORK BEHAVIOUR DIFFER IN SOCIAL MEANING 211

9.2.3 INNOVATIVE WORK BEHAVIOUR IS A DYNAMIC CONSTRUCT OVER TIME 214

9.2.4 JOB-RELATED MOODS DENOTE BOTH AFFECTIVE VALENCE AND ACTIVATION 215

9.2.5 HIGH-ACTIVATED POSITIVE MOOD IS A CORE ANTECEDENT OF INNOVATIVE WORK
BEHAVIOUR 218

9.2.6 JOB-RELATED MOOD MEDIATES WORK CLIMATE INFLUENCES ON INNOVATIVE WORK
BEHAVIOUR AND THIS IS MODERATED BY PERSONALITY 222

9.3 METHODOLOGICAL CONTRIBUTIONS 226

9.3.1 VALIDATION OF A DIMENSIONAL MEASURE OF INNOVATIVE BEHAVIOUR 227

9.3.2 VALIDATION OF A SPANISH FORM OF THE MULTI-AFFECT INDICATOR 229

9.3.3 DEVELOPMENT OF IMPROVED RESEARCH DESIGN TO APPROACH MOODS AND
INNOVATIVE WORK BEHAVIOUR 231

9.3.4 DEVELOPMENT OF ACCURATE DATA ANALYSES TO STUDY MOODS, INNOVATIVE WORK
BEHAVIOUR AND THEIR CONTEXTUAL AND INDIVIDUAL ANTECEDENTS 235

9.4	PRACTICAL IMPLICATIONS.....	237
9.5	LIMITATIONS	240
9.5.1	MICRO PSYCHOLOGICAL PROCESSES INVOLVED IN THE THEORETICAL MODEL	240
9.5.2	LONG-LASTING APPROACH OF MOODS.....	241
9.5.3	CAUSALITY ISSUES.....	242
9.5.4	USE OF SELF-REPORTED MEASURES AND INFLATED-DEFLATED ESTIMATION.....	243
9.5.5	SAMPLING	244
9.6	SUMMARY AND CONCLUSION.....	245
	<u>APPENDICES.....</u>	<u>248</u>
	INNOVATIVE WORK BEHAVIOUR (STUDIES 2, 3, 4 AND 5)	253
	JOB-RELATED MOODS (STUDIES 2, 3, 4 AND 5)	255
	EXTROVERSION, NEUROTICISM AND OPENNESS TO EXPERIENCE (STUDY 3 AND 5)	256
	TRAIT AFFECT (PANAS) (STUDY 4 AND 5).....	257
	CLIMATE OF SUPPORT FOR INNOVATION (STUDY 5).....	258
	<u>REFERENCES.....</u>	<u>260</u>

LIST OF TABLES

<u>TABLE 2.1: MODELS OF INNOVATIVE WORK BEHAVIOUR</u>	<u>20</u>
<u>TABLE 4.1: COMPARISON AMONG CONSTRUCTS EMBEDDED IN THE CONCEPT OF AFFECT</u>	<u>63</u>
<u>TABLE 4.2: CRITICAL PARAMETERS TO DEFINE AFFECTIVE CONSTRUCTS.....</u>	<u>66</u>
<u>TABLE 4.3: THE TWO-FACTOR HIERARCHICAL MODEL OF POSITIVE AND NEGATIVE AFFECT (WATSON, 2000)</u>	<u>67</u>
<u>TABLE 4.4: DIRECT COGNITIVE AND BEHAVIOURAL IMPLICATIONS ASSOCIATED WITH AFFECTIVE VALENCE AND ACTIVATION</u>	<u>73</u>
<u>TABLE 4.5: SUMMARY OF STUDIES ADDRESSING THE RESEARCH QUESTIONS OF THIS THESIS.....</u>	<u>85</u>
<u>TABLE 6.1: CONSTRUCT DEFINITION OF TYPICAL MEASURES OF INNOVATIVE WORK BEHAVIOUR</u>	<u>114</u>
<u>TABLE 6.2: INTER-RATER AGREEMENT OF ITEM REVIEW</u>	<u>115</u>
<u>TABLE 6.3: ITEMS OF INNOVATIVE WORK BEHAVIOUR RETAINED FOR EMPIRICAL TESTING</u>	<u>117</u>
<u>TABLE 6.3: MODELS OF INNOVATIVE WORK BEHAVIOUR TESTED</u>	<u>125</u>
<u>TABLE 6.4: GOODNESS-OF-FIT AND MODEL COMPARISON FOR INNOVATIVE WORK BEHAVIOUR MEASURES.....</u>	<u>126</u>
<u>TABLE 6.5: DESCRIPTIVE STATISTICS, CORRELATIONS AND RELIABILITY FOR INNOVATIVE WORK BEHAVIOUR MEASURES</u>	<u>127</u>
<u>TABLE 6.6: GOODNESS-OF-FIT AND MODEL COMPARISON FOR JOB-RELATED MOODS</u>	<u>128</u>

<u>TABLE 6.7: DESCRIPTIVE STATISTICS, CORRELATIONS AND RELIABILITY FOR JOB-RELATED MOODS</u>	<u>129</u>
<u>TABLE 6.8: CORRELATION MATRIX FOR AFFECT MARKERS OF THE MULTI-AFFECT INDICATOR (N = 430)</u>	<u>131</u>
<u>TABLE 6.9: CONSTRUCT DEFINITION OF INNOVATIVE WORK BEHAVIOUR</u>	<u>136</u>
<u>TABLE 7.1: DIMENSIONS OF MOODS, COGNITION AND BEHAVIOUR</u>	<u>140</u>
<u>TABLE 7.2: MOODS AND THEIR COGNITIVE-BEHAVIOURAL IMPLICATIONS</u>	<u>142</u>
<u>TABLE 7.3: DESCRIPTIVE STATISTICS, CORRELATIONS AND RELIABILITIES</u>	<u>155</u>
<u>TABLE 7.4: STRUCTURAL EQUATION MODELLING FOR MOODS AND INNOVATIVE WORK BEHAVIOUR</u>	<u>156</u>
<u>TABLE 7.5: MULTILEVEL CONFIRMATORY ANALYSIS FOR MOODS AND INNOVATIVE WORK BEHAVIOUR</u>	<u>162</u>
<u>TABLE 7.6: DESCRIPTIVE STATISTICS, CORRELATIONS AND RELIABILITIES</u>	<u>165</u>
<u>TABLE 7.7: MULTILEVEL STRUCTURAL EQUATION MODELLING FOR ALL MOODS FACTORS</u>	<u>166</u>
<u>TABLE 7.8: LONGITUDINAL CROSS-LAGGED MODELS FOR HIGH-ACTIVATED POSITIVE MOOD, IDEA GENERATION AND IDEA SUGGESTION</u>	<u>169</u>
<u>TABLE 7.9: LONGITUDINAL CROSS-LAGGED MODELS FOR HIGH-ACTIVATED POSITIVE MOOD, COALITION BUILDING AND IDEA REALISATION</u>	<u>170</u>
<u>TABLE 8.1: DESCRIPTIVE STATISTICS, CORRELATIONS AND RELIABILITIES</u>	<u>196</u>
<u>TABLE 8.2: MULTILEVEL MODERATED MEDIATION BETWEEN SUPPORT FOR INNOVATION, OPENNESS TO EXPERIENCE, HIGH-ACTIVATED POSITIVE MOOD (HAPA) AND IDEA INNOVATIVE WORK BEHAVIOUR (IDEA GENERATION AND IDEA REALISATION)</u>	<u>200</u>
<u>TABLE 9.1: SUMMARY OF HYPOTHESIS TESTING</u>	<u>247</u>

TABLE AP1: ASSESSMENT OF SUBJECT-MATTER EXPERTS FOR ITEMS OF INNOVATIVE WORK BEHAVIOUR IN ENGLISH..... 249

TABLE AP2: ASSESSMENT OF SUBJECT-MATTER EXPERTS FOR ITEMS OF INNOVATIVE WORK BEHAVIOUR IN SPANISH..... 251

TABLE AP3: COMPARATIVE DATA BY THE DIVERSE GROUPS THAT COMPRISED THE SAMPLES OF THE SPANISH-SPEAKING EMPLOYEES 259

LIST OF FIGURES

<u>FIGURE 1.1: GENERAL CONCEPTUAL MODEL OF THIS THESIS</u>	<u>9</u>
<u>FIGURE 2.1: MAIN CHARACTERISTICS AND LEVELS OF ANALYSIS OF INNOVATION</u>	<u>15</u>
<u>FIGURE 3.1: MAIN INDIVIDUAL AND CONTEXTUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR EXAMINED BY PAST RESEARCHERS</u>	<u>32</u>
<u>FIGURE 4.1: THE CIRCUMPLEX MODEL OF AFFECT (ADAPTED FROM YIK ET AL., 2011).....</u>	<u>64</u>
<u>FIGURE 4.2: COMPARISON BETWEEN THE CIRCUMPLEX MODEL OF AFFECT AND THE POSITIVE AND NEGATIVE MODEL OF AFFECT.....</u>	<u>69</u>
<u>FIGURE 4.3: INTEGRATION OF THE CIRCUMPLEX MODEL OF AFFECT AND THE BIO-BEHAVIOURAL SYSTEMS</u>	<u>77</u>
<u>FIGURE 4.4: CONCEPTUAL MODEL FOR THE RELATIONSHIP BETWEEN WORK ENVIRONMENT, INDIVIDUAL DISPOSITIONS, MOODS AND BEHAVIOUR</u>	<u>80</u>
<u>FIGURE 6.1: COMPARISON BETWEEN PANAS AND WARR'S SCALES</u>	<u>107</u>
<u>FIGURE 6.2: MODEL 4 OF INNOVATIVE WORK BEHAVIOUR (N = 404).....</u>	<u>126</u>
<u>FIGURE 6.3: CONFIRMATORY FACTOR ANALYSIS FOR JOB-RELATED MOODS (N = 430).....</u>	<u>129</u>
<u>FIGURE 6.4: POLAR ANGLES FOR THE SPANISH VERSION OF THE MULTI-AFFECT INDICATOR (N = 430)</u>	<u>133</u>
<u>FIGURE 7.1: LONGITUDINAL CROSS-LAGGED MODELS FOR HIGH-ACTIVATED POSITIVE MOOD AND IDEA REALISATION.....</u>	<u>171</u>
<u>FIGURE 8.1: MODERATED MEDIATION MODEL PROPOSED.....</u>	<u>183</u>

FIGURE 8.2: INTERACTION EFFECT BETWEEN SUPPORT FOR INNOVATION AND OPENNESS TO EXPERIENCE ON HIGH-ACTIVATED POSITIVE MOOD 197

FIGURE 8.3: INTERACTION EFFECT BETWEEN HIGH-ACTIVATED POSITIVE MOOD AND OPENNESS TO EXPERIENCE ON IDEA GENERATION..... 197

FIGURE 8.4: INTERACTION EFFECT BETWEEN HIGH-ACTIVATED POSITIVE MOOD AND OPENNESS TO EXPERIENCE ON IDEA REALISATION..... 198

FIGURE 8.5: MODERATED MEDIATION BETWEEN SUPPORT FOR INNOVATION, OPENNESS TO EXPERIENCE, HIGH-ACTIVATED POSITIVE MOOD AND INNOVATIVE WORK BEHAVIOUR 201

CHAPTER 1: THESIS OVERVIEW

“Work on creativity and innovation may in the future become increasingly important from the organization’s point of view. As a greater percentage of work becomes highly skilled and professionalized, the criteria of performance will likely become more ambiguous and subject to change. Therefore, questions of productivity may become translated into inquiries about working smarter rather than harder. These tendencies will probably be compounded in situations where markets are rapidly changing or competition is fierce, such that innovation in these environments may become the organization’s most important outcome variable” (Staw, 1984, p. 655-656).

Almost thirty years later, the above statement offered in the 1984 edition of the “Annual Review of Psychology” in organisational behaviour can be considered an accurate anticipation of contemporary organisational life. Over the years, exponential advances in technology, development of global competition and evolving customer demands have dramatically transformed the organisational environment (Burns & Stalker, 1961; Patrickson, 1987; Pulakos, Arad, Donovan, & Plamondon, 2000; Thach & Woodman, 1994), which is today characterised by greater uncertainty, dynamism and rapid changes (Howard, 1995; Ilgen & Pulakos, 1999; Pulakos et al., 2000; Unsworth & Parker, 2003). Therefore, in contrast to the industrial era where the explicit prescription of activities and clear job definitions were critical to organisational effectiveness (Cummings & Blumberg, 1987; Katz, 1964), most of today’s organisations cannot rely on the mere anticipation of work activities to cope with environmental dynamism and being competitive (Crant, 2000; Frese & Fay, 2001; Grant & Ashford, 2008). As such, organisational behaviour described as creative, innovative, flexible and versatile has emerged as being essential for

increased competitiveness and even the survival of organisations (Anderson & King, 1993; Howell & Higgins, 1990; Kanter, 1988; Unsworth & Parker, 2003; Van de Ven, 1986; Zaltman, Duncan, & Holbek, 1973). This thesis aims to understand how innovative work behaviour, namely, the generation, promotion and realisation of novel ideas (Janssen, 2000), is performed in organisations.

Given its relevance, a large body of research has been oriented to understand the nature and antecedents of innovative work behaviour (Anderson, De Dreu, & Nijstad, 2004; Hammond, Neff, Farr, Schwall, & Zhao, 2011). However, theory and research in this topic still face important challenges. Firstly, since its early description in the organisational behaviour literature, innovative work behaviour has developed in imprecise and sometimes inconsistent conceptualisations. Over time, this construct has been assimilated into frameworks of creativity, organisational citizenship behaviour, contextual performance, prosocial/spontaneous behaviour and proactivity (Amabile, 1988; Brief & Motowidlo, 1986; George & Brief, 1992; Griffin, Neal, & Parker, 2007; Parker & Collins, 2010; Podsakoff, MacKenzie, Paine, & Bachrach, 2000; Van Dyne, Ang, & Botero, 2003). However, this can be considered as theoretically and empirically problematic, given that innovation denotes not only creativity, but also promotion and implementation of novel ideas (Kanter, 1988). Furthermore, the notion of organisational citizenship behaviour is not necessarily consistent with the idea of innovation, because in contrast to citizenship actions, innovative work behaviour can challenge organisational practices and even lead to conflict at work (George, 2007; Janssen, van de Vliert, & West, 2004; West, 2002). Finally, the proactivity approach also seems to be problematic for understanding innovation, as innovative work behaviour may be “self-initiated” (the core feature of proactivity (Grant & Ashford, 2008)) in some cases, but denoting a reactive behaviour in many other cases, being linked to direct

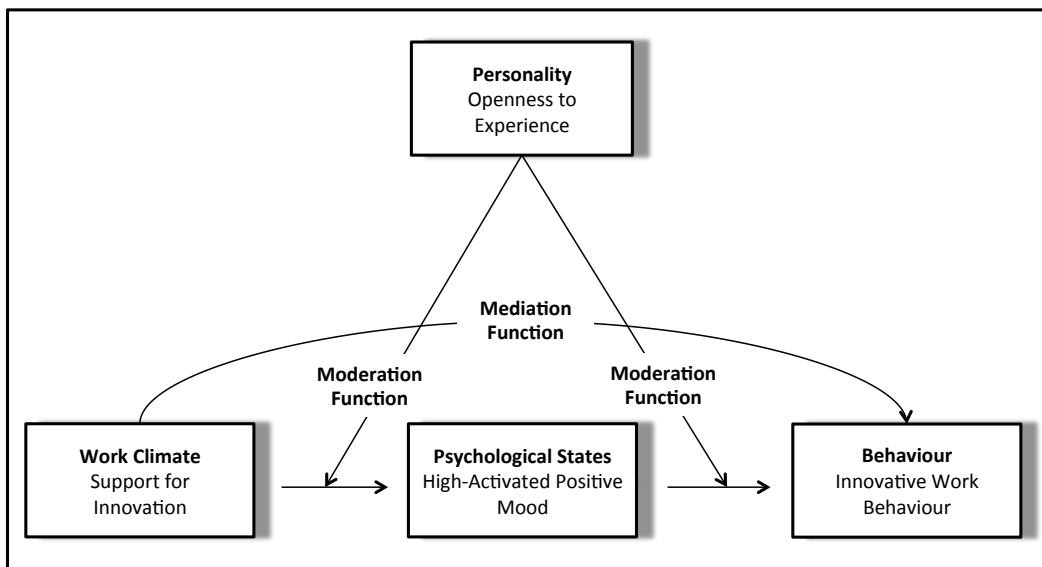
requirements of others at work (e.g. supervisors, managers) (Scott & Bruce, 1994; Tierney & Farmer, 2004).

A second issue on innovative work behaviour relates to the psychological processes that explain it. A weight of studies have tested and supported individual factors (e.g. personality, skills, values) and contextual factors (job characteristics, leadership, work climate) as predictors of innovative actions at work (for a recent meta-analysis see Hammond et al., 2011). However, this research has been mainly focused on the generation of novel ideas (creativity at work), overlooking the promotion and realisation of these ideas. Moreover, research on which specific psychological states (e.g. affective process) explain the link between distal antecedents is still incomplete, and even scarce regarding how both individual and contextual variables interact with psychological states leading towards the generation, promotion and realisation of novel ideas at work.

In order to tackle the limitations described above, this thesis aims to investigate how work context, personality and psychological states interact in relation to generating, promoting and realising novel ideas at work, from the perspective of work psychology and organisational behaviour (Figure 1.1). Specifically, job-related mood, namely, affective states experienced while working (Totterdell & Niven, 2012; Warr, Bindl, Parker, & Inceoglu, 2013), is proposed and examined as a core construct to transform climate for innovation and openness to experience personality into innovative work behaviour. The mediation (explanatory) function of moods between distal antecedents of behaviour (i.e. context, personality) and behaviour has been theorised and supported by previous psychological research (Brief & Weiss, 2002; Seo, Barrett, & Sirkwoo, 2008; Warr, 2007). As such, moods have an informational function in relation to whether a given context is denoted for opportunities or threats (Martin & Stoner,

1996; Schwarz & Clore, 1983, 2003), while moods in turn have substantive directive properties on action stimulating behavioural activity/passiveness (Frijda, 1986; Watson, 2000). Furthermore, individual dispositions, such as personality traits, may have moderation (regulatory) functions in the above meditational process (Judge & Larsen, 2001; Weiss & Cropanzano, 1996). Nevertheless, the above psychological processes have not been studied in detail in relation to innovative work behaviour.

Figure 1.1: General Conceptual Model of this Thesis



In terms of structure, eight chapters comprise the theoretical and empirical developments of this thesis. In Chapter 2 issues on innovative work behaviour definition and measurement are described and discussed. In concrete terms, a literature review indicated that innovative work behaviour is still hazily conceptualised among scholars, being confounded with other related but distinct constructs such as creativity at work,

organisational citizenship behaviour and proactivity. Moreover, innovative work behaviour has been acknowledged as a multidimensional construct denoted by, for example, idea suggestion, sponsor seeking and implementation of ideas. However, this distinction has been scantily adopted in most empirical research, most likely due to the lack of appropriate measures and methods to capture the dimensions of innovative work behaviour. Thus, a comprehensive definition of innovative work behaviour based on a critical review of previous literature is proposed, explicitly distinguishing between idea generation, idea promotion and idea realisation as core dimensions of this construct. Furthermore, it was concluded that appropriate measures should be empirically validated in order to adopt the model proposed in further research (this is empirically addressed in Chapter 6).

Chapter 3 presents a literature review of previous research on antecedents of innovative work behaviour, with the aim of identifying gaps and opportunities for current research. Results of this review indicated that a weight of studies have been conducted in order to examine contextual and individual variables; however, most of this research has been limited to idea generation (creativity at work), neglecting idea promotion and idea realisation. In addition, it was observed that most of the conceptual models described in the literature theoretically assume that psychological states, such as affective processes, mediate the link between context, individual dispositions and innovative behaviour. Nevertheless, this mediational process has not been rooted in theory of affect and it has also not been empirically tested using direct measures of affect. As a result, this chapter concludes that affect is a psychological construct that still demands improved investigation in order to understand why and how innovative work behaviour is performed in organisations.

Chapter 4 offers the theoretical background to support the association of job-related moods (affective experiences while working) with innovative work behaviour. Firstly, definitions of affect and its related constructs (e.g. emotions, moods, affective well-being) are discussed in order to explicitly delineate the conceptual borders of this thesis. Then, the Circumplex Model of Affect (Russell, 1980) is described and discussed, proposing that differences in affective valence (positive versus negative feelings) and differences in activation (high versus low energy expenditure) are critical for understanding moods and its influences in human cognition and behaviour. Moreover, Cognitive Appraisal Theory (Lazarus & Folkman, 1984) is argued as a valuable framework to understand how contextual and personality factors interact, in order to explain the association between moods and innovative work behaviour. Finally, drawing on the above, the research questions that guide this thesis are stated at the end of this Chapter.

Chapter 5 describes and discusses the methodology adopted in this thesis to address the research questions developed in the previous chapters. As such, philosophical assumptions, research methods, analytical issues and ethical considerations of the positivist paradigm and quantitative research approach embraced are discussed in detail.

Chapter 6 addresses the first research question of this thesis, namely, *is innovative work behaviour a multidimensional construct described by idea generation, idea promotion and idea realisation?* Results of two empirical studies (Study 1 and 2) designed according to the discussion presented in Chapter 2, indicated that instead of three, four dimensions best represent the construct of innovative work behaviour, namely, idea generation, idea suggestion, coalition building and idea realisation. In addition, the validation of affective measures to be used in the subsequent thesis' studies is presented in this chapter, showing the

validity and reliability of a four-factor instrument to measure moods described by differences of affective valence and activation.

Chapter 7 addresses the second research question of this thesis, namely, *which are the moods mainly associated with innovative work behaviour?* Results of two empirical studies (Study 3: cross-sectional; Study 4: diary design) using structural equation modelling and multilevel analysis showed, as expected, that idea generation, idea suggestion, coalition building and idea realisation are mainly predicted by high-activated positive moods. Based on theory of affect, this is argued as resulting from a complex blend of cognition and action tendencies, where positive valence entails divergent thinking and engagement with the environment, while high activation leads to attentional focus, energy expenditure and action readiness.

Chapter 8 addresses the last research question of this thesis: *how do contextual and individual factors interplay in the associations between job-related moods and generating, promoting and realising novel ideas?* Based on Cognitive Appraisal Theory, the Big Five Model of personality and the conceptual model depicted in Chapter 4, work climate and personality are proposed as relevant distal antecedents of mood and behaviour. In concrete terms, support for innovation and openness to experience are proposed as contextual and individual variables respectively, which participate in the psychological process given between high-activated positive mood and innovative work behaviour. Using diary data and multilevel structural equation modelling (Study 5), a moderated mediation process was observed for idea realisation, where the interaction between support for innovation and openness to experience leads to high-activated mood, whilst the interaction between high-activated positive mood and openness to experience leads to idea realisation.

Finally, Chapter 9 offers a general discussion and integration of theory and empirical research discussed and developed in this thesis, highlighting the implications and contribution of findings observed for theory, research and practice in organisational behaviour.

Taken together, this thesis contributes to the organisational behaviour literature through developing a strong theoretical model where innovative work behaviour is conceptually and empirically supported as a multidimensional construct described by the generation, promotion and realisation of novel ideas. Moreover, previous research on work climate and personality is integrated with recent advances in research on affect (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012; To, Fisher, Ashkanasy, & Rowe, 2012; Warr et al., 2013; Warr, 2007) in order to explain innovative work behaviour performance. As such, theory and research developed here have substantive meaning for organisational behaviour researchers and practitioners. To the best of my knowledge, a complex and interactional model described by contextual variables, personality traits, psychological states and innovative behaviour has not been fully investigated prior to this thesis.

CHAPTER 2: DEFINING INNOVATIVE WORK BEHAVIOUR

2.1 INTRODUCTION

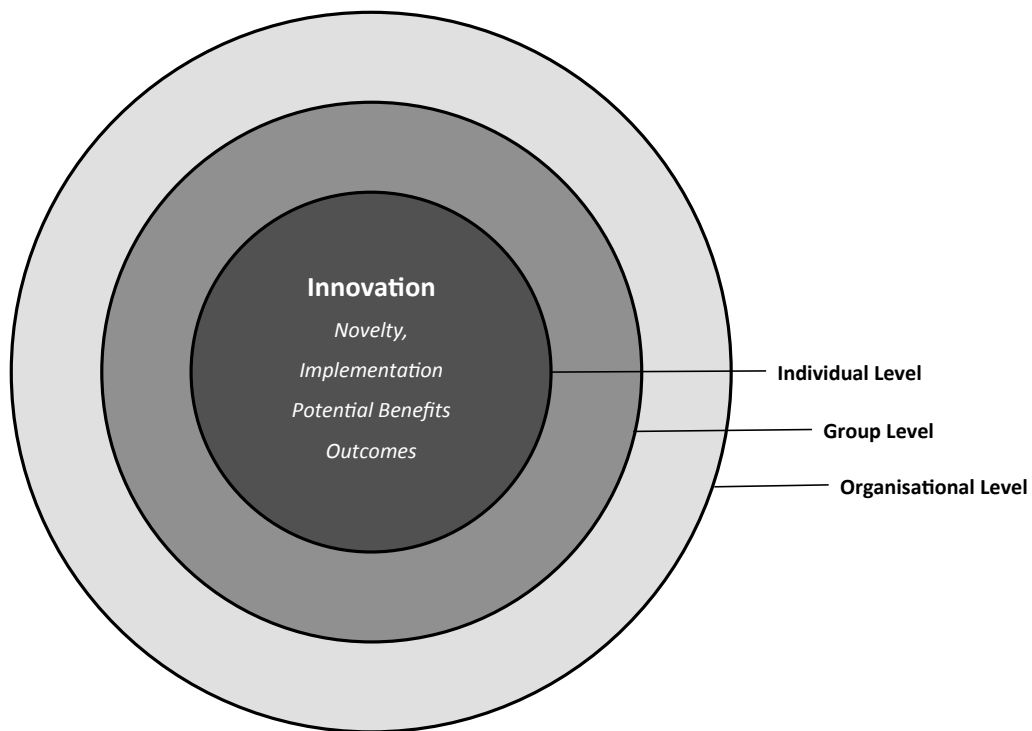
Innovative work behaviour refers to innovation at the individual level of analysis. In this Chapter, definitional issues of innovative work behaviour are discussed in order to provide a clear and comprehensive account of this behavioural phenomenon. Thus, a general definition of innovation in organisations and the specific place of innovative work behaviour in this conceptualisation are offered. Then, the innovative work behaviour construct is discussed for their subsequent adoption in this thesis. Finally, a lack of appropriate construct and measurement validation of innovative work behaviour are argued, suggesting that empirical validation is still needed in order to have a comprehensive examination of individual innovation at work.

2.2 DEFINING INNOVATION

Throughout the development of innovation theory and research, the definition of innovation has included different elements and adopted diverse emphases in order to gain a detailed understanding of how novel ideas are developed at work. For example, innovation has been described as “any idea, practice or material artefact perceived to be new by the relevant unit of adoption” (Zaltman, Duncan, & Holbek, 1973, p.10), “the development and implementation of new ideas by people who over time engage in transactions with others within an institutional context” (Van de Ven, 1986, p.604); “set of tasks carried out at micro-level by individuals and groups of individuals within an organization” oriented to “the creation and exploitation of new ideas” (Kanter, 1988, p. 169-170); and “the

intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society” (West & Farr, 1990, p.9).

Figure 2.1: Main Characteristics and Levels of Analysis of Innovation



Integrating the above definitions in a single referent highlights that firstly; innovation involves the production and implementation of new ideas in order to obtain potential benefits (focus on novelty, implementation and benefits). Even when novel ideas might unfold in negative outcomes in organisations, such as lower profits when the implementation of ideas fails, innovation is theoretically proposed as

primarily oriented to achieving positive outcomes. Secondly, concrete forms of innovations are tangible outcomes such as work procedures, tools, products or services (focus on outcomes). Finally, innovation represents a complex phenomenon observed at different level of analysis, namely, organisational, group or individual levels (focus on level of analysis, see Figure 2.1).

At every level of analysis, innovation involves novelty, implementation and benefits; however, the specific level delimits the outcomes of interests and relevant antecedents of innovation. Organisational innovation mainly refers to the development of novel business strategies, which are linked to environmental, contextual, structural and managerial factors in a company or institution (Crossan & Apaydin, 2010; Gopalakrishnan & Damanpour, 1997; Gupta, Tesluk, & Taylor, 2007). Group level innovation is concerned with novel suggestions and numbers of new products or patents developed by teams within organisations, which typically is studied in relation to socio-interactional processes entailed in teamwork (Hulsheger, Anderson, & Salgado, 2009; Janssen et al., 2004; West, 2002). Finally, innovation at the individual level of analysis represents the set of actions that employees perform in order to create and implement novel ideas (Janssen, 2000; Scott & Bruce, 1994). As such, individual innovation is investigated in relation to individual and contextual characteristics, such as personality and work climate (Hammond et al., 2011). This thesis is focused on individual innovation, which is described and discussed in detail below.

2.3 INNOVATIVE WORK BEHAVIOUR

Innovative work behaviour is a framework for approaching and studying innovation at the individual level. This draws on the notion that any innovative endeavour and outcome results from the activity of

individuals that over time involves creating and proposing new ideas whilst investing collaborative effort in testing and implementing these ideas (Anderson & King, 1993; Kanter, 1988; Van de Ven, 1986). The initial efforts to define and understand innovative work behaviour can be traced back to the works of Daniel Katz (1964, 1966). In his seminal paper, "The motivational basis of organizational behavior", Katz (1964) highlighted that given the increasing uncertainty and dynamism of organisational environments, organisations that depend solely upon the blueprints of prescribed behaviour represent very fragile social systems. Therefore, innovative behaviour, defined as less formalised actions oriented to deal with unforeseen contingencies or opportunities (Katz, 1964), was claimed as essential for effective organisational functioning. Two decades after, researchers paid systematic attention to the positive implications of innovative work behaviour (Amabile, 1988; Ettlie & Okeefe, 1982; Scott & Bruce, 1994), because the changes in organisational environments described by Katz became intense and unavoidable from the eighties onwards (Staw, 1984). Today, there is substantive evidence showing that innovative work behaviour is beneficial for organisational performance, helping in developing new products, services and work procedures, promoting individual and organizational effectiveness, adequate fit between job demands and employee resources, interpersonal communication and job satisfaction (Janssen et al., 2004; Janssen, 2000; Yuan & Woodman, 2010).

One of the most complete approaches to innovative work behaviour developed from the perspective of organisational behaviour has been the *model of the process of innovation* developed by Kanter (1988). According to this, innovation essentially entails actions of idea generation, coalition building, and idea realisation. Firstly, *idea generation* denotes the identification of incongruences and discontinuities in the work environment, such as things that do not behave as originally prescribed, or

opportunities to develop new approaches that enhance effectiveness. These discontinuities lead to idea generation, also called creativity at work (Amabile, 1988), which implies the production of new ideas or approaches in order to gain benefits from solutions or opportunities previously identified (Van de Ven, 1986; West, 1990). Secondly, *coalition building* refers to actions of asking for support to increase the energy and influence of the novel ideas (Kanter, 1988). Furthermore, through coalition building, novel ideas originally created are adjusted in response to reactions of stakeholders in the work environment (e.g. teammates, team leaders, managers) (West, 1990). Finally, *idea realisation* denotes explicit and intentional attempts to develop, adopt or introduce new ideas in practice within a work role, a group or the total organisation (Kanter, 1988; West & Farr, 1990). At this point, employees can invest considerable effort to make ideas happen (Parker, Bindl, & Strauss, 2010).

Table 2.1 summarises the main models of innovative work behaviour developed in the organisational behaviour literature, comparing them with the model of the innovation process offered by Kanter (1988). For example, Amabile (1988) offered a model that distinguishes between idea generation and idea realisation. However, an examination of empirical studies associated with this model indicates that the application of it has been basically focused on generation of novel ideas, ignoring implementation (e.g. Amabile, Barsade, Mueller, & Staw, 2005; Amabile, Conti, Coon, & Amabile, 1996; Hennessey & Amabile, 1998). So, Amabile's model should not be considered as a complete model of innovative work behaviour, because it has been principally limited to creativity at work.

In turn, the framework offered by Axtell et al. (2000) is based on the distinction between suggesting novel ideas and implementing novel ideas. So, this contributed to the introduction of "idea suggestion" as an additional component of innovative work behaviour, which should not be

confused with coalition building, because while the former only emphasises speaking up about novel ideas, the latter necessarily involve the active searching of sponsorship for proposed novel ideas. However, the confounding between idea generation and idea suggestion is a downside of this model. According to Axtell and colleagues, suggesting novel ideas is a construct closely linked to creativity at work; nevertheless, in this thesis it is argued that although suggesting novel ideas implies previous generation of novel ideas, its conceptually distinct from it. Novel ideas that are generated might or might not be suggested to others at work, because some of these ideas may be actively withheld and silenced (Morrison & Milliken, 2000; Van Dyne et al., 2003). In other words, thinking novel ideas does not guarantee their suggestion.

The remaining models presented in Table 2.1 are close derivations of the process of innovation proposed by Kanter (1988). However, a central problem among these models is the use of diverse labels to denote the same set of actions entailed in the construct of innovative work behaviour. For example, idea generation has been labelled as generation of solutions, generativity, formative investigation and production of novel ideas, while idea realisation has been named as idea production, idea implementation and application. This situation suggests that some scholars may have been putting “old wine in new bottles”, which muddles rather than contributes to the conceptualisation of innovative work behaviour. If different, and even overlapping, labels are used to denominate the same construct, serious risks of construct misunderstanding and construct contamination are likely to occur (Hinkin, 1995; MacKenzie, Podsakoff, & Burke, 2005).

Table 2.1: Models of Innovative Work Behaviour

Kanter (1988)	Amabile (1988)	Scott & Bruce (1994)	Janssen (2000)	Axtell et al. (2000)	Kleysen & Street (2001)	Dorenbosch et al. (2005)	De Jong & Den Hartog (2010)	General Model of Innovative Work Behaviour	
Idea Generation and Innovation Activation	Setting the Agenda, Information and Resources	Problem Recognition	—	—	Opportunity Exploration	Problem Recognition	—	Idea Generation	Dimension 1
	Producing Ideas	Generation of Ideas-Solutions	Idea Generation	Idea Suggestion	Generativity, Formative Investigation	Idea Generation	Idea Generation		
Coalition Building	—	Sponsor Seeking	Idea Promotion	—	Championing	Idea Promotion	Idea Championing	Idea Promotion	Dimension 2
Idea Realisation and Innovation Production	Testing and Implementing Ideas	Idea Production	Idea Realisation	Idea Implementation	Application	Idea Realisation	Idea Implementation	Idea Realisation	Dimension 3

After a review of these models, it is proposed that the framework offered by Janssen (2000) represents the most comprehensive conceptualisation of innovative work behaviour available in the organisational behaviour literature, in relation to the process of innovation offered by Kanter (1988). Redefinition of coalition building in terms of idea promotion is a small, but relevant, departure of this model from Kanter's framework. Specifically, Janssen (2000) acknowledged the relevance of adding idea suggestion as a component of innovative work behaviour, indicating that both suggesting novel ideas and building coalitions around them are actions oriented to promote innovation. Therefore, Janssen's model describes the following set of actions as the central dimensions of innovative work behaviour:

- **Idea Generation:** refers to thinking of, and creating, new solutions or approaches to work-related issues identified in the workplace. Idea generation, therefore, is conceptualised as comprising creative thinking at work.¹
- **Idea Promotion:** denotes suggesting novel ideas and building up coalitions around them with other relevant people in the workplace (e.g. co-workers, supervisors, team leaders and managers), with the aim that these ideas gain sufficient power to be adopted.
- **Idea Realisation:** refers to explicit attempts to implement novel ideas that are oriented to transforming work environments. Consequently, when realising novel ideas, individuals spend considerable effort on introducing concrete changes through making novel ideas happen.

The previous conceptualisation and dimensions of innovative work behaviour are explicitly adopted in this thesis, being considered as basic rudiments for further theorising.

2.3.1 *General Attributes of Innovative Work Behaviour*

After describing the dimensions of innovative work behaviour, three attributes that cross all its behavioural dimensions must be noted.

¹ This conceptualisation of idea generation primarily denotes an intrapersonal cognitive process rather than a behavioural process visible by others. Nevertheless, inclusion of this notion of idea generation as a dimension of innovative work behaviour is proposed as very valuable, since innovation necessarily demands production of novel ideas. Furthermore, it might be argued that even when idea generation is not observable by others, it is observable by individuals themselves. This criticises the classical description of behaviour agreed in the organisational behaviour literature (Buchanan & Huczynski, 2004), which suggests visibility as a parameter to define behaviour. Furthermore, this conceptualisation helps to improve the distinction between creativity and idea suggestion because, in a different fashion than previous research, idea suggestion is proposed here as part of promoting novel ideas, which is a set of observable behaviour indeed.

Innovative work behaviour entails: *change, high motivation and social meaning*.

Firstly, innovative work behaviour denotes *change-oriented* actions. The main goal of any innovation endeavour is producing transformations that have the potential of impacting *positively* on an organisation, their members, and the community in general (Anderson, De Dreu & Nijstad, 2004; Janssen et al., 2004; West & Farr, 1990). For example, when an employee of a customer service team identifies and proposes an idea to improve the way that complaints and suggestions are recorded, he or she is contributing to identifying and managing more effectively issues that affect customers of his/her organisation. This could lead to increased satisfaction of customers, effectiveness of the customer service team and profitability of the company. However, it is also true that changes at work might negatively impact on organisations. In the previous example, the new system for complains/suggestions recording might be ineffective, resulting in lost resources utilised in its development, and dissatisfaction among clients of the organisation. Nevertheless, it is argued that from the organisational behaviour perspective, innovative work behaviour should be considered as a form of positive work performance, because it primarily entails actions aimed at benefiting work environments, disregarding whether these ideas were considered as effective or not after their implementation. The positive potential of novel ideas could be evaluated when they are generated, proposed and promoted; yet, this is only an estimation that may or not may be realised when novel ideas are adopted.

Secondly, innovative work behaviour is a *highly motivated* set of actions. Similar to other change-oriented work behaviour (Parker & Collins, 2010), generating, promoting and realising innovations demand a willingness to challenge the status quo in work environments (Anderson et al., 2004; Yuan & Woodman, 2010), and to push for the adoption of novel

ideas (Kanter, 1988; Van de Ven, 1986; West & Farr, 1990). When novel ideas arise, they often confront and place stress on current practices in the relevant work unit. As a result, resistance to change may be sparked from co-workers and managers who are concerned about the implications, effectiveness and costs of the changes proposed (George, 2007; Janssen, 2003; West, 2002). In order to face this, employees have to be goal-oriented, self-confident, committed, energised and persistent, if they strongly believe in the benefits and feasibility of a novel idea (Parker et al., 2010).

Thirdly, innovative work behaviour is part of a *socially embedded* system where people think and propose ideas whilst building alliances, enhancing the likelihood of innovation being adopted (Kanter, 1988; Van de Ven, 1986; Yuan & Woodman, 2010). However, differences in social meaning attached to each dimension of innovative work behaviour, to the best of my knowledge, have been little discussed. It is theorised that idea generation involves limited social meaning, because it mostly denotes an intrapersonal process of production of unconventional ideas (Anderson & King, 1993; Rank & Frese, 2008; Rank, Pace, & Frese, 2004). When individuals face discontinuities or new opportunities at work, creativity unfolds as a process of individual divergent thinking that develops in novel thoughts. These ideas, therefore, are limited to the intrapersonal domain if employees do not propose them to others at work (cf. Van Dyne et al., 2003). Then once ideas are promoted in the work environment, innovative work behaviour is charged with greater social meaning. Suggesting and building coalitions around ideas necessarily requires social interaction, which impact on the power of ideas depending on evaluations and reactions of other relevant people in the workplace (e.g. colleagues, supervisors, managers). Supporting the above, theory and research have suggested that idea suggestion is less influenced by contextual factors (e.g. climate of support for innovation) (Axtell et al., 2000), while idea

implementation is highly related to the quality of the social work environment (e.g. psychological safety) (Anderson & West, 1998; Edmondson, 1999; Siegel & Kaemmerer, 1978).

Social meaning increases again when realising ideas. Adopting novel ideas exposes individuals to scrutiny and evaluation from others about the pertinence and effectiveness of implementing changes based on something new, influencing the quality of interpersonal relationships at work. When successful, processes of innovation can lead to increased collective self-efficacy, identification and satisfaction (Ilgen, Hollenbeck, Johnson, & Jundt, 2005). However, even when innovation aims at achieving positive outcomes, suggesting and implementing novel ideas may threaten relationships with colleagues and managers who are resistant or sceptical about the benefits of the initiatives proposed (Janssen et al., 2004; Janssen, 2003; West, 2002). These possible reactions from others at work convey substantive social significance for working on adopting novel ideas.

Taken together, the previous discussion highlights that when investigating innovative work behaviour, researchers should bear in mind that innovation implies a willingness to work on changes and different degrees of social meaning, depending on whether the focus is on generating, promoting and realising novel ideas. Innovative work behaviour demands high motivation to face the status quo at work; however, relevance of social antecedents/consequences of this motivation may be different depending on whether individuals are working on thinking, suggesting or adopting novel ideas.

2.3.2 Issues on Construct and Measurement Validity of Innovative Work Behaviour

The three-dimensional model of innovative work behaviour described above has been proposed as conceptually comprehensive; however, its empirical validation and application has been elusive. For example, Scott and Bruce (1994) understood innovative work behaviour as a one-dimensional construct, ignoring differences between idea generation, idea promotion, and idea realisation. Similarly, despite Janssen (2000) having explicitly acknowledged the latter distinction, subsequent empirical studies have been based on single-factor measures where markers of generation, promotion and realisation of novel ideas were merged (Janssen, 2001, 2003, 2004, 2005). In turn, other scholars have been focused on a single dimension of innovative work behaviours, either idea generation, idea promotion or idea realisation (e.g. Bunce & West, 1995; Lipponen, Bardi, & Haapamaki, 2008; Pieterse, van Knippenberg, Schippers, & Stam, 2010; Rank, Nelson, Allen, & Xu, 2009), while the examination of these three dimensions as independent outcomes has been very rare (De Jong & Den Hartog, 2010; Holman et al., 2011). Therefore, the construct validity of innovative work behaviour represented by three related but distinct dimensions has not been settled yet. This represents a serious problem because as Schwab (1980) pointed out, assuming the validity of a theoretical construct before providing empirical support for it may lead to knowledge that must be discarded later.

The lack of appropriate construct validation for the model of innovative work behaviour is most likely explained by difficulties in generating empirical support for the measurement model representing the distinctions between generating, promoting and realising novel ideas. In empirical research, scholars have often decided to use single-factor composite measures where markers of innovative work behaviours were

combined, because zero-order correlations observed between separate scales of idea generation, idea promotion and idea realisation were very high (over .75; Janssen, 2000). However, several uncontrolled factors may have been leading to observed high correlations between measures of innovative work behaviour dimensions, masking the theoretically proposed multi-dimensionally. For example, empirical studies have predominantly relied on *supervisor ratings* of idea generation, idea promotion and idea realisation (De Jong & Den Hartog, 2010; Janssen, 2000, 2001; Scott & Bruce, 1994). Even when this allows for controlling for common method variance issues when testing relationships between innovative work behaviour and other variables, at the same time supervisor ratings introduce other biases, such as a tendency to provide general ratings for distinct behaviour disregarding its nuances (Lance, LaPointe, & Fiscaro, 1994; Woehr, 1994).

Specifically, high correlations between dimensions of work behaviours using supervisor ratings may be due to the lack of visibility of daily actions performed by their supervised employees, losing discrete manifestations of work performance (Griffin, Neal, & Parker, 2007; Parker & Collins, 2010). This problem is increased when using longer time frames (e.g. last months, last year, or behaviour in general), because supervisors must rely on their long-term memory. Use of this kind of ratings of innovative work behaviour may be still more debateable if differences in social meaning are taken in account. As previously proposed, idea generation is mostly an intrapersonal process of thinking novel ideas, which does not involves suggestion or implementation. Thus, supervisor ratings of idea generation could not represent “idea generation itself”, because supervisors can only evaluate social behaviour that is explicitly observed. Instead, supervisor ratings of idea generation unavoidably denote idea promotion and idea implementation, because supervisors are only aware about the generation of novel ideas through novel idea

suggestion and realisation. If this is true, higher correlations between dimensions of innovative work behaviour are partially explained by the tendency of supervisors to provide ratings of behaviour, ignoring differences among behavioural dimensions, and by a lack of control of differences in social meaning between dimensions of innovative work behaviour.

In addition, confounding innovative work behaviour with creativity at work may be another possible explanation for the lack of empirical support for the innovative work behaviour construct. An intractable problem in innovation research has been the use of creativity and innovation as interchangeable concepts (Anderson et al., 2004; Hulsheger et al., 2009; Mathisen & Einarsen, 2004), which is misleading because idea generation is only one dimension of innovative work behaviour. The poor distinction between these constructs have often lead to the use of measures denoting only idea generation when studying innovative work behaviour, or utilising measures that entails idea generation, idea promotion and idea realisation when scholars have been only interested in creativity at work (e.g. Atwater & Carmeli, 2009; Carmeli & Schaubroeck, 2007; George & Zhou, 2001; Kark & Carmeli, 2009; Ohly & Fritz, 2010; Tierney, Farmer, & Graen, 1999; Tierney & Farmer, 2002, 2004; Zhou & George, 2001; Zhou, Shin, Brass, Choi, & Zhang, 2009; Zhou, 2003). As such, the lack of a clear and explicit distinction between creativity and innovation, and the use of inappropriate measures to evaluate these constructs have been deviating the attention of scholars from the distinctive features of innovative work behaviour.

Finally, recent proposals that conceptualise individual innovation as organisational citizenship behaviour (OCB) (Chiaburu, Oh, Berry, Li, & Gardner, 2011; Podsakoff, MacKenzie, Paine, & Bachrach, 2000) or as proactivity (Parker & Collins, 2010) may have been also contributing to the

problem of construct validity of innovative work behaviour. Chiaburu et al. (2011) defined “change-oriented OCB” as behaviour aimed at bringing positive modifications in the workplace based on novel ideas. However, I propose that considering innovative behaviour as OCB muddles rather than contributes to theory and research on work behaviour, because the most distinctive and salient features of OCB are not compatible with the notion of change in organisations. OCB refers to both altruism and compliance actions of employees oriented to supporting the social and psychological work environment (Organ, 1997; Podsakoff et al., 2000). Altruism denotes cooperation and helping behaviour, while compliance refers to adherence to organisational norms even when employees perceive them as inconvenient (Bateman & Organ, 1983; Podsakoff, Whiting, Podsakoff, & Blume, 2009; Smith, Organ, & Near, 1983). Nevertheless, innovation entails active behaviour oriented to positively transform workplaces, which could challenge some established organisational norms/practices, and hurt social relationships due to resistance to change and scepticism from others at work (Janssen et al., 2004; Van Dyne, Cummings, & Parks, 1995; West, 2002). Such consequences oppose the essence of OCB’s indeed.

Innovative work behaviour has been also defined as proactivity (Crant, 2000; Frese & Fay, 2001; Parker & Collins, 2010; Unsworth & Parker, 2003). Proactive behaviour is defined as taking initiative in changing current circumstances in the workplace in order to enhance individual or organisational effectiveness (Crant, 2000; Unsworth & Parker, 2003). Proactive employees challenge the status quo rather than passively adapt to conditions at work, and their actions are described as anticipatory, self-started and future-oriented (Grant & Ashford, 2008). The communalities between proactivity and innovative behaviour are evident, because both constructs refers to change-oriented efforts that impact positively on organisations. However, thinking that any innovative behaviour always results from the self-initiative of people is misleading.

Diverse studies have indicated that innovative work behaviour is strongly and positively related to the expectancies that other relevant actors in the workplace (e.g. leaders, co-workers) have about working on novel ideas (Carmeli & Schaubroeck, 2007; Scott & Bruce, 1994; Tierney & Farmer, 2004). For example, Scott & Bruce (1994) observed that if leaders communicate that innovation is expected, followers behave according to these expectations increasing their innovative behaviour. This process, labelled as the *Pygmalion effect* (Livingston, 1969), suggests that expectations of relevant others alter self-expectancies, motivations and behaviour at work, representing an alternative way by which innovative work behaviour happens. Furthermore, innovative behaviour can also represent reactions to direct promptings from supervisors or managers or, more simply yet, they can be part of the specific prescriptions of jobs (e.g. R&D staff, managerial staff). In these cases, innovation does not necessarily have the anticipatory and self-initiated components entailed in proactive behaviour.

Following Grant and Ashford (2008), it is argued that proactivity is better understood as a process characterised by self-started tendencies that can be applied to any work behaviour. This implicates that proactivity rather than representing a system of classification of work behaviour, should be assumed as a motivational disposition or state that diverse behaviours may or may not adopt (Bateman & Crant, 1993). When applying this rationale to the realm of innovative work behaviour, this could represent *proactive* endeavours in some cases, while in many others it represents *reactive* actions oriented to direct prescriptions, direct requests or expectancies from others relevant in the workplace.

To sum up, even when the model of innovative work behaviour is theoretically sound, its empirical validation is still limited. This can be explained by the use of inappropriate methods, such as the utilisation of

imprecise instruments and statistical tests to measure innovative work behaviour dimensionality. Furthermore, confounding creativity with innovation, or innovative work behaviour either with organisational citizenship behaviour or proactivity may have been contributing to this problem. Explicit or implicit efforts to reduce innovative work behaviour to creativity, OCB or proactivity domains have deviated the attention of scholars from the singular characteristics of innovative work behaviour. As a result, the validation of innovative work behaviour as a multidimensional construct is still a major challenge in theory and research.

2.4 CHAPTER SUMMARY

In this chapter issues of the definition and characterisation of innovative work behaviour have been discussed. After reviewing the basic ideas on which this construct has been developed, it is emphasised that innovative behaviour represents a complex and highly motivated set of actions engaged by people in order to generate, promote and realise novel ideas in their workplaces. These actions are embedded in a social process where employees create new ideas and interact with others, suggesting ideas and building coalitions around new solutions and opportunities, whilst expending effort to make these ideas happen. However, this model has not received appropriate empirical support yet. This highlights the need to validate both the theoretical and measurement model of innovative work behaviour, with the aim of having a finer grained approach to understand how individuals perform innovatively at work (these issues are empirically addressed in Chapter 6). In the next chapter, a comprehensive literature review of the individual and contextual antecedents examined in relation to innovative work behaviour is presented and discussed, in order to identify theoretical and empirical gaps and opportunities for current research on promoting innovation at work.

CHAPTER 3: RESEARCH ON ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR: A LITERATURE REVIEW

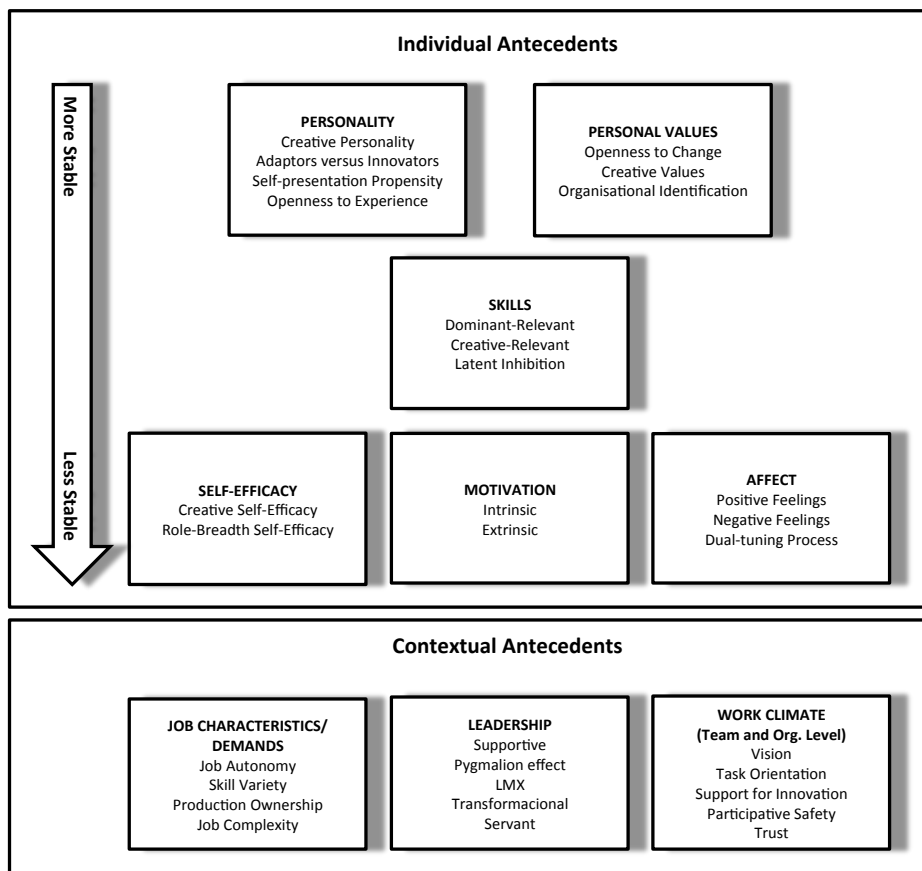
3.1 INTRODUCTION

Innovative work behaviour has been a subject of great interest among organisational scholars over a number of decades, since it has the potential of positively contributing to organisational effectiveness. Thus, one of the first steps of this thesis was to examine in detail the research conducted in this field, with the aim to identify theoretical and empirical gaps in the literature and opportunities for further research. With this in mind, a comprehensive literature review of relevant studies published until data collection of this thesis started (December 2011), was conducted in relevant and important journals of Industrial, Organisational and Work Psychology, and Organisational Behaviour, such as the Journal of Applied Psychology, Journal of Organizational Behaviour, Journal of Occupational and Organizational Psychology, Academy of Management Journal, and Journal of Management. Results indicate that several variables either at individual (e.g. skills, personality, motivation) or organisational level (e.g. job characteristics, leadership, climate) have been tested in relation to innovative-related outcomes (see Figure 3.1). Moreover, most of models proposed based on this research have assumed that individual and contextual variables, in general, influence innovative work behaviour through the experience of affective states (e.g. positive or negative moods). However, a detailed examination of studies reviewed indicated that most studies on affect have been limited to creativity at work. Furthermore, in most cases the role of affect in relation to promoting and realising novel ideas has been only inferred theoretically, due to the scant number of studies using direct measures of affect in relation to these dimensions of innovative work behaviour. Therefore, affect is proposed as

a construct that still demands further and improved research in order to understand ways in which innovative work behaviour can be fostered.

In terms of structure, this chapter starts with the presentation and discussion of individual antecedents investigated in research, ordered in terms of their stability over time (from less to more stability). Then, contextual antecedents are presented and discussed (see Figure 3.1). Since the blurry distinction between innovative work behaviour and creativity has been a pervasive issue in the theory and research (see Chapter 2), the specific focus of the studies (creativity, innovation) is explicitly described throughout this chapter with the aim of increasing clarity of the exposition.

Figure 3.1: Main Individual and Contextual Antecedents of Innovative Work Behaviour Examined by Past Researchers



3.2 INDIVIDUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR

In this review, individual antecedents refer to psychological variables denoting traits or states of people that have the potential to influence their behaviour. Within this domain factors such as personality, skills, personal values, self-efficacy, motivation and affective experiences have been identified as most investigated in relation to the dimensions of innovative work behaviour. These factors are discussed in detail next.

3.2.1 *Personality*

Personality refers to stable individual characteristics that influence cognitive, affective and behavioural processes. Since the early stages of research scholars have discussed the idea that innovative-related outcomes can be explained in part by individual differences (Barron & Harrington, 1981; Gough, 1979; Kirton, 1976; Mackinnon, 1965); accordingly, studies have been oriented to identifying personal characteristics that make people creative. Over time, this research has defined two main domains of personal dispositions associated with creativity and innovation, namely, *general* and *specific* traits (Egan, 2005; Hammond et al., 2011; Shalley, Zhou, & Oldham, 2004).

Regarding *general personality traits*, the Five-Factor Model of Personality (FFM) has become the most influential framework in theory and research on innovation (George & Zhou, 2001; Hennessey & Amabile, 2010a; Shalley et al., 2004; Taggar, 2002). This proposes that individuals can be described in terms of extraversion, neuroticism, conscientiousness, agreeableness and openness to experience (Costa & McCrae, 1992). Among these traits, theory and research suggests that openness to experience is the personality factor with the clearest implications for innovative-related outcomes (Egan, 2005; Hammond et al., 2011; Shalley et

al., 2004), because it denotes tendencies to actively seek out diverse experiences involving a variety of thoughts, ideas and perspectives (Costa & McCrae, 1992; McCrae & Costa, 1997; McCrae, 1987). Specifically, in intrapersonal terms, people open to experience are described as broad-minded, imaginative, curious, and responsive to unconventional perspectives. Furthermore, openness has interpersonal implications through the facilitation of positive attitudes and social behaviour (McCrae, 1996). Thus, open individuals are less prone to prejudice and authoritarian submission, as it is easier for them to understand and adapt perspectives from others whilst having a strong sense of self-confidence in their own ideas. Consistent with this, creativity at work has been supported as positively related to openness to experience, particularly when positive feedback, organizational and supervisor support, and organizational justice are high (e.g. Baer & Oldham, 2006; George & Zhou, 2001; Madjar, 2008; Simmons, 2011; Sung & Choi, 2009). These interactional processes also suggest that creative performance is particularly promoted when there is a synergetic effect between the greater access to diverse perspectives offered by openness and the motivational resources provided by organisational resources (Baer & Oldham, 2006). Regarding the other factors described by the Five-Factor Model, studies have indicated that conscientiousness decreases or is unrelated to idea generation (Egan, 2005; George & Zhou, 2001; Miron, Erez, & Naveh, 2004), which is most likely because this trait involves intensified dedication and focus on details (Costa & McCrae, 1992). In turn, extroversion has been proposed as relevant for suggesting and asking support for novel ideas (Rank et al., 2004), since involves interest and engagement with the environment (Costa & McCrae, 1992; Eysenck, 1974). To my knowledge, neuroticism and agreeableness have been scantily examined in relation to innovative work behaviour.

In turn, models of creative/innovative personality represent the frameworks that describe narrow (specific) dispositions linked to innovative-related outcomes. According to these models, specific attributes characterise noticeably creative individuals, such as unconventionality, originality, self-confidence, intuition, tolerance to ambiguity and aesthetic sensitivity (Egan, 2005; Gough, 1979). So, creative people develop broad interests in divergent information/ideas (Barron & Harrington, 1981), and are also persistent in adopting their original points of views (Shalley et al., 2004). Complementary to this, Kirton (1976, 2003) provided a framework to distinguish between “adaptors” and “innovators”. Adaptors are characterized as conservative, inflexible and less disposed to be part of endeavours that involve uncertainty, whereas innovators often suggest fresh perspectives to face old problems, and they are usually perceived by others as extravert and full of energy. The positive association between creative/innovative personality and creativity has been widely supported in organisational settings, and diverse moderators (e.g. job complexity, contextual support, developmental feedback) have been identified for this relationship (Madjar, Oldham, & Pratt, 2002; Oldham & Cummings, 1996; Zhou & Oldham, 2001; Zhou, 2003). For example, supportive behaviour from supervisors at work can strengthen the link between creative personality and creativity (Oldham & Cummings, 1996). Moreover, when individuals low in creative personality interact with creative co-workers and the work context is characterised by less close monitoring, they display improved levels of creativity (Zhou, 2003).

More recently, scholars have increased their interest in how *self-presentation propensity* may influence innovative outcomes. This individual disposition refers to the concerns of individuals to monitor and regulate their self-images by modifying their actions in order to cultivate desired public images (e.g. being competent) (Rank, Nelson, Allen, & Xu, 2009). Regarding innovative behaviour, people could be more prone to changes at

work when self-presentation propensity is low, because they are less concerned about possible failures entailed in innovative endeavours. On the other hand, when self-presentation propensity is high, innovation is hindered due to concerns of individuals about potential consequences of the risks associated with innovation. Yuan & Woodman (2010) have emphasised that either behaving innovatively or inhibiting innovative behaviour represent affective and motivational actions to cultivate desired images, leading individuals to “go ahead” or “fall back” respectively. When innovation is supported and acknowledged in the workplace, employees could embrace innovative work behaviour in order to appear highly competent. Otherwise, when innovation is not valued in the work context, people most likely inhibit innovative work behaviour in order to avoid “rocking the boat”. Nevertheless, results of an empirical study conducted by Yuan & Woodman (2010) indicated that although organizational support for innovation was positively related to expected image gains and negatively to expected image risk, both type of expectations were negatively related to innovative behaviours. This suggests that despite the signals of support, people tend in general to show a positive image avoiding possible controversies entailed in innovation actions.

3.2.2 Individual Skills

Scholars that mainly conceive creativity as a cognitive process have been interested to understand how malleable skills (in contrast to stable capabilities such as general mental ability) relate to creativity (cf. Finke, Ward, & Smith, 1992; Smith, Ward, & Finke, 1995; Ward, Smith, & Finke, 1999; Ward, 1997). Creativity “as cognition” denotes unfolding defocused attention and divergent thinking in order to develop novel associations with knowledge already available (Nijstad, De Dreu, Rietzschel, & Baas, 2010). This capability, also labelled as remote association (Eysenck, 1993; Guilford, 1967; Mednick, 1962), is a distinctive feature of creative

individuals who tend to develop greater fluency of novel ideas. In contrast, individuals less skilled in remote association are prone to show more habitual or common sense ideas (Nijstad et al., 2010). Theory and research have indicated that remote association is linked to *latent inhibition*, which refers to the extent to which individuals filter out stimuli experienced as irrelevant from the environment (Carson, Peterson, & Higgins, 2003). As such, attenuated latent inhibition is needed in order to have greater information available, unfold increased unconventional associations and, therefore, produce novel ideas (Hennessey & Amabile, 2010).

Consistent with the above ideas, the Componential Model of Creativity (Amabile, 1983, 1988) emphasises that creativity requires dominant-relevant skills expressed in expertise, technical skill and talent in a given work domain, representing the basic background for remote association. As George (2007) pointed out, for example, employees would be unlikely to come up with novel ideas without having specialised knowledge in their professional fields. So, expertise is particularly relevant when individuals are brainstorming possible new ideas (Amabile, 1988). Furthermore, Amabile's model highlights the need of creativity-relevant skills for generating novel thoughts. These skills entail individual differences in using creative thinking heuristics, which are relevant for evaluating the novelty and usefulness of ideas. The componential model has received strong support in research (more in laboratory than field studies), being the "gold standard model" on skills and creativity at work over the last decades (Amabile & Pillemer, 2012; Conti, Coon, & Amabile, 1996).

3.2.3 Personal Values

Personal values refer to broad sets of goals that represent principles by which people lead their lives (Schwartz & Bilsky, 1990; Schwartz, 1992);

which, in contrast to personality traits, are more likely to change over time. Using this framework, studies have addressed the question about the extent to which specific life principles could make people willing to innovate at work (e.g. Janssen & Huang, 2008; Lipponen, Bardi, & Haapamaki, 2008; Miron, Erez, & Naveh, 2004; Seppala, Lipponen, Bardi, & Pirttila-Backman, 2012).

Lipponen et al. (2008) observed that values described by openness to change–conservation continuum (change versus status quo orientations) (Schwartz, 1992; Schwartz et al., 2001) was positively related to suggesting ideas for change at work. In addition, this study indicated that openness to change positively relates to idea suggestion depending on the level of identification of employees with their organisations (Ashforth & Mael, 1989), so that idea suggestion was greater when both change orientation and organisational identification were high. This led to authors to propose that when individuals define themselves in terms of social group membership (e.g. the organisation) and social identity is salient among group members, they could be more willing to behave according to group norms and goals (e.g. goals oriented to change). Nevertheless, other studies have not supported the latter proposals. Janssen & Huang (2008) observed that whereas team differentiation (lack of identification) was positively related to creativity, employee team identification was not related to creative performance. These scholars argued that employees with low identification are prompted by divergences that lead them to debate the basic assumptions held in their teams, facing an established framework of ideas and practices. On the other hand, highly identified individuals are less willing to perform creatively because their shared beliefs may enhance conformity processes that discourage searching for new approaches and divergent thinking.

The discrepancy observed above may be due to neither of the studies considering in their models the predominant values in the organisational context of the samples investigated; hence, the reference for identification or differentiation is not clear. In the study of Lipponen et al. (2008), an implicit assumption is that the organisation supports innovation; thus, the moderating effect between change-oriented values and identification on making suggestions may occur because change-oriented employees were performing in a innovative organizational context. On the other hand, the positive relationship of differentiation and the negative one of team identification on creative performance observed by Janssen & Huang (2008) only make sense if the team does not support creativity. This highlights that the influence of personal values on innovative-related outcomes is not independent of work settings. The results of a multilevel study conducted by Miron et al. (2004) supports this argument, showing that employees described as high in creative values reached higher levels of individual innovation when they performed in an innovative culture. According to Miron and colleagues, this suggests that whereas a creative employee could have effective innovative performance in an innovative culture, the same employee could have poorer performance in a conservative environment.

3.2.4 Self-Efficacy

Self-efficacy is described as individual judgments about one's own capabilities to perform particular tasks, which is not concerned with "the skills one has but with the judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). These self-beliefs have relevant implications for work performance through facilitating information processing, goal-regulation and actual behaviour (Gist, 1987; Parker, 1998; Parker, Bindl, & Strauss, 2010). When self-efficacy is high, performance can be enhanced because positive evaluations implicated in it

relate to flexible cognitions (e.g. broader information searching, effective memory recall), confidence that one has adequate abilities to behave effectively, and greater levels of perseverance when facing obstacles. Consistent with this, Tierney & Farmer (2002) observed that employees' positive evaluations about their abilities to produce creative outcomes were positively related to their creative performance. Furthermore, self-efficacy could explain the extent to which organisational factors foster innovative-related outcomes. For example, Tierney & Farmer (2004) found that employee creative self-efficacy mediated the relation between supervisor expectancies for creativity and ratings of employee creativity. Similarly, Gong, Huang & Farh (2009) observed that creative self-efficacy mediated the influence of transformational leadership on employee creativity.

Parker (1998) has offered a complementary approach on self-efficacy. She described the construct of "role-breadth self-efficacy" denoting the confidence that individuals have about their abilities to perform activities beyond prescribed requirements at work. In the context of innovation, role-breadth self-efficacy has been supported as a substantial predictor of idea suggestion and idea realisation (Axtell et al., 2000; S. K. Parker, Williams, & Turner, 2006), indicating that when efficacy is high people tend to show higher number of ideas and adoption of new initiatives even when this is not a formal part of their job role.

3.2.5 Motivation

Motivation, the psychological process governing the direction, intensity and persistence of individuals' actions (Vroom, 1964), has been considerably investigated in relation to innovative-related outcomes (George, 2007). Specifically, studies have focused on the distinction between intrinsic and extrinsic motivation and their relation to the

generation and realisation of novel ideas (Hammond et al., 2011). Intrinsic motivation is conceptualised as the psychological state linked to experiencing one's own job as enjoyable, satisfying and positively challenging (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Amabile & Pillemer, 2012; Amabile, 1997). A sizeable amount of studies have supported the positive relationship between intrinsic motivation and creativity and implementation of novel ideas (Conti, Amabile, & Pollak, 1995; Hammond et al., 2011; Hennessey & Amabile, 2010; Prabhu, Sutton, & Sauser, 2008; Shin & Zhou, 2003; Zhang & Bartol, 2010). This relationship has been explained as resulting from the experience of autonomy and competence associated with intrinsic motivation, which are central elements for developing autonomous and confident thinking (Deci & Ryan, 2000; Ryan & Deci, 2001).

On the other hand, extrinsic motivation, the stream of willingness associated with rewards, compensation or concerns about deadlines and systems of evaluation (Amabile et al., 1996; Amabile & Pillemer, 2012; George, 2007), has been described as a "killer" of creativity (Amabile, 1998). This is based on the idea that external incentives are not related to the experience of joy, autonomy and mastery, because external incentives primarily imply extrinsic control of the own behaviour. However, these proposals have been fervently debated (Deci, Ryan, & Koestner, 2001; Eisenberger & Cameron, 1996; Eisenberger & Rhoades, 2001; George, 2007; Lepper, Henderlong, & Gingras, 1999; Pierce, Cameron, Banko, & So, 2003). Eisenberger (1996) suggested that, through processes of learned industriousness, individuals might interpret external incentives as cues for actions that should be performed at work (e.g. performing creativity when creativity is compensated). In the same vein, George (2007) has stressed that organisations cannot dismiss the use of external incentives to preserve their effectiveness, so incentive systems should be linked to creativity in some way. For example, not all problems at work have the same priority

for being solved in a creative way, and creativity is often welcome by supervisors and managers only if novel ideas quickly prove to be useful. So, explicit expectations about creativity might represent extrinsic sources of motivation for creativity (Scott & Bruce, 1994; Tierney & Farmer, 2004). Results of meta-analytical studies have provided support for the above ideas, suggesting that intrinsic and extrinsic motivations are not necessarily incompatible, because both are positively associated with innovative-related outcomes (Hammond et al., 2011). Accordingly, recent theorising has pointed out that positive effects of extrinsic motivation on creativity may occur under certain circumstances, such as when incentives do not make individuals feel controlled by external forces or, even better, when incentives confirm the value of behaving with autonomy and mastery (Hennessey & Amabile, 2010).

3.2.6 *Affect at Work*

Affect refers to psychological states, such as emotions and moods, which have substantial influences in cognition and action tendencies (Brief & Weiss, 2002; Elfenbein, 2007; Totterdell & Niven, 2012). A weight of studies has been oriented to understanding the association between affect and innovative-related outcomes, which main findings of this are organised and described in terms of positive, negative and dual-tuning affect.

Positive Affect. Research on creativity has systematically supported that positive feelings are strongly related to generating novel ideas (Hennessey & Amabile, 2010). Early experimental studies indicate that individuals in positive moods performed more creatively than individuals in negative moods (Isen & Baron, 1991; Isen, Daubman, & Nowicki, 1987), which has been also observed in subsequent correlational studies conducted in work settings (Amabile et al., 2005; Madjar et al., 2002). One explanation for this is that positive feelings facilitate defocused attention,

divergent thinking and reorganisation of ideas in an unconventional fashion (Forgas & George, 2001; Fredrickson, 2001), all of which develop original thoughts and ideas. Furthermore, positive affect leads to favourable evaluations about oneself (e.g. self-efficacy) (Higgins, 1997; Watson, Wiese, Vaidya, & Tellegen, 1999) which make people more willing to engage in self-development and challenging activities (George & Brief, 1992; Rank & Frese, 2008).

Negative Affect. In contrast to researchers on creativity, scholars focused on promoting and implementing novel idea behaviour have embraced the notion that innovation may be substantively associated with negative feelings (Anderson et al., 2004; George, 2007; West, 2002). This relies upon the perspective that working on innovation involves undercutting established routines that often increase ambiguity, uncertainty and, in some cases, conflict at work (Janssen et al., 2004). Drawing on this, for example, positive associations observed between job demands and innovative work behaviour (Janssen, 2000, 2001) have been interpreted as supporting influences of negative affect on innovation. According to this, promoting and realising novel ideas could help to modify work conditions associated with high demands and their concomitant feelings of tension and anxiety. Unfortunately, to my knowledge, studies on promoting and realising novel ideas based on direct measures of affect are very scarce. The exception is two studies conducted by Janssen (2003, 2004), which indicated that innovative work behaviour could be positively related to dissatisfaction with co-workers and stress respectively; however, these outcomes are not “direct measures” of affect, because they also involve cognitive components (cf. Weiss & Cropanzano, 1996).

Dual-Tuning Affect. Recent advances in theory and research on affect and creativity have suggested that only relying on either positive or negative feelings, as source of novel ideas, could be inaccurate (De Dreu,

Baas, & Nijstad, 2008; Fong, 2006; George & Zhou, 2007; George, 2011; James, Brodersen, & Eisenberg, 2004; Nijstad et al., 2010). According to this approach, positive affect leads to novel ideas through improving cognitive flexibility, whilst negative affect is helpful to sustain effort and persistence to achieve an appropriate solution to problems faced at work. These propositions have been very persuasive theoretically (George, 2011); nevertheless, the limited number of empirical studies conducted in organisations to test the dual-tuning propositions is still a major challenge of this approach.

3.2.7 Summary of Individual Antecedents of Innovative Work Behaviour

This review of the research on individual antecedents and innovative-related outcomes indicates that variables such as personality traits, skills, personal values, self-efficacy, motivation and affective experience may substantively account for innovative work behaviour. Moreover, several studies indicate that contextual antecedents, such as job complexity, supportive factors, organisational justice and organisational culture/climate could strengthen the positive associations between individual dispositions and innovative performance. This suggests that the psychological processes involved in innovative work behaviour can unfold with considerable complexity given the meeting of individual and organisational resources (Drazin, Glynn, & Kazanijan, 1999; Ford, 1996; Gupta et al., 2007; Woodman & Schoenfeldt, 1990). Consequently, influences of personal dispositions should not be studied in disconnection from contextual conditions in the workplace. The latter are discussed in detail in the subsequent section.

Despite the aforementioned advances, two main foci are identified for research on individual variables and innovative work behaviour. Firstly,

empirical studies have largely focused on the generation of novel ideas (creativity); thus, more research on idea promotion and realisation is needed. Even when early research has suggested that individual dispositions may have stronger implications for creativity in comparison with idea realisation (Anderson & King, 1993; Axtell et al., 2000; Rank et al., 2004), this does not necessarily implicate that promotion and implementation of novel ideas will not be influenced by individual level variables. For example, considering that innovative work behaviour essentially demands working with others through suggesting ideas, building coalitions and collaborating on testing new ideas, then factors such as openness to experience and role-breadth self-efficacy could be highly relevant to these actions. Both openness and role breadth self-efficacy in addition to their intrapersonal implications (e.g. facilitation of information processing) have interpersonal consequences by leading individuals to embrace collaborative work with co-workers, supervisors and team leaders.

Secondly, despite the weight of research on affect and innovative-related outcomes, investigation in this field clearly requires further development (Hennessey & Amabile, 2010). Almost all studies are concerned with creativity (Baas, De Dreu, & Nijstad, 2008; Rank et al., 2004), which in many cases have also offered mixed evidence for the psychological mechanisms proposed. For instance, recent developments have suggested that negative feelings could account for generating novel ideas (George, 2011; Miron-Spektor, Efrat-Treister, Rafaeli, & Schwarz-Cohen, 2011; Nijstad et al., 2010; To et al., 2011). However, the number of empirical studies that support these propositions is as yet very limited, which certainly limits the generalisation of the findings observed. Advances in research are even more relevant to theoretical and practical advances on promoting and implementing ideas, considering that scholars concerned with these dimensions of innovative work behaviour have

largely relied on the speculation that negative feelings are associated with innovation.

Overall, developments on individual antecedents of innovative work behaviour have been quite prolific, showing that variables at the person level are relevant drivers for behaving innovatively, particularly when they interact with contextual conditions. However, the review presented above also indicates that extending research from creativity to the other dimensions of innovative work behaviour, and clarifying how job-related affect is involved in engaging in innovative work behaviour offers great opportunities for improving our knowledge about the understanding and promotion of innovation at work.

3.3 CONTEXTUAL ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR

The literature review indicated that the antecedents of creativity and innovative behaviour are not only from the individual psychological domain. Although, for example, personality, self-efficacy and affect may have direct influences in fostering individual innovation, these are usually moderated by contextual factors (e.g. leadership, social support, feedback). Additionally, there is general theoretical agreement that factors at the environmental level promote innovation through psychological processes (e.g. motivation, affect, empowerment). Thus, studies in this field have described and tested diverse models of contextual antecedents that could increase the willingness to behave innovatively. In this section, the principal contextual factors identified in previous research on innovative work behaviour are described and discussed, namely, job characteristics/job demands, leadership and climate for innovation.

3.3.1 Job Characteristics and Job Demands

Job design has long been considered a strategy for improving work performance through *skill variety, task identity, task significance, job autonomy and task feedback* (Hackman & Oldham, 1976, 1980). These job characteristics are proposed to be beneficial because they increase work motivation. While skill variety, task identity and task significance evoke the *experience of meaningfulness* of the work, autonomy is related to the *experience of responsibility*, and feedback provides *knowledge* about the results of activities performed. Consequently, enriching jobs based on these job characteristics provide contextual conditions for better engagement and outcomes at work (Parker, 1998).

Drawing on the above, job design has been described as highly relevant for creativity and innovative behaviour, because highly complex jobs (high levels of job characteristics aforementioned) are more challenging (Carmeli & Spreitzer, 2009; Cohen-Meitar, Carmeli, & Waldman, 2009) and require complex thinking (Amabile et al., 1996; Amabile, 1988; Ohly, Sonnentag, & Pluntke, 2006). For instance, generation and suggestion of novel ideas have been observed to be positively related to job variety, autonomy and feedback (Axtell et al., 2000, 2006; Hatcher, Ross, & Collins, 1989; Oldham & Cummings, 1996; Zhou, 1998). Furthermore, Dorenbosch, et al. (2005) observed a positive association between high multi-functionality (large number of different tasks involved in a job) and innovative work behaviour. Overall, these findings suggest that job complexity could lead to higher creativity/innovation, given its requirements for a broad scope of skills/knowledge and motivational underpinnings.

Complementary to the job characteristics approach, the Job Demands-Control Model (JD-C) suggests that stressors embedded in jobs

could also lead to positive performance if employees have appropriate levels of work autonomy (Karasek, 1979; Wall, Jackson, Mullarkey, & Parker, 1996). Demands such as hard work and heavy workloads trigger in people elevated states of activation leading them to modify work environments in order to perform effectively. Thus, if employees have enough degrees of decision latitude, they could be able to adapt individual characteristics (e.g. improving skills and abilities) or modify contextual conditions (e.g. task objectives, working methods, job characteristics, interpersonal communication, etc.) to cope better with demands and reach positive outcomes.

Adopting the job demand control approach and integrating the proposals of Social Exchange Theory (1964) and Equity Theory of Motivation (1965), Janssen (2000, 2001) suggested that high levels of job demands could lead to innovative work behaviour if employees perceive that their efforts are fairly rewarded in the organisation. Social Exchange Theory highlights that relationships between individuals and their work environment are transactional; thus, at the bottom line, employees calculate and perform according to the explicit specifications of their jobs. However, when there is place for less formalised behaviour (e.g. creativity, innovation) employees would base their actions on judgements about their trust in the organisation, so that higher trust leads to more spontaneous work behaviours. Moreover, Equity Theory emphasises that high levels of motivation are associated with perceptions of *effort-rewards fairness* at work. These perceptions refer to employee evaluations of his/her exchange with the organization in terms of the ratio between effort spent and rewards received (e.g. compensation, recognition). A positive ratio represents that effort is well rewarded (perception of high fairness), whereas a negative ratio means that the rewards are not proportional to the effort spent (perception of unfairness). Both fairness and unfairness are expected to influence work behaviour; thus, the former mobilises

people to spend more effort and being persistent in their jobs, whereas the latter demotivates individuals, weakening their performance.

Following this rationale, Janssen (2000) observed that employees were more willing to perform innovatively in highly demanded contexts (high time pressures and workloads) if they perceived that their efforts were well rewarded. However, innovative work behaviour was limited if employees perceived low effort-rewards fairness in the organisation. In a subsequent study the previous results were replicated (Janssen, 2001), but it was also observed that the positive relationship between job demands and innovative work behaviour has an inverted-U shape when fairness perceptions were high. This indicates that neither low nor high level of activation leads to effective innovative performance (Gardner & Cummings, 1988), suggesting also that trust and fairness could help people to cope with demanding contexts and perform effectively through generating, promoting and realising novel ideas. However, this should be given careful consideration because, although there are potential positive implications for innovation, high levels of job demands can be substantively associated with serious problems of occupational health and consequently with poor performance (Quick & Tetrick, 2011).

3.3.2 Leadership

Through leadership, managers and supervisors have substantial influences on employee's attitudes, motivation and behaviour (Mumford & Licuanan, 2004; Mumford, Scott, Gaddis, & Strange, 2002; Shalley & Gilson, 2004). Mumford et al. (2002) emphasises that there are three main reasons why leadership should be relevant to promoting innovation in organisations. Firstly, since working on novel ideas involves uncertainty, complexity and dynamism, leaders must be capable of providing structure and direction when there is no inherent direction to follow. Secondly,

innovation efforts often result in tension between organisation structures and novel propositions; therefore, leaders are responsible for managing organisational relations in order to facilitate the process of innovation. Lastly, leaders have to manage work conditions that lead to the increased motivation needed for innovative performance among their followers. Consistent with this, an important amount of research has supported that leaders have a substantial impact on innovative behaviour of their followers through providing adequate support (e.g. feedback, recognition, rewards), emphasising innovative expectancies (Pygmalion effect), increasing the quality of interpersonal relationships and decision latitude (LMX), appealing to idealised values to foster change (transformational leadership) and inducing self-regulation of followers (servant leadership). These processes are briefly described below.

Supportive Leadership. Leaders who provide adequate feedback, recognition and reward stimulate effort and high performance in their followers. For example, early studies indicated that creativity is higher when managers listened to employee's concerns and suggestions (Andrews & Farris, 1967), whereas creativity decreases when feedback is predominately negative (Andrews & Gordon, 1970). Subsequent research corroborates these findings showing that leaders who offer appropriate endorsement, legitimacy and support to their followers encourage them to take risks, suggest novel ideas and develop alternative ways to do the work (Amabile, Schatzel, Moneta, & Kramer, 2006; Basu & Green, 1997; Janssen, 2005; Madjar et al., 2002; Madjar, 2008; Noefer, Stegmaier, Molter, & Sonntag, 2009; Oldham & Cummings, 1996).

Leader Pygmalion Effect. Research has shown that if leaders communicate that creativity and innovation is expected, employees behave according to those expectations (Scott & Bruce, 1994). This process, labelled as *Pygmalion Effect* (Livingston, 1969), denotes that

expectations of other relevant people at work alter self-expectancies, motivations and behaviour. Supporting this, employee creativity has been observed to be positively related to the interaction effect between the leader's high expectation for creativity and the follower's high self-efficacy (Carmeli & Schaubroeck, 2007; Tierney & Farmer, 2004).

Leader-Member Exchange (LMX). This model relies on a dyadic approach proposing that in organisational life, leaders adopt different patterns of behaviour with different employees (Dansereau, Graen, & Haga, 1975; Graen & Scandura, 1987). Specifically, the relationship between a leader and a specific follower develops over time from formal and impersonal interactions (low quality) toward exchanges based on trust, mutual linking and respect (high quality). If high quality is reached between leader and follower, the latter develops greater decision-making latitude and autonomy increasing motivation at work. The positive implications of LMX for innovation has received considerable support (Atwater & Carmeli, 2009; Basu & Green, 1997; Scott & Bruce, 1994; Tierney et al., 1999). Scott & Bruce (1994), for example, observed that the quality of the relationship between leader and follower was positively associated with innovative behaviour. Expanding these findings, Atwater & Carmeli (2009) tested a motivational model where LMX was positively related to followers' feelings of energy, which in turn were positively related to individual creativity.

Transformational Leadership. In contrast to the dyadic emphasis of LMX, transformational leadership is oriented to building a unitary vision and strong motivation for change among all followers of one work group, team or unit (Bass, 1985; Burns, 1978; Rafferty & Griffin, 2004). Through actions denoting vision, inspirational communication, intellectual stimulation, support and personal recognition, leaders highlight the meaning of the tasks performed by their followers, motivate them to be oriented toward team or organization goals (rather than personal

interests) and appeal to higher order values, such as the impact of work activities on shared benefits or society contributions. Given its noticeable implications for promoting innovation (Mumford et al., 2002), an important volume of research has supported the positive influences of transformational leaders on innovative behaviour (Basu & Green, 1997; Gumusluoglu & Ilsev, 2009; Hirst, Van Dick, & Van Knippenberg, 2009; Michaelis, Stegmaier, & Sonntag, 2010; Moss & Ritossa, 2007; Pieterse, van Knippenberg, Schippers, & Stam, 2010; Rank et al., 2009; Shin & Zhou, 2003; Wang, 2010). For example, Shin & Zhou (2003) observed that transformational leadership was positively related to creativity and this relationship is partially mediated by intrinsic motivation. In turn, Pieterse et al. (2010) and Gumusluoglu & Ilsev (2009) have shown the interaction effect between transformational leadership and employee psychological empowerment (state of meaningfulness and auto-regulation at work (Spreitzer, 1995)) on innovative work behaviour.

Servant Leadership. Servant leadership has a high degree of overlap with transformational leadership; however, servant leadership is differentiated because it primarily denotes inspiration and altruism for doing well to others while working (Greenleaf, 2002). Recently, Neubert et al. (2008) observed that servant leaders who stimulate follower's promotion focus also encouraged individual innovation. According to Regulatory Focus Theory (Brockner & Higgins, 2001; Higgins, 1997), *promotion focus* represents a psychological state associated with needs for growth, attentions to gains and accomplishment of ideals, and positive feelings, all of which are oriented toward experiencing positive meaning at work. Based on their findings, Neubert and colleagues proposed that servant leaders increase the likelihood of innovative behaviour through improvement of flexible attitudes and inclination to take risks entailed in promotion focus.

Transactional Leadership. In contrast to transformational leaders, the transactional style aims to show followers how they must behave in order to accomplish well-established activities at work and receive the rewards of this expected behaviour (Burns, 1978). Thus, transactional leaders are not expected to foster a great level of innovation in their work units, because resources and influences are used to accomplish explicit prescriptions, procedures and products rather than novel (and unpredictable) outcomes. Accordingly, a direct association between transactional leadership and innovative outcomes has not been supported in empirical research (Rank et al., 2009), while Pieterse et al. (2010) observed a negative effect of transactional leaders on followers' innovative work behaviour when followers show high psychological empowerment.

3.3.3 Climate for Innovation

Work climate, employee perceptions about characteristics of the work environment (Kuenzi & Schminke, 2009), has been another field that has captured the interest of innovation scholars. Climate factors such as support for innovation, psychological safety, trust, conflict management, and participative decision-making are the most investigated in research (Amabile et al., 1996; Clegg, Unsworth, Epitropaki, & Parker, 2002; De Dreu, 2008; Edmondson, 1999; Mathisen & Einarsen, 2004; Scott & Bruce, 1994; Siegel & Kaemmerer, 1978). Nevertheless, the team climate for innovation (TCI) has been one of the most systematic approaches in this regard (Anderson & West, 1998; West & Anderson, 1996; West, 1990, 2002), which proposes that the variables of *vision, task orientation, support for innovation and participative safety* are critical for achieving higher levels of innovation.

Vision refers to an idea of a valued outcome that represents a superior goal and motivating force at work. Defining, communicating and

sharing clear goals facilitate the improvement of a map of behavioural actions that is central for high team performance (Ilgen et al., 2005) and boosts team member commitment with the defined innovation goals. *Task orientation* corresponds to a shared concern regarding excellence and quality of task performance associated with the team vision. This construct significantly overlaps with “team reflexivity”, which denotes the extent to which team members collectively reflect upon the team objectives, strategies and processes and adapt them accordingly (Burke, Stagl, Salas, Pierce, & Kendall, 2006). These processes foster innovation because they make possible the exploration of divergent opinions, consideration of alternatives and facilitate decision-making (Hulsheger et al., 2009).

Support for innovation corresponds to the expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment. This involves expectation, backing, openness to change and encouragement for risk taken from team leaders and team members (Hulsheger et al., 2009). Lastly, *participative safety* is defined as perceptions that the environment is interpersonally non-threatening and involvement in decision-making is motivated and reinforced among team members. This is a highly relevant condition for team motivation (Marks, Mathieu, & Zaccaro, 2001), because while safety provides the climate to challenge organizational structures, routines, and the status quo (George, 2007), collective participation in decision-making increases chances of creativity through cross-fertilization of ideas (West, 2002).

Overall, the factors of climate for innovation described above have been observed to be strongly and positively related to innovative outcomes at the individual (innovative behaviour) and team level (e.g. team innovativeness, number of team patents) (for a comprehensive meta-analysis see Hulsheger et al., 2009). Yet, the exploration of potential

moderators and mediators in the relationship between climate for innovation and innovation has received very little attention in research. For instance, individual dispositions such as positive and negative trait affect (Watson & Clark, 1992; Watson et al., 1999) could interact with participative safety promoting or inhibiting innovative work behaviour. Whereas positive trait affect makes people prone to behave according to the opportunities identified in the environment, negative trait affect makes people concerned about risks. Thus, positive perceptions of climate for innovation could lead to greater innovative work behaviour for individuals high in positive trait affect because they may “go ahead” for the benefits of novel ideas. Contrariwise, the same perceptions may not lead individuals high in negative trait affect to behave innovatively, because they are more afraid about the possible pitfalls of working on “something new”. Complementarily, proximal variables at the individual level, such as motivational affective states or job attitudes, could mediate the distal influences of climate for innovation on innovative work behaviour. Affective Events Theory (Weiss & Cropanzano, 1996), for example, has proposed that features of work environments only have an indirect impact on work behaviour, because specific events, moods and job satisfaction develop between work context and specific actions tendencies and the actual behaviour of employees. Consequently, a major challenge in this field is investigating the extent to which third variables moderate and/or mediate the associations between climate for innovation and innovative work behaviour.

3.4 GENERAL DISCUSSION OF PAST RESEARCH ON ANTECEDENTS OF INNOVATIVE WORK BEHAVIOUR AND THE RESEARCH PROBLEM OF THIS THESIS

The literature review presented here indicates that innovative work behaviour has been a central topic of investigation in organisational

behaviour, attracting many scholars over time. Factors at the individual and contextual level of analysis and their interaction have been extensively explored as possible sources of innovation. Thus, orientations to change, cognitive skills, self-efficacy, motivation and affective states appear as relevant individual resources to develop novel ideas at work. In turn, job characteristics/demands, leadership styles and climate within teams and organisations have been supported as necessary contextual resources to lead and facilitate creative thinking whilst the promotion and realisation of novel ideas.

Despite the advances in understanding how individual and contextual factors unfold into creativity and innovative endeavours, important theoretical issues and research limitations demand more attention and offer opportunities for further research. Firstly, consistent with the discussion presented in Chapter 2, most empirical research has been oriented to determining the antecedents of idea generation, at the expense of idea promotion and idea generation. Perhaps, the lack of advances in identifying possible differential antecedents among the different dimensions of innovative work behaviour has been the most detrimental consequence of neglecting the distinction between creativity and innovation in applied research.

A second main issue observed in current research on innovative work behaviour relates to the role played by affect. This is an illustrative example of how idea promotion and idea realisation have been ignored in empirical research (Rank & Frese, 2008), because despite the weight of studies on job-related moods identified in the reviewed literature, almost all of them are limited to idea generation (creativity at work). Furthermore, important findings about the association between affect and creativity remains ambiguous in several ways. For example, recently the idea that negative feelings are relevant drivers of idea generation has become very

pervasive in the literature; however, a very limited number of studies have supported this. Furthermore, these studies have been based on laboratory research (Baas et al., 2008; Miron-Spektor et al., 2011) or field studies using cross-sectional data (George & Zhou, 2007) and graduate students as participants (To et al., 2011). So, these findings are still weak in providing a convincing picture about the extent to which negative affect leads to creativity and innovation in work settings. Furthermore, although the association between positive affect and creativity has been strongly supported (Hennessey & Amabile, 2010), there is still very little knowledge about what and how other variables spark positive feelings in the innovative situation, or moderate the association between positive feelings and innovation.

Examining and understanding in detail the affective underpinnings of innovative work behaviour is proposed as a central challenge in current research, because most of the theoretical developments presume affective experience as a basic psychological process underlying the generation, promotion and realisation of novel ideas. For example, the personality approach indicate that innovators are “excited” whilst less “afraid” as employees (Kirton, 1976, 2003; Rank et al., 2009). Similarly, models of motivation emphasise that innovation involves “enjoyment” (Amabile & Pillemer, 2012; Hennessey & Amabile, 1998), and perseverance given by “stress” entailed in situations of high demands (Janssen, 2000, 2001). In turn, theorising on how contextual factors foster innovative behaviour also supposes the role of affect. Links between job characteristics (e.g. autonomy, responsibility, variety) and innovation assumes the mediating role of “enthusiasm” (Warr, 2007), while leadership might stimulate a followers’ innovative behaviour through “inspiration”, “elation” and “feelings of energy” (Atwater & Carmeli, 2009; Neubert et al., 2008; Rafferty & Griffin, 2004). Finally, climate for innovation research infers job-related feelings as explanatory mechanisms, indicating that support for

innovation “encourages” novel thinking and behaviour, while participative safety reduces “fear” of possible consequences of “rocking the boat” with novel proposals (Amabile et al., 1996; Anderson & West, 1998; Edmondson, 1999; Siegel & Kaemmerer, 1978; West, 2002). Therefore, understanding *what, how and when* affect relates to the different components of innovative work behaviour, i.e. generating, promoting and realising novel ideas, could substantively contribute to corroborate or discard the above theoretical speculations, while offering more detailed progress to understanding why people are willing to innovate at work. This is the research problem guiding this thesis; thus, the theoretical background that describes and supports the association between affect and work behaviour, and the specific research questions addressed by this thesis are developed and described in the next chapter.

CHAPTER 4: MOODS AND WORK BEHAVIOUR

4.1 INTRODUCTION

Affect and its correlates have become a central issue in organizational behaviour studies. Theory and empirical findings have suggested that emotions and moods are substantially related to work cognition and behaviour. In this chapter, the theoretical background to support the associations between moods experienced at work and innovative work behaviour is presented. Firstly, based on the Valence and Arousal Circumplex Model of Affect (Russell, 1980, 2003), the conceptual background on affect utilised in this thesis is delineated, providing explicit and detailed definitions of feelings, moods, emotions and psychological well-being. Secondly, moods are claimed as psychological functions with high potential to influence innovative work behaviour. Thirdly, issues about the antecedents of moods are discussed. Specifically, from the perspective of Cognitive Appraisal Theory (Lazarus & Folkman, 1984), the need for a more detailed investigation is stressed about how environment and individual factors interplay in the association between moods and innovative work behaviour. Finally, the research questions proposed for this thesis are stated and described at the end of the chapter.

4.2 DEFINING AFFECT

Over time, the conceptualisation of the affective experience has been the object of confusion among scholars. In many cases affective concepts, such as moods, are hazily delimited and used in theory and research (Brief & Weiss, 2002; Davidson, 1994; Totterdell & Niven, 2012). Thus, any serious investigation in this field faces the challenge of explicitly defining and delineating the affective construct under examination. These issues are, therefore, addressed in this section.

In general, affect has become an “umbrella” definition referring to a series of distinct but inter-related constructs (Totterdell & Niven, 2012), such as emotions, moods and affective well-being. However, this hierarchical categorisation does not remove the specificity of these constructs, which are typically differentiated in terms of aetiology, life span, diffuseness and operationalisation, as it is detailed below.

Emotions: represent momentary (limited to seconds or minutes) positive or negative affective reactions toward specific objects, being intense enough to interrupt conscious thought processes (Brief & Weiss, 2002; Frijda, 1986b). Thus, emotions are described as discrete reactions about something or someone, which are explicitly contained in their phenomenological experience (Izard, 2007; Plutchik, 1994; Shaver, Schwartz, Kirson, & Oconnor, 1987). Furthermore, emotions develop quickly into specific cognitive and behavioural processes (Davidson, 1994; Ekman, 1992; Frijda, 1994), such as fleeing when feeling fear or approaching when feeling love. Theoretical and empirical developments describe emotions as a limited number of categories (labelled as primary emotions), for instance, love, joy, surprise, anger, sadness, fear, guilt and shame (Izard, 2007; Plutchik, 1994; Shaver et al., 1987).

Moods: denote long-lasting affective states experienced within a day or over a few days/weeks (Ekman, 1994; Kagan, 1994). Moods are perceived as mild states, which often are not intense enough to disturb conscious processes of thought and behaviour (Brief & Weiss, 2002; Thayer, 1996; Watson, 2000). However, moods have substantial implications for processing information and conducting a wide array of actions (Davidson, 1994; Forgas & George, 2001; Forgas, 1995; Schwarz & Clore, 1983, 2003). Relatively stable individual dispositions and contextual conditions trigger moods, such as personality dispositions (e.g. extroversion, neuroticism) circadian cycles, and beliefs about the

characteristics of a given environment (e.g. work climate) (Lazarus, 1994; Watson, 2000). Nevertheless, in contrast to emotions, individuals are often unaware of the causal factors of their moods, typically experiencing them as diffuse psychological states (Weiss & Cropanzano, 1996). Moods are typically described in terms of basic dimensions, such as positive versus negative moods or activated versus deactivated moods (Brief & Weiss, 2002; Russell, 1980; Thayer, 1996; Watson, 2000).

Affective well-being: this is similar to moods; however, it refers to enduring affective states which unfold over weeks or months (Van Katwyk, Fox, Spector, & Kelloway, 2000; Warr, 1999, 2007). Usually, affective well-being is described in terms of happiness, comfort or simply “well-being”. In contrast, lack of well-being is represented by long-lasting negative affective states, described as anxiety or depression (Warr, 2007).

A careful examination of the above definitions suggests that emotions, moods and affective well-being are constructs that refers to the experience of “feeling something”, but they are mainly differentiated in terms of some basic parameters (see integration offered in Table 4.1). For example, emotion is explicitly oriented to something or someone being very short in life span, while moods have a hazy source having long-lasting duration. So, what justifies the use of affect as an “umbrella” concept, considering that emotion, moods and well-being have particular and distinctive characteristics? In other words, the use of affect as an “umbrella” concept would be oversimplifying the affective experience phenomena?

The above questions, to my knowledge, have not been clearly addressed using a strong theorisation in the literature of organisational behaviour. So, adopting the Theory of Core Affect (Russell, 2003), the use of affect as an umbrella concept is proposed here as justified only if affect

is considered as a core and common psychological component of emotions, moods, affective well-being and other affective constructs (Russell & Barrett, 1999; Russell, 2003; Yik, Russell, & Steiger, 2011). From this point of view, affect represents “a neurophysiological state that is consciously accessible as a simple, non-reflective feeling that is an integral blend of hedonic (pleasure–displeasure) and arousal (sleepy–activated) values” (p. 147), which “is primitive, universal, and simple (irreducible on the mental plane)” (p. 148) (Russell, 2003)². As such, two basic bipolar dimensions, namely, valence and activation, structurally describe affect. While *valence* refers to the extent to which feelings are experienced as positive or negative in hedonic tone (pleasure–displeasure), activation dimension denotes the state of readiness (activation–deactivation) provided by the same feelings (Russell, 1980, 2003). The linear combination of bipolar dimensions of valence and activation can be depicted as a circumplex representation describing four affective quadrants (see Figure 4.1) (Larsen & Diener, 1992; Remington, Fabrigar, & Visser, 2000; Seo et al., 2008), which organisational behaviour researchers have recently labelled as: high-activated positive affect, high-activated negative affect, low-activated negative affect, and low-activated positive affect (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012; Warr, Bindl, & Parker, 2012). Thus, the circumplex is proposed as a structural model able to describe emotions, moods, affective well-being or other affective constructs. For example, the emotions of joy, fear and sadness denote high-activated positive affect, high-activated negative affect and low-activated negative affect as basic psychological components. In turn, depending on their degree of valence and activation, moods can be described as high-activated positive mood, high-activated negative mood, low-activated negative mood and low-

² Feeling is the concept referring to the subjective experience embedded in any form of affect (Cropanzano et al., 2003; Russell & Barrett, 1999; Russell, 2003). In simple words, a feeling is the mental meaning of, for example, happiness, tension, despondency or relaxation.

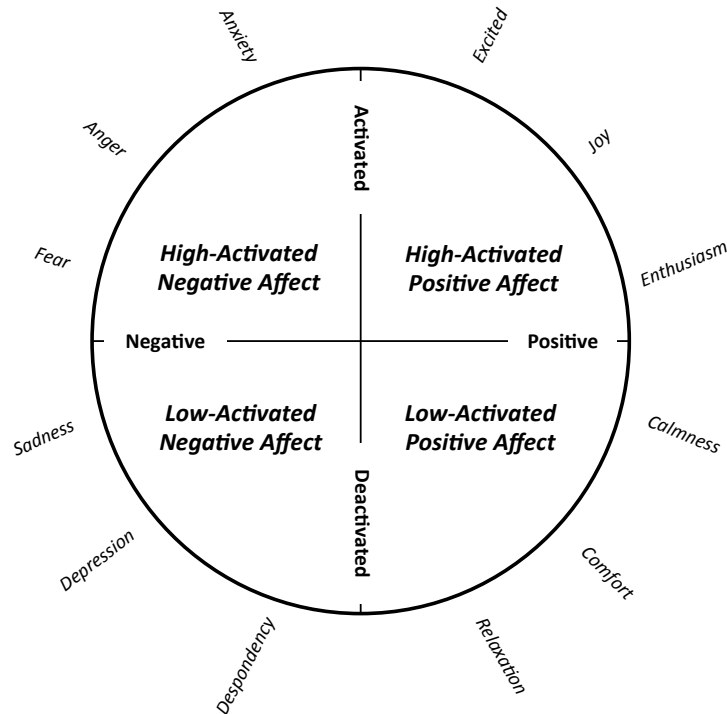
activated positive mood. Similarly, affective well-being is denoted by both high-activated and low-activated positive affect.

Table 4.1: Comparison Among Constructs Embedded in the Concept of Affect

Feature	Emotions	Moods	Affective Well-Being
Aetiology	Specific events, which are consciously identified by individuals.	Relatively stable contextual characteristics. Furthermore, biological factors (e.g. circadian cycles) or personality traits (e.g. extroversion, neuroticism) can also elicit moods. However, individuals often are not aware about causes of their moods.	Stable contextual characteristics and individual dispositions (e.g. extroversion, neuroticism). Individuals might or not be aware about causes of their well-being
Life Span	Very short lived, being limited to seconds, minutes, at most some hours.	Short to mid life span, extended within a day, between few days and even weeks.	Long lived states, extended over weeks and even months.
Cognitive-Behavioural Diffuseness	Emotions are intense enough reactions to interrupt conscious thought and behaviour over their life span.	Moods are mild affective states with generalised influences on cognition and behaviour over their life span. However, these influences are less conscious for individuals.	Similar to moods, affective well-being denotes mild affective states with generalised and less conscious influences on cognition and behaviour, but in this case influences are longer than moods.
Operationalisation	Described in categorical terms, such as love, joy, surprise, anger, sadness, fear, guilt and shame	Described in terms of underlying dimensions, such as positive and negative moods.	Typically described in categorical terms, such as happiness, comfort or simply "well-being".

Other construct of interest in the literature refers to *Trait Affect*. This does not refer to affect per se (Weiss & Cropanzano, 1996); however, it should be described given its implications for experiencing specific feelings over time. In concrete terms, trait affect represents personality dispositions to react in a positive or negative way toward contingent life events, which lead to the experience of congruent positive or negative feelings respectively (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003; Watson et al., 1999). For instance, according to Watson et al. (1999), Positive Trait Activation (PA) makes people prone to feel positive emotions and moods, while Negative Trait Activation (NA) leads the individual to experience negative feelings. Therefore, trait affect is a central antecedent of contingent affective experiences (Watson, 2000).

Figure 4.1: The Circumplex Model of Affect (adapted from Yik et al., 2011)



From the perspective of the circumplex model, affect entails two general features. Firstly, affect *is always part of the phenomenological experience* of individuals, which is contrary to the popular belief that affect is something that appears and disappears over time (Russell & Barrett, 1999; Russell, 2003, 2009). In other words, individuals are always experiencing a fluctuating combination of valence and activation even when they are not aware of this. Secondly, affect *is dynamic in nature* because it changes within one or over several days/weeks, depending on contextual features and events, and individual factors that provoke changes in the experience of valence and activation (Thayer, 1996; Watson, 2000). In general, “bad is stronger than good” (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) which means that negative events tend to have more intense and *prolonged* consequences than positive events on affect.

However, when events, either positive or negative, have relevant implications for the goals of individuals (e.g. rewards, achievements, bad results in test performance, application rejection) they unfold into affective experiences with a long life span compared with events considered as irrelevant (Scherer, Schorr, & Johnstone, 2001). For example, receiving bad news, such as negative results of an application submission, may develop into low activated negative affect, described by feelings of disappointment and sadness over a few hours, days or weeks depending on the degree of significance of this submission for the applicant.

Taken together, the structural, phenomenological and dynamic characteristics of affect proposed by the circumplex model's perspective imply that *emotions* are described as changes of affect (valence and activation) oriented to explicit and evident objects given in a very brief life span (seconds, minutes). Thus, the critical parameters to understand emotions are *affect* (differences in valence and activation) and an *object* (e.g. event, condition, thing, person) at which affect is oriented (Yik et al., 2011). In turn, *moods* are defined as changes of affect consciously accessible as an integral blend of valence and activation over *a critical period of time*, which often lack an explicit object (cause of moods is less evident for individuals) (Russell & Barrett, 1999; Russell, 2003, 2009). This does not imply that moods have no causal factor, they do, but individuals often are not aware about aetiology of their moods (Weiss & Cropanzano, 1996). As such, the critical parameters to define moods are *affect* (differences in valence and activation) and *time* (hours, days, weeks) (Yik et al., 2011). With regards affective well-being, these states shared the same characteristics as moods; but, the life span is different because well-being may be extended for months (Totterdell & Niven, 2012).

The aforementioned conceptualisations also provide an account for the possible interconnection between moods, emotions and affective well-

being (Parkinson, Totterdell, Briner, & Reynolds, 1996). Over time, identifying the causes of moods and well-being could transform them into discrete emotions (Clore, 1992). In turn, when life span of discrete emotions ceases, they might unfold as moods in mild affective states in a congruent fashion with the emotions' valence and activation (Cropanzano, Weiss, Hale, & Reb, 2003; Frijda, 1993, 1994; Isen, 1984). For example, a predominance of positive emotions unfolds in long lasting experience of affective well-being (Fredrickson, 2001, 2004). In turn, moods and well-being may also dispose people to experience emotions congruent in affective valence and activation, such as developing anger or fear when in an anxious mood (Davidson, 1994; Parkinson et al., 1996). A summary of the main parameter to define the above affective constructs is presented in Table 4.2.

Table 4.2: Critical Parameters to Define Affective Constructs

Construct	Critical Parameter for a Definition		
	Affect (Valence and Activation)	Object (Causal Factor)	Time (Life Span)
Emotions	X	X	
Moods	X		X
Affective Well-Being	X		X

The circumplex model of affect represents a valuable and heuristic descriptive model, offering a simple but comprehensive approach to emotions, moods and affective well-being; however, competing models have challenged it. Watson and colleagues (Tellegen, Watson, & Clark, 1999a; Watson, Clark, & Tellegen, 1988) have proposed the advantages of

a two-factor hierarchical model, in which feelings (called basic emotions in this model) are grouped in sub-categories that distinguish between positive and negative affect (see Table 4.3). These categories, labelled as PA (Positive Affect or Positive Activation) and NA (Negative Affect or Negative Activation), are proposed as descriptors of emotions, moods and affective traits (Watson & Clark, 1992; Watson & Tellegen, 1985; Watson et al., 1999; Yik, Russell, & Barrett, 1999). According to this, positive and negative affect are unipolar independent dimensions, so individuals might feel positive and negative affective experiences over the same period of time. As a result, Watson stated that positive affect and negative affect model is a simple and parsimonious approach to affective phenomena (Tellegen et al., 1999a; Tellegen, Watson, & Clark, 1999b; Watson & Tellegen, 1985; Watson et al., 1999), given its hierarchical structure and unipolar assumptions.

Table 4.3: The Two-Factor Hierarchical Model of Positive and Negative Affect (Watson, 2000)

First Order Affect	Second Order Affect	Third Order Affect (Basic Emotions)
Negative Affect	Fear	Frightened, scared, nervous
	Sadness	Sad, blue, lonely
	Guilt	Guilty, ashamed, angry at self
	Hostility	Angry, disgusted, scornful
Positive Affect	Joviality	Happy, enthusiastic, energetic
	Self-Assurance	Proud, confident, daring
	Attentiveness	Alert, concentrating, determined

Watson (2000) also described another first order category labelled as “other affective states”, comprising shyness, fatigue, serenity and surprise; however, this category was not included here because it has been rarely used in research conducted by Watson and colleagues.

Although many scholars have adopted the positive and negative model of affect, this approach can be criticised in many respects (Barrett & Russell, 1999; Russell & Carroll, 1999a; Seo et al., 2008; Warr et al., 2013; Warr, 2007; Yik et al., 1999). Firstly, when Watson and colleagues propose that affect and moods are described by lower-level (basic) emotions (Watson, 2000), they confound the bidirectional relationships between these constructs. For example, the positive and negative affect model assumes that emotions are components of moods, but the opposite is not possible. This contradicts the findings discussed above that show emotions unfolding in moods and vice versa. Secondly, the positive and negative affect model neglects differences in energy expenditure of affect (activation dimension), because it is mainly concerned with positive and negative affect high in activation (e.g. joy, anxiety), overlooking low-activated affect (e.g. depression, comfort). This model, therefore, can hardly depict a comprehensive view of affect's complexities given by both valence and activation (see Figure 4.2).

Thirdly, unipolarity (independence) proposed between positive and negative affect is problematic. This has been object of a large debate in the literature, which details are impossible to present here for the sake of space (for a detailed discussion see Barrett & Russell, 1999, 1998; Russell & Carroll, 1999a, 1999b; Tellegen et al., 1999a, 1999b; Watson & Tellegen, 1999; Yik et al., 1999). However, the central point is that the positive and negative model of affect fails to account for negative relationships (bipolarity) given between diverse forms of affect, because it neglects the activation dimension of affect. For example, lexical-semantic and psychometrical research (Osgood, Suci, & Tannenbaum, 1958; Russell, 1980) has strongly supported the negative correlations between feelings of enthusiasm and depression, or between feelings of comfort and anxiety in the same time frame, which denotes that these pairs of feelings are rarely felt together. Furthermore, the plausibility of feeling enthusiasm and

anxiety (for example when being upgraded to a new but challenging job) is utterly feasible in the same period of time. Whereas some feelings are likely to be independent (e.g. enthusiasm and anxiety), others are not (e.g. enthusiasm and depression); yet, the positive and negative model is not able to deal with this. As a result, the parsimony pretension of the positive and negative affect model is problematic. In science, parsimony refers to the building up of theoretical models as simply as possible, without losing the power of explanation about the complexities on the phenomena studied. Indeed, the positive and negative affect model fails in the latter.

Figure 4.2: Comparison between the Circumplex Model of Affect and the Positive and Negative Model of Affect

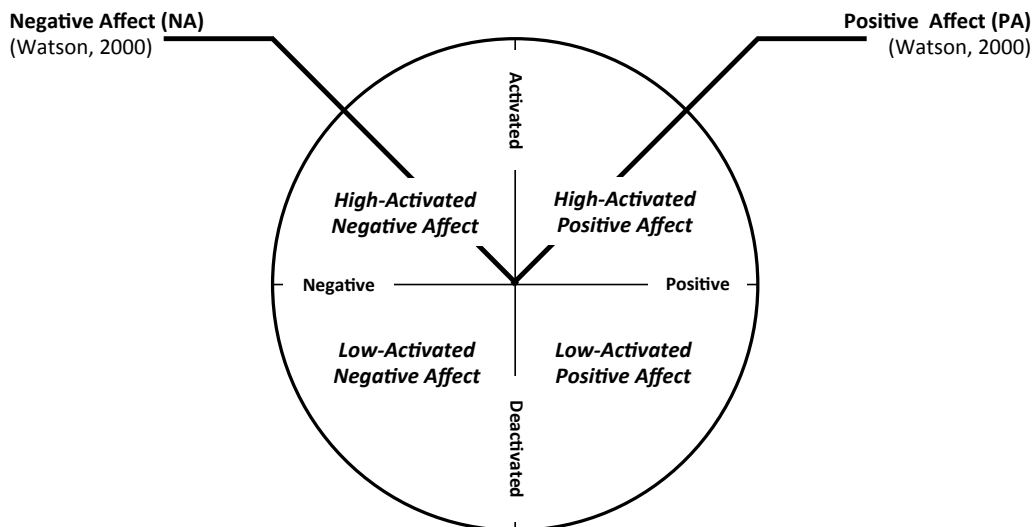


Diagram shows how the positive and negative model of affect (Watson, 2000) neglects affect low in activation. Watson and colleagues labelled feelings corresponding to the top right quadrant of the circumplex as positive affect (Watson & Tellegen, 1985) or positive activation (Watson et al., 1999). Similarly, feelings of the top left quadrant of the circumplex of affect are labelled as negative affect or negative activation. These different definitions still provoke confusion and disagreement about the structure of affect in the literature of organisational behaviour literature (Seo et al., 2008).

Scholars have been re-discovering the circumplex model of affect after decades of research on organizational behaviour based on the positive and negative affect model (Bindl et al., 2012; Seo et al., 2008; Warr et al., 2012). The predominance of the latter has been interpreted as resulting from the simplicity of understanding affective experiences only in terms of positive or negative (Seo et al., 2008), instead of high-activated positive affect, high-activated negative affect, low-activated negative affect, and low-activated positive affect. However, even when the circumplex seems less simple, it is not, because based on two basic dimensions the circumplex provides a comprehensive and finer grained description of diverse affective experiences as a whole. The circumplex model of affect, therefore, will be the basic descriptive approach adopted in this thesis to study the relationships between moods and innovative work behaviour.

After addressing issues of definition of affect from the perspective of the circumplex model of affect, moods will be discussed as affective experiences with substantial implications for cognition and behaviour at work in the following section.

4.3 MOODS AND BEHAVIOUR AT WORK

Since 1990 “the affective revolution in organisational behaviour” (Barsade, Brief, & Spataro, 2003) has resulted in a weight of theoretical and empirical studies showing the importance of affect at work. Specifically, moods have been observed as having substantive directive properties for work cognition and behaviour, being linked to job satisfaction (Fisher & Noble, 2004; Ilies & Judge, 2002; Judge & Ilies, 2004), negotiation (Barry, Fulmer, & Van Kleef, 2004; Carnevale & Isen, 1986; Forgas, 1998), decision making (Au, Chan, Wang, & Vertinsky, 2003; Kuvaas & Kaufmann, 2004; Mittal & Ross, 1998; Schwarz, 2000), group processes (Barsade, 2002; Sy,

Côté, & Saavedra, 2005), proactivity (Bindl et al., 2012; Fritz & Sonnentag, 2009), organizational citizenship and counterproductive behaviour (Dalal, Lam, Weiss, Welch, & Hulin, 2009; Judge, Scott, & Ilies, 2006), work performance (Beal, Weiss, Barros, & MacDermid, 2005; Staw & Barsade, 1993; Staw, Sutton, & Pelled, 1994) and creativity (Amabile et al., 2005; George & Zhou, 2007). Nevertheless, according to the literature review offered in Chapter 2, directive properties of moods in relation to innovative work behaviour have not been examined in depth. In order to tackle this gap in the innovation literature, in this section moods are discussed as affective experiences with substantive potential to influence the generation, promotion and realisation of novel ideas at work.

4.3.1 Directive Properties of Moods

Differences in affective valence have important implications on the way that people think and behave. For instance, positive feelings in general have been proposed as being associated with *broadening psychological processes*, described by internal-driven, flexible and divergent thinking (Clore, Schwartz, & Conway, 1994; Fredrickson, 2001), which is functional for explorative behaviour linked to satisfying nurturing needs (Fredrickson, 2004). Conversely, negative feelings in general are associated with *narrowing psychological processes* given by convergent, systematic and externally oriented thinking, together with conservative behaviour oriented to preventing possible harm to one's own well-being (Clore et al., 1994; Loewenstein & Lerner, 2003; Schwarz, 1990). Results of empirical research conducted in relation to creativity have been interpreted as supporting some of the above psychological processes. For instance, classic experiments conducted by Isen and colleagues showed that individuals experiencing positive moods improved their ability to consider alternative courses of action, developing greater divergent thinking and creativity than individuals in negative moods (Isen & Baron, 1991; Isen et al., 1987).

More recent studies have indicated that theory and processes described above are appropriate but incomplete, because, in addition to affective valence, differences in affective activation can also account for specific cognitive and behavioural processes (De Dreu, Baas, & Nijstad, 2008; Gable & Harmon-Jones, 2008; Harmon-Jones & Gable, 2008). In Section 4.2, activation was described as a basic dimension of affect denoting the “state of readiness for action or energy expenditure” (Russell, 2003, p.156). Accordingly, new findings have indicated that high activation is linked to narrowing psychological processes, such that individuals increase the focus of their attention, being highly concentrated on relevant objects/outcomes present in a given context (Easterbrook, 1959; Gable & Harmon-Jones, 2008, 2010; Harmon-Jones & Gable, 2008), and highly persistent in terms of action (high behavioural readiness) in order to attain or avoid these objects/outcomes (Brehm, 1999; Cacioppo, Gardner, & Berntson, 1999; Seo, Barrett, & Bartunek, 2004; Vroom, 1964). Conversely, low activation yields broadening processes, through defocussing attention and decreasing action readiness (passiveness), which is linked to the experience of recovery and detachment from terminally blocked outcomes, such as when it is not possible to achieve intended goals (Gable & Harmon-Jones, 2010). Table 4.4 compares the main cognitive-behavioural processes linked to moods according to research on affective valence and activation.

Table 4.4: Direct Cognitive and Behavioural Implications Associated with Affective Valence and Activation

Mood Basic Dimensions		General Psychological Process	Cognitive Implications	Behavioural Implications
Valence	Positive	Broadening	Divergent and internal-driven thinking	Explorative
	Negative	Narrowing	Convergent and external-driven thinking	Conservative
Activation	High	Narrowing	Focused attention	Behavioural readiness
	Low	Broadening	Defocused attention	Behavioural passiveness

The previous discussion suggests that the understanding of the relationship between moods and innovative work behaviour is far from complete. Issues on affective activation have been widely neglected in research on organizational behaviour in favour of the valence dimension of affect (Seo et al., 2008; Warr et al., 2013). Scholars in this field have been traditionally concerned with how general differences between positive and negative feelings may explain work-related outcomes, and research on creativity and innovation has not been an exception to this. Specifically, even when this has not been explicitly acknowledged in most publications, models of moods and creativity have been focused on high-activated positive affect and high-activated negative affect, but generalising their findings to positive and negative affect as a whole (see discussion about positive and negative affect model and PANAS measures in Section 4.2). However, increasing theory and evidence is suggesting that the above approach would be imprecise, due to specific blends of affective valence and activation could have cognitive and behavioural implications quite different than when considering affective valence alone. So, the

association between moods and innovative work behaviour might be more complex than organisational behaviour scholars have believed until today.

For example, as discussed previously, Broaden-and-Build Theory (Fredrickson, 2001) proposes that positive effects of positive moods on creativity are explained by broaden cognition processes that would lead to flexible thoughts (Amabile et al., 2005). However, proposals of the broaden-and-build theory should be re-examined (Gable & Harmon-Jones, 2008), because they assume that all positive affect broadens cognition. So, if influences of affective activation are taken in account, positive moods high in activation are likely to narrow rather than broaden some cognitive processes (i.e. attentional focus), being connected to object-directed action tendencies rather than defocused reflection (Gable & Harmon-Jones, 2008; Harmon-Jones & Gable, 2008). On the other hand, positive moods low in activation are strongly associated with cognitive broadening, being expressed in greater reflection and flexible thinking (Frijda, 1986). Thus, for instance, low-activated positive moods might be substantially related to idea generation, while high-activated positive mood might be predominantly responsible for the implementation of ideas. The latter would unfold through increments of attentional focus and persistence in promoting and realising of novel ideas. A similar situation can be applied to negative moods. Organisational scholars have put a lot of effort into defending high-activated negative moods as antecedents of creativity ignoring low-activated negative moods (George, 2011). However, complementary studies have indicated that low-activated negative feelings would be more likely precursors of creative thinking, given the reflection and cognitive broadening entailed in them (Bindl et al., 2012; Verhaeghen et al., 2005). Certainly, approaching creativity and innovation at work from the lenses of both valence and activation of moods represents an important opportunity for further research.

Other limitations of research related to moods and innovative work behaviour involve the restricted scope of innovative actions examined, and the used of limited research methods. The weight of studies on innovation at the individual level have been conducted to test the association between moods and idea generation (creativity) (Baas et al., 2008), but neglecting the promotion and realisation of novel ideas (see Chapter 3) (Rank & Frese, 2008). Furthermore, most studies on moods and creativity have relied on laboratory research using university students (Baas et al., 2008; De Dreu et al., 2008; Miron-Spektor et al., 2011; To et al., 2011) or cross-sectional field studies based on employee samples (George, 2007). Laboratory studies and the use of students as participants fail to account for contextual conditions that could influence the associations between affect and creativity at work. In turn, cross-sectional studies fail to capture the dynamics of affect over time; thus, having a single snapshot of affect can hardly provide definitive evidence about its implications for other constructs (e.g. work cognition and behaviour) (Beal et al., 2005; Totterdell & Niven, 2012; Weiss & Cropanzano, 1996). As a result, research on moods and innovative work behaviour still face the challenges of testing whether both affective valence and activation is relevant to explain not only idea generation, but also idea promotion and idea realisation at work through stronger research methods, such as longitudinal field designs.

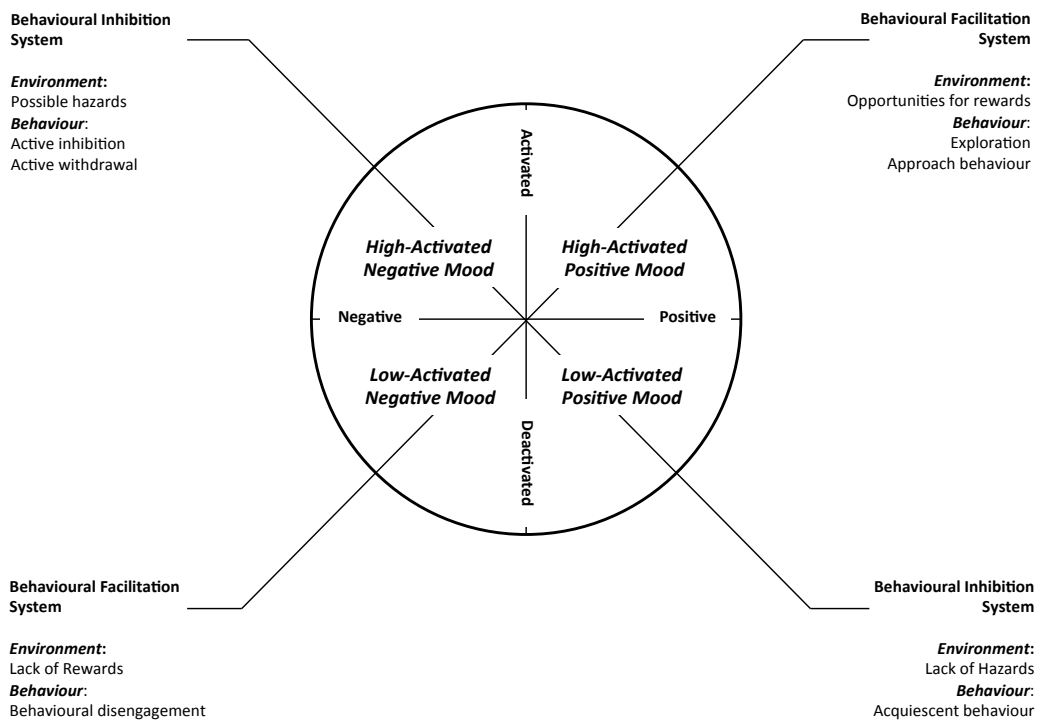
4.3.2 Distal Antecedents of the Processes between Moods and Behaviour

Up to here, the directive properties of moods on behaviour have been highlighted; however, distal antecedents of affect should be also taken into account in order to have an improved understanding of why, how and when moods relate to innovative work behaviour. So, the role of contextual and individual factors in relation to the elicitation of moods, and subsequent behaviour, is discussed in this section.

The experience of feelings starts when an individual is exposed to an eliciting stimulus in a given environment, which develops in moods through complex psychological and physiological mechanisms (Judge & Larsen, 2001; Russell, 2003). In terms of this contextual aetiology, moods have been described as components of two broader bio-behavioural systems (Watson, 2000), namely, the Behavioural Facilitation System and the Behavioural Inhibition System, which comprise cognitive, affective and action *functions* which have evolved to control effective human interaction with the environment (Carver & White, 1994; Gable, Reis, & Elliot, 2000; Watson et al., 1999; Watson, 2000). The behavioural facilitation system (Depue & Collins, 1999; Depue, Luciana, Arbisi, Collins, & Leon, 1994; Fowles, 1980, 1987) is linked to perceptions of opportunities available in the environment for yielding rewards and fulfilling nurturing needs (Brehm, 1999; Harmon-Jones & Gable, 2008; Izard, 1991). In turn, the behavioural inhibition system (Gray, 1981, 1990) is associated with perceptions of threats in the environment, being responsible for keeping individuals out of problems and inhibiting actions that may develop in risk, punishment or unpleasant experiences. With regards affect, high-activated positive mood and low-activated negative mood entail bipolar affective functions embedded in the behavioural facilitation system, while high-activated negative mood and low-activated positive mood represent affective functions linked to the behavioural inhibition system Figure 4.3. As such, when an environment offers opportunities for yielding rewards and fulfilling nurturing needs, high-activated positive mood and explorative-approaching behaviour is experienced and performed respectively. In contrast, if the environment is lacking of opportunities for satisfying nurturing needs and getting rewards, low-activated negative mood and behavioural disengagement is dominant. In terms of the behavioural inhibition system, presence of threats in the environment are typically linked to high-activated negative mood and active inhibition/withdrawal behaviour. On the other hand, an environment denoting lack of threats is

often associated with low-activated positive mood and acquiescent behaviour.

Figure 4.3: Integration of the Circumplex Model of Affect and the Bio-Behavioural Systems



The source of moods is not only limited to contextual stimuli, because individual variables can also influence the way that people react toward the environment (DeNeve & Cooper, 1998; Gray, 1990; Jovanovic, 2011; Larsen & Ketelaar, 1991; Quevedo & Abella, 2011; Steel, Schmidt, & Shultz, 2008; Watson & Clark, 1992). For example, individuals carry with them an affective history described by the accumulation of past affective events (Fineman, 1996), which impacts on interpretations of, and reactions

to, new events over time. Repeatedly experiencing positive events leads to extroverted tendencies (cf. Eysenck, 1974), which make individuals prone to interpret their contexts in a positive way and associate this with positive feelings (Higgins, 1987, 1997; Higgins et al., 2001). In contrast, long exposure to negative events makes people disposed to neuroticism (cf. Eysenck, 1953, 1998), which unfolds into negative interpretations and feelings when similar contextual situations arise in their lives. In turn, meaningful life experiences may also lead to values, beliefs and interests that make individuals more or less open to experience (McCrae & Costa, 1996), which may also be linked to experiencing contextual circumstances and feelings with greater intensity (DeNeve & Cooper, 1998; McCrae & Costa, 1996). So, throughout an individual's development, from childhood to adult life, individual history is crystallised in cognitive representations that denote the lenses through which contexts in the world are interpreted and affectively experienced.

Taken together, the above discussion suggests that enquiring about the antecedents of moods requires determining how cognitive representations entailed in both perceptions of the environment (contextual features) and perceptions about oneself (individual dispositions) participate in sparking moods.

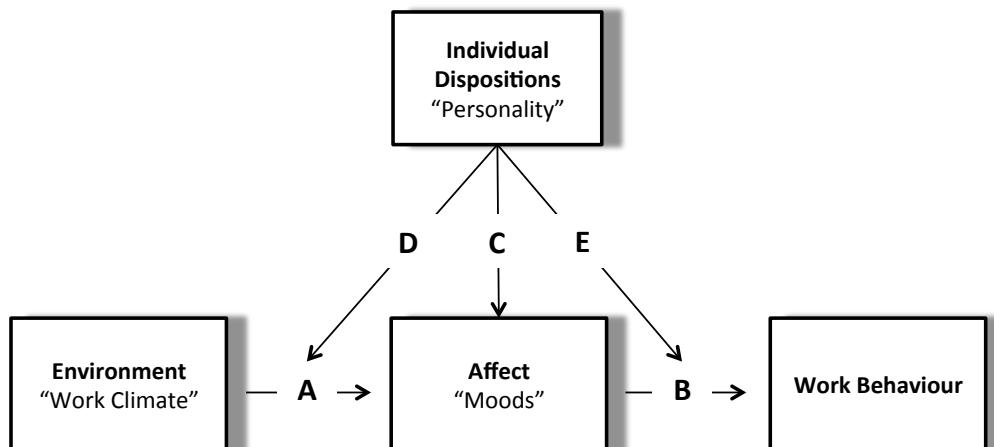
One way to describe work environments is in terms of their work climate (Ashforth, 1985; James & Jones, 1974; James et al., 2008; Kopelman, Brief, & Guzzo, 1990; Kuenzi & Schminke, 2009; Schneider & Reichers, 1983). This represents perceptions that employees have about relevant work conditions in their workplaces, such as role clarity, decision latitude, rewards and compensation, and opportunities to individual and professional growth (Carr, Schmidt, Ford, & DeShon, 2003; Jones & James, 1979; Ostroff, 1993; Parker et al., 2003). In turn, personal values, interests and dispositions are usually approached through assessment and

descriptions of personality traits, such as extroversion, neuroticism, conscientiousness, agreeableness and openness to experience (Costa & McCrae, 1992). The influences of these variables on affect and further behaviour have been widely theorised in organisational behaviour research (Ashkanasy & Humphrey, 2011; Ashkanasy, 2003; Forgas & George, 2001; Judge & Kammeyer-Mueller, 2008; Judge & Larsen, 2001; Warr, 2007; Weiss & Cropanzano, 1996). For example, Kopelman (1990) highlighted that climate factors influences work performance through affective experiences. Similarly, the Affective Events Theory (AET, Weiss & Cropanzano, 1996) proposed that affect as a core construct linking work context and behaviour. According to this, contextual features at work elicit affective reactions (i.e. emotions, moods) through the occurrence of specific events (positive or negative), such as goal achievement, involvement in decision making, arguments with colleagues or making mistakes at work (Basch & Fisher, 1998). In turn, elicited affect leads to work relevant cognition (e.g. attitudes) and behaviour (Weiss & Beal, 2005; Weiss & Cropanzano, 1996). In addition, AET suggests that personality traits can modify the effect strength of work environment on affect, such that, for example, extroversion can intensify the elicitation of positive moods rising from positive events at work. Similarly, Judge and Larsen (2001) suggested that personal dispositions might influence the strength of the relationship between environment and affective reactions, and between the latter and individual responses, such as incrementing the positive implications of positive moods for work behaviour.

An integration in a general model of the above argumentation is proposed and depicted in the Figure 4.4. In this macro-structure, cognitive representations of the work environment entailed in perceptions of climate are described as influences on work behaviour through the experience of moods (paths A and B). Furthermore, cognitive representations embedded in individual dispositions influences moods

(path C) and moderates influences of climate on moods (path D), and influences of moods on behaviour (Path E). The psychological processes comprised in the links between environment and moods, and between moods and behaviour (paths A, B and C), have been discussed in the previous sections of this Chapter. However, the psychological functions embedded in the interaction effect described for individual dispositions (path D and E) have not yet been argued.

Figure 4.4: Conceptual Model for the Relationship Between Work Environment, Individual Dispositions, Moods and Behaviour



Path D implies that the strength of the influences of work environment and moods depends on individual dispositions of employees performing in this environment. This relies in Cognitive Appraisal Theory (Lazarus & Folkman, 1984; Lazarus, 1994), which stresses that specific affective experiences depend not only on environmental conditions, but also in whether these environmental conditions are relevant for

individuals. For example, a work environment characterised by high autonomy would increase the likelihood of experiencing high-activated positive feelings (e.g. enthusiastic mood, Warr, 2007); however, this effect would be stronger for employees that value autonomous thinking and behaviour, while weaker for employees who prefer following prescriptions and routines. This interaction between context and individual goals is defined as *primary appraisal* (Lazarus & Folkman, 1984). Path E denotes that individual dispositions would also influence the relationship between moods on behaviour. This interaction effect may be explained as a process of *secondary appraisal*, such that individuals regulate their actions tendencies or actual behaviour according to the meeting between their individual interests and the information provided by the feelings experienced. Specifically, self-regulatory functions entailed in individual dispositions may influence the way that moods experienced relates to behaviour, amplifying or attenuating typical patterns of behaviours linked to specific moods (DeNeve & Cooper, 1998; McCrae & Costa, 1991). In the example of autonomous context, when people who value autonomy feel enthusiasm they would also interpret this feeling as a cue that opportunities for autonomous thinking and actions are already available, increasing the strength association between enthusiasm and autonomous behaviour.

Adopting the theoretical model proposed above offers greater opportunities for understanding the complexities described in the relationships among work context, individual characteristics, moods and innovative work behaviour. For example, previous research has indicated that work climate characterised by support for innovation may lead to innovative outcomes through encouraging and energising employees to work on innovative ideas (Amabile et al., 1996; Anderson & West, 1998; Axtell et al., 2000; Siegel & Kaemmerer, 1978; West & Anderson, 1996; West, 2002). Complementarily, alternative research streams have

supported that employees described as, ebullient and oriented to novelty (extroverted, open to experience) showed higher levels of creativity and innovation, because these individual characteristics lead to the experience of high affective activation (George & Zhou, 2001; Gough, 1979; Kirton, 1976; Rank & Frese, 2008). However, to the best of my knowledge, the affective underpinnings of these proposals have not been directly investigated in research, because the mediation of feelings has not been empirically tested. Furthermore, the extent to which contextual and individual variables interplay with each other in order to lead to affective processes in the innovative situation is fairly unknown. For example, dual tuning-models have shown leader support as participating in the affective processes involved in creativity at work (George & Zhou, 2007; To et al., 2011). However, in these models context is only considered as a moderator between affect and work-related outcomes, excluding the possibility that context also represents a direct antecedent of affect experienced while working. Therefore, further research dealing with these limitations will be helpful for a more comprehensive understanding of the role of context and individual dispositions, in the affective processes developed between moods and innovative work behaviour.

4.4 RESEARCH QUESTIONS OF THIS THESIS

Throughout the literature review presented in Chapter 3 and the theoretical presentation provided in this Chapter, I have argued that moods may have substantial implications for stimulating the generation of novel ideas whilst energising their promotion and realisation. However, research on this field still faces important challenges in order to gain a finer grained comprehension of *which* specific moods relate to generating, promoting and realising novel ideas, and *how* these moods unfold in the innovative situation. Therefore, three main areas of development are proposed for investigation in this thesis:

(i) Expanding research beyond creativity at work. As discussed in Chapter 2, innovative work behaviour represents a complex set of actions that entails not only creating, but also promoting and realising novel ideas at work (Janssen, 2000; Kanter, 1988). Current research faces the challenge of comprehensively describing potential differences in what and how specific antecedents, including moods, relate to the distinct dimensions of innovative work behaviour. This demands tackling the blurry distinction between creativity and innovation prevailing in empirical research.

Research Question 1: Is innovative work behaviour a multidimensional construct described by generating, promoting and realising novel ideas?

This question is addressed in Chapter 6, where the multidimensionality of innovative work behaviour is tested using advanced statistical procedures, such as confirmatory factor analysis and structural equation modelling (Brown, 2006; Byrne, 2012).

(ii) Improving research on moods and innovative work behaviour. Theory and research suggest that positive and negative moods in general are very relevant antecedents for creativity at work; nevertheless, which specific moods described by differences of valence and activation relate to generating, promoting and realising novel ideas has been scantily investigated in research.

Research Question 2: Which are the moods (high-activated positive, high-activated negative, low-activated negative, low-activated positive) mainly associated with generating, promoting and realising novel ideas?

This question is addressed in Chapter 7 through testing the extent to which the directive functions of moods apply to innovative work

behaviour, using cross-sectional and longitudinal research and multilevel modelling to capture the dynamics described by moods and behaviour over time (Beal & Weiss, 2003; Bolger, Davis, & Rafaeli, 2003; Ohly, Sonnentag, Niessen, & Zapf, 2010).

(iii) Defining and testing a comprehensive model where individual and contextual variables interplay in the processes between moods and innovative work behaviour. Several studies have theorised that work climate and personality factors leads to innovative work behaviour through eliciting feelings in employees. Nevertheless, description and empirical testing of complex models where distal variables, both at the individual and contextual level, interplay to foster moods and innovative work behaviour are not available yet in the literature.

Research Question 3: How do contextual and individual factors interplay in the associations between job-related moods and generating, promoting and realising ideas?

This question is addressed in Chapter 8. In this, performance of innovative work behaviour is described as part of a complex model where the work climate, personality traits and moods interact in order to lead to generation, promotion and realisation of novel ideas. This involves adopting a multilevel theory applied to organisations, where climate and personality are described as person level factors, while moods and behaviour are conceived as outcomes unfolding at the level of time (Kozlowski & Klein, 2000). Advanced data analysis, such as Multilevel Structural Equation Model (Preacher, Zyphur, & Zhang, 2010; Raudenbush & Bryk, 2002), will be used to test this.

The three areas of development proposed above are the cornerstones of this thesis, which explicitly assumes the affective

experience as a core construct for understanding innovative work behaviour performance. In Chapter 5 the methodology adopted in this thesis is described and discussed, while empirical studies conducted to address the specific research questions are presented in Chapters 6, 7 and 8 respectively (Figure 4.5).

Table 4.5: Summary of Studies Addressing the Research Questions of this Thesis

Research Question	Chapter 6	Chapter 7	Chapter 8
1: Multidimensionality of innovative work behaviour	Study 1 & 2		
2: Moods and innovative work behaviour		Study 3 & 4	
3: Work climate, personality, moods and innovative work behaviour			Study 5

CHAPTER 5: RESEARCH METHODOLOGY

5.1 INTRODUCTION

After stating the research questions of this thesis (Chapter 4), a central step is to describe which research approach is adopted to answer these questions. In this chapter philosophical assumptions and research methods underlying the empirical studies of this thesis are presented. Specifically, a general description and discussion are offered about the positivist scientific paradigm and quantitative methods adopted to examine how job-related moods, work climate and personality relate to innovative work behaviour. Finally, general characteristics of samples utilised in the studies of this thesis and consideration of ethical principles are also discussed.

5.2 RESEARCH APPROACH AND PHILOSOPHICAL ASSUMPTIONS

In social sciences, such as work and organisational psychology, two main paradigms have guided modern research, namely, *positivism* and *interpretivism* (Bryman & Bell, 2003). These paradigms have specific philosophical assumptions about the nature of the social world (ontology), and the class of knowledge that can be obtained from it (epistemology) (Johnson & Duberley, 2000). According to the *positivist ontology*, similar to the natural world, the social realm is given by objects that are external to individuals; as such, social reality would denote something objective that is in great extent independent to human beings. Linked to this, *positivist epistemology* stresses that knowledge about the social world derives from the measurement and quantification of their objects, and the examination of possible causal relationships between these objects (Gill & Johnson, 2002). Furthermore, knowledge is proposed as generalisable among individuals and situations representing general principles that describe

human behaviour. Thus, validity and reliability of observations made about the social world, causality patterns between these observations, and extrapolation of this knowledge to other similar people and situations are key requirements for research conducted from the positivist point of view (Bryman & Bell, 2003; Gill & Johnson, 2002). In turn, *interpretivist ontology* assumes that social world is not external or objective to individuals, because reality is subjectively and socially constructed (Johnson & Duberley, 2000). In other words, particular meanings given in a specific context would represent the social realm. As such, *interpretivist epistemology* assumes that knowledge derived from the social world is highly subjective, idiosyncratic and, therefore, not necessarily generalisable to other individuals that are not an integral part of the context where this knowledge was acquired. So, the main goal of interpretivist research is acquiring a deep understanding of personal meanings that make a strong sense for individuals investigated in a specific context (Bachiochi & Weiner, 2004).

Adopting and advocating a particular paradigm largely depends on conceptions of the research problem investigated (Bryman & Bell, 2003; Gill & Johnson, 2002; Swanson, 2005). Interpretivism is adopted by researchers that strongly believe in the idiosyncratic nature of knowledge, so causality and generalisation are not conceivable as part of a research problem. In other cases, researchers embrace a flexible interpretivist ontology but a rigorous interpretivist epistemological approach in order to explore social phenomena scantily examined, such as when little knowledge is still available about it (Gill & Johnson, 2002). In this case, relaxing concerns of strong causality and generalisation allow establishing basic rudiments of the problem investigated. In turn, a positivist approach is adopted when a research problem is strongly concerned with causality and generalisation of knowledge, and when there is considerable knowledge available about the topic investigated (Bryman & Bell, 2003). In this case,

previous knowledge linked to a research problem allows researchers to anticipate (hypothesise) possible patterns of relationships between the elements that comprise this research problem.

This thesis adopts a positivist approach. According to the argumentation provided in previous chapters, the main research problem addressed by this research initiative is determining *how moods, work climate and personality interact leading to innovative work behaviour?* This question involves the description of a basic psychological process where the complex relationships between affective and cognitive components of human psychology explain individual behaviour. As a result, both causality and generalisation assumptions of positivism are contained in this research problem. Causality is expressed in the prediction effects suggested between moods on innovative work behaviour, and in the prediction effects of climate and personality on moods. In turn, a generalisation assumption is underlying the description of the relationships between mood, climate, personality and behaviour as a *basic psychological process*. In other words, knowledge derived from this thesis is expected to apply to any individual working in any organisation, since the research scope here is on relationships between affective, cognitive and behavioural processes which are less affected by differences of the broader context (e.g. nationality, culture). Adoption of this approach is also justified considering that positivism represents the predominant paradigm in psychological and organisational behaviour research (Arnold et al., 2005; Johnson & Cassell, 2001; Symon & Cassell, 2006). Thus, embracing a positivist approach will allow this thesis to contribute to the body of knowledge already developed within these disciplines.

5.3 METHODS

Research methods refer to specific procedures and techniques that scholars utilise to obtain information for answering a research question, being concerned with the design of studies, data collection and data analysis (Austin, Scherbaum, & Mahlman, 2004). These practices are typically grouped around two major categories described as qualitative and quantitative research (Bryman & Bell, 2003). Qualitative methods entail analysing narrative records obtained through naturalistic observation or interviews with participants involved in a investigation (Bachiochi & Weiner, 2004; Locke & Golden-Biddle, 2004). In turn, quantitative methods refers to procedures and tools for measuring, quantifying and analysing information, such as mathematical modelling of data gathered through experimental manipulation or field surveys (Bryman & Bell, 2003; Gill & Johnson, 2002). Embracing a research method is typically linked to the adoption of a specific research paradigm (Burrell & Morgan, 1979). As such, qualitative research is primarily linked to an interpretivist approach, where naturalistic observation and direct interviewing are highly beneficial for capturing deep meanings of social phenomena given in a particular situation (Bachiochi & Weiner, 2004). In contrast, quantitative research is mainly associated with a positivist research approach (Bryman & Bell, 2003). In the latter case, use of experimental manipulation within laboratory settings offers accurate information to satisfy causality assumptions. In turn, survey research provides information about the relationships between variables based on theoretical assumptions of causality, being focused on testing the generalisation of knowledge examined into the whole population from which participants of a study sample belong.

In this thesis, a series of quantitative research methods are adopted since the nature of the research question and the corresponding adoption

of a positivist research approach. In the following sections, a brief critical review of methods typically used in research on affect and innovative work behaviour is provided, and then the specific methods adopted in this thesis, which addressed limitations of previous research, are described.

5.3.1 *Methods Utilised in Past Research on Affect and Innovative Work Behaviour*

Research on innovative work behaviour has been largely based on a quantitative approach, and survey studies represent the standard method adopted for examining the antecedents and consequences of working in novel ideas. As discussed in Chapter 2, innovative work behaviour has been theorised as a multidimensional construct described by idea generation, idea promotion and idea realisation; however, empirical research has been widely affected by the lack of measures that validly and reliably distinguish among these behavioural dimensions. As a result, most of the studies in this topic have concentrated on idea generation (creativity at work), or broad measures of innovative behaviour comprising in a single factor elements of idea generation, idea promotion and idea realisation. This highlights that developing improved measures to deal with multidimensionality is still a major methodological challenge in the literature on innovation, in order to have a comprehensive understanding about innovative work behaviour complexities and how specific antecedents, such as affect, might predict its different dimensions.

Regarding affect, over the last decade a weight of studies has been oriented to understand how emotions and moods are associated with relevant cognition and behaviour at work (Barsade et al., 2003; Brief & Weiss, 2002; Totterdell & Niven, 2012), and a quantitative approach based on field surveys represents the predominant method used by researchers in this field. Development of methods to deal with the transitory nature of

emotions and moods over time (e.g. longitudinal and diary design, multilevel modelling) is a remarkable advance resulting from this intensive research activity (Beal & Weiss, 2003; Fisher & To, 2012; Ohly et al., 2010). As such, research on affect in relation to, for example, job satisfaction, organisational citizenship behaviour and proactivity has been substantively benefited by diary and longitudinal methods (e.g. Ilies & Judge, 2002; Miner & Glomb, 2010; Sonnentag, 2003; Sonnentag, Binnewies, & Mojza, 2008). Nevertheless, studies on affect and innovative work behaviour have not adopted this practice yet. Specifically, there has been a bulk of experimental and cross-sectional studies in terms of idea generation (Baas et al., 2008; George & Zhou, 2007; Madjar et al., 2002), with only a couple of recent diary studies addressing the link between moods and creativity as the exception (Amabile et al., 2005; Binnewies & Woernlein, 2011; To et al., 2012). Moreover, studies on affect in relation to idea promotion and idea realisation are very scant (Choi, Sung, Lee, & Cho, 2011).

Cross-sectional survey studies are strong in terms of generalising results observed to other members of the population where participants of the sample examined belong (high external validity), but these type of studies are very weak for assuming causal relationships between constructs investigated (low internal validity) (Bryman & Bell, 2003). Furthermore, cross-sectional designs are very limited to describe in a reliable way the relationships established between highly dynamic constructs over time, such as moods and behaviour (low ecological validity) (Watson, 2000; Weiss & Beal, 2005). With regards to experimental studies, they are very strong for dealing with causality issues (high internal validity) but limited in terms of determining the extent to which results observed can be generalised to contexts different from laboratory settings (low external validity). Furthermore, laboratory studies on affect and creativity have been mostly conducted with undergraduate university students, which also denote problems of generalisation of results to employees

performing in organisations. Therefore, the above limitations highlight that improved methods are still needed to have a more comprehensive and convincing picture about how moods and innovative work behaviour relate.

5.3.2 *Methods Adopted in this Thesis*

Diverse quantitative methods were adopted in order to address the research questions of this thesis, and improving methodological limitations of previous research.

Firstly, a survey study using subject-matter experts in organisational behaviour was conducted to evaluating the content validity of typical measures of innovative work behaviour used in previous research (Study 1, Chapter 6). Assessment provided by these judges was codified and analysed using inter-rater agreement indices (Landis & Koch, 1977) and descriptive statistics, and results were used to build a pool of measures that clearly distinguish among idea generation, idea promotion and idea realisation.

Secondly, a cross-sectional survey was conducted to validate measures of innovative work behaviour (developed according to the subject-matter assessment described above) and job-related moods (Study 2, Chapter 6), in a large sample of employees working in diverse occupations and organisations ($N > 400$). This step was relevant in order to have valid and reliable instruments to be used in the subsequent studies of this thesis (Briner & Kiefer, 2009). Confirmatory factor analysis was used to examine the validity of innovative work behaviour measures (Brown, 2006; Kline, 2011). In turn, the validity of moods measures was tested through confirmatory factor analysis and circular stochastic modelling (Browne, 1992; Fabrigar, Visser, & Browne, 1997; Maccallum & Browne, 1993). The

latter was useful to determine whether the measures of moods tested follow the principles defined by the circumplex model of affect (Russell, 1980), which has been explicitly adopted in this thesis (see Chapter 4). Typical limitations of cross-sectional designs were not a major threat in this study, since the main goal of this study was the validation of instruments of moods and behaviour, but not testing the relationships between these constructs.

Thirdly, a cross-sectional study (Study 3, Chapter 7) and a diary study (Study 4, Chapter 7) were conducted to examine the relationships between moods and innovative work behaviour. This strategy was used to determine how results of cross-sectional and longitudinal research on affect could differ leading to inappropriate conclusions. In the cross-sectional study, moods and innovative work behaviour were measured simultaneously in a single point of time. So, the causal effect of job-related moods was theoretically assumed and empirically tested using structural equation modelling with latent variables. The latter represents a strong multivariate analytical strategy, where the common variance of moods and innovative work behaviour measures respectively is modelled (structural measurement model), while relationships between these latent variables are examined through structural regression analysis (Byrne, 2012; Kline, 2011). Advantages of latent variable structural equation modelling are denoted by control for measurement error issues, determination of the extent to which data collected supports the theoretical relationships hypothesised using indices of goodness-of-fit, and obtaining information about sources of possible misspecification of models tested (i.e. modification indices) (Brown, 2006; Byrne, 2012; Kline, 2011). However, lack of accounting for time dynamics of moods and behaviour, and a weak inference of a causality pattern between these variables are the main limitations of a cross-sectional approach.

In turn, the diary study implemented represents an intensive longitudinal method (Bolger & Laurenceau, 2013; Walls & Schafer, 2006), where repeated measures of moods and innovative work behaviour were collected on a weekly basis over a period of three months (ten weeks in total). This strategy allowed accounting for the dynamic nature of affect and behaviour (Beal & Weiss, 2003; Bolger et al., 2003; Fisher & To, 2012; Ohly et al., 2010). Causal effects of moods on behaviour were also theoretically inferred in this study, because despite these variables being repeatedly assessed over time; they were measured simultaneously every week. However, the theoretical assumption of causality is more strongly supported using this method than cross-sectional data. According to Bolger and Laurenceau (2013), intensive longitudinal methods, such as diary studies, are essential for determining causal processes occurring in real settings (outside laboratories), even when this does not excel in dealing with causality like laboratory experiments. Firstly, through multilevel modelling (Hox, 2010; Kozlowski & Klein, 2000), diary studies allow partitioning relevant outcomes and predictors in terms of between-subjects and within-subjects variance. The former refers to general differences of a variable when this is compared between participants of a study, while the latter refers to differences of the same variable by each participant over time. In terms of interpretation, for example, the prediction of a specific mood on innovative work behaviour at between-subjects level denotes that those who tend to experience a mood state also tend to report a certain degree of innovative work behaviour. In turn, the same prediction at within-subjects level denotes that occasions when an individual experience a specific mood are also occasions when he/she show a certain degree of innovative work behaviour. Thus, within-subjects level of analysis provides valuable information about the putative causal relationship between two variables (Bolger et al., 2003), particularly when there is previous experimental evidence supporting this causal process (as in the case of moods and creativity (Baas et al., 2008)).

Furthermore, Bolger and Laurenceau (2013) highlights that opportunities for accounting for time effects also strengthen a causality inference when using diary research. In many cases, variability of an outcome over time (e.g. innovative work behaviour) is explained by the passage of time itself, or other variables correlated with the passage of time. For example, improving skills and knowledge over the period of data collection in relation to the outcome of interest might blur the causal effect investigated between an independent and dependent variable. Diary studies can account for confounding effects of time through using a time index as a covariate in models estimated, strengthening the assumption of a putative causality investigated between two constructs characterised by a high fluctuation over time (e.g. moods and work behaviour). Also, accounting for serial autocorrelation over time of a dependent variable investigated also improve the assumption of a causality process when using a diary study. When effects of lagged measures of an outcome are taking in account, confounding issues associated with carryover effects that might haze causal process are controlled (Singer & Willett, 2003).

Fourthly, a final diary study was conducted to test the interplay between work context, individual dispositions, moods and behaviour (Study 5, Chapter 8). Using the same dataset utilised in analysing the relationships between moods and innovative work behaviour (Chapter 7), a comprehensive model where work climate and personality factors interplay in the processes between moods and innovative work behaviour was tested using multilevel structural equation modelling (Preacher et al., 2010). This design and analytical approach allow defining and testing multivariate relationships between variables varying within-subjects (moods and behaviour) and variables varying between between-subjects (climate, personality).

5.4 SAMPLES

All samples utilised in studies of this thesis were comprised by individuals working as part of professional staff in diverse Chilean organisations. Professionals were targeted since they have more opportunities to contribute based on novel ideas than shop floor employees. Specifically, members of a professional staff are highly qualified individuals in a specific subject (e.g. engineering, health, administration) working in a work environment with a moderate to high uncertainty (less task standardisation). As such, innovative work behaviour of these employees represents a valuable resource for organisations in order to improve their processes, procedures, products and services (Janssen et al., 2004; West & Farr, 1990). Data was collected in Chile following a criterion of accessibility. As a former researcher, lecturer and consultant working in Chile, I have a strong network linked to Chilean universities and organisations. Thus, data was collected using two strategies. For cross-sectional studies, individuals of diverse Chilean organisations were recruited by email using a snowballing strategy. These individuals participated in the study answering an Internet-based questionnaire measuring moods and behaviour at work. For diary studies, participants were employees of diverse Chilean organisations who attended a part-time MBA programme offered by one of the major universities in Chile. Over three months, they answered weekly paper-based questionnaires during their regular activities at the university about their moods and behaviour at work.

Beyond the practical criterion to collect data in Chile, conducting studies with Chilean samples is highly valuable for the social and economical situation of this country. Over the last decades, Chile has been growing as a strong economy in the Latin American region; nevertheless, most of the economical matrix of Chile relies upon extraction and

exportation of raw resources. So, there is an increasing agreement among social agents in Chile that a culture of innovation is needed, because the simple exploitation of raw resources is not sustainable over time (CNIC, 2010). This denotes, for example, improving systems of organisational management that encourages generation and adoption of novel ideas at different levels, namely, government, industries, organisations, work teams and employees. In fact, this is one of the core objectives of the National Commission for Scientific and Technological Research of Chile (CONICYT, 2013), which is the organisation that granted and sponsored the doctoral studies in the United Kingdom documented in this thesis.

5.5 ETHICAL CONSIDERATIONS

Studies presented in this thesis strictly follow the Code of Ethics and Conduct stated by the British Psychological Society (BPS, 2009), which is expressed in the principles of respect, competence, responsibility and integrity when conducting psychological research. Design, methodology and procedures of all studies conducted were submitted and approved before their implementation by the ethics committee of the Institute of Work Psychology, University of Sheffield, in order to guarantee their adoption of the BPS ethics code.

In terms of the *respect principle*, participants comprising the samples of this thesis were asked about their informed consent after being communicated the goals and procedures involved of the respective study. Also, participants were informed about the strict privacy and confidentiality used in data management, emphasising that information collected was used only for scientific purposes. Furthermore, individuals were informed about their right to withdraw their participation at any time without given any explanation. Regarding the *principle of competence*, all processes of decision making involved in this research project were

conducted with the two supervisors of this thesis. Also, advice was asked of other relevant academics (professors, research fellows, statisticians at Sheffield and other Universities) in the case of issues that were not part of my current competence or the supervisors of this thesis. In terms of the *responsibility principle*, participants were advised to consult professional support if, after participating in the study, they were concerned about some personal issues (e.g. health, well-being). Furthermore, all argumentation and empirical evidence of this thesis have been presented and communicated with an emphasis on improving quality of work life in particular, and societal benefits in general. With regards to the *principle of integrity*, practice entailed in the research activities of this thesis has been based on strict honesty, accuracy and fairness with all individuals involved (e.g. participants, research supervisors, colleagues). Finally, this research project is not affected by any conflict of interest.

5.6 SUMMARY

In this chapter, issues on philosophical assumptions and research methods adopted in this thesis have been described and discussed. Empirical research conducted to answer the research questions of this project is rooted in a positivist scientific paradigm, which is concerned with objectivity, causality issues and generalisation of knowledge developed. Consistent with this, a series of studies based on quantitative methods were designed to improve limitations of previous research on affect and innovative behaviour. These studies were conducted in Chile for the sake of data accessibility and because knowledge on innovation processes are particularly relevant for this country, given the current challenges for the Chilean economy. Moreover, all research activities in this thesis strictly followed the Code of Ethics and Conduct stated by the British Psychological Society, which highlights the principles of respect, competence, responsibility and integrity of psychological research practice.

In the next three chapters, the specific studies conducted to answer the three research questions of this thesis are displayed. Chapter 6 presents the validation of a multidimensional measure of innovative work behaviour, and the validation of moods scales in Spanish (native language in Chilean population) useful to conduct the subsequent studies. In Chapter 7 the relationships between job-related moods and the dimensions of innovative work behaviour (idea generation, idea realisation, idea implementation) are examined. Chapter 8 describes and tests a multivariate model where work climate, personality and job-related moods interplay in order to lead to innovative work behaviour. Finally, in Chapter 9 an integration and general discussion of the theoretical and empirical issues developed through this thesis is offered.

CHAPTER 6: VALIDATION OF THEORETICAL AND MEASUREMENT MODELS OF INNOVATIVE WORK BEHAVIOUR AND JOB-RELATED MOODS

6.1 INTRODUCTION

In this chapter, the first research question of this thesis is addressed, namely: *Is innovative work behaviour a multidimensional construct described by idea generation, idea promotion and idea realisation?* Based on the theoretical discussion provided in Chapter 2, the three-dimensional model of innovative work behaviour is held to be a theoretical framework to approach the way that individuals develop novel ideas at work. This was tested through two empirical studies which indicated however, that instead of three, four dimensions best represent the construct of innovative work behaviour, namely, idea generation, idea suggestion, coalition building and idea realisation. Moreover, in this chapter the validation of job-related measures necessary to conduct the subsequent studies of this thesis was tested. Drawing on the circumplex model of affect (Russell, 1980) and previous work on measuring affect at work conducted by Warr (1990), four scales in Spanish were developed to measure job-related moods, which were satisfactorily validated as part of Study 2 presented.

6.2 THEORETICAL AND MEASUREMENT MODEL OF INNOVATIVE WORK BEHAVIOUR

As detailed in Chapter 2, innovative work behaviour has been developed as a theoretically sound construct; however, its empirical validation still remains incomplete. This situation has been argued as resulting from imprecise or fragmented alternative conceptualisations, and poor operationalisation of this construct (Chapter 2). Firstly, diverse labels

have been proposed to describe the actions of working on new ideas. For example, thinking of novel ideas has been described as creativity, production of ideas or generativity (Amabile, 1988; Kleysen & Street, 2001). Similarly, voicing and asking for support for novel ideas has been labelled as coalition building, sponsor seeking and championing (Kanter, 1988; Kleysen & Street, 2001; Scott & Bruce, 1994). Finally, idea production, application and realisation have been tags used to denote the implementation of novel ideas (Dorenbosch, Engen & Verhagen, 2005; Janssen, 2000; Kleysen & Street, 2001; Mumford, Scott, Gaddis, & Strange, 2002; Scott & Bruce, 1994). In some cases, definitions underlying these labels have a high degree of correspondence; however, in other cases definitions are loosely equivalent offering room for issues of construct contamination. Innovative work behaviour, furthermore, has been confounded with creativity at work, organisational citizenship behaviour or proactivity (Chiaburu et al., 2011; George, 2007; Parker & Collins, 2010), deviating the attention of scholars from the distinguishable characteristics of individual innovation.

Secondly, adoption of the innovative work behaviour approach has been affected by imperfect construct operationalisation. Some studies theoretically acknowledged the multidimensionality of innovative work behaviour; but they relied on single-factor measures neglecting differences between idea generation, idea promotion and idea realisation (Janssen, 2000, 2001, 2004, 2005; Scott & Bruce, 1994). This practice has been based on high zero-order correlations observed between the dimensions of innovative work behaviour, measured with supervisor ratings and based on general or extended frames of time. However, these kind of ratings are prone to high correlations that mask the multidimensionality of behavioural constructs (halo effect), and zero-order correlation is a very limited statistical test to deal with these issues (Griffin et al., 2007; Lance et al., 1994; Woehr, 1994). Other studies have only investigated generating,

promoting, or realising novel ideas, generalising their findings to innovative work behaviour as a whole (e.g. Bunce & West, 1995; Lipponen, Bardi, & Haapamaki, 2008; Pieterse, van Knippenberg, Schippers, & Stam, 2010; Rank, Nelson, Allen, & Xu, 2009), and research that examines independently all these dimensions in a single study is very scant (De Jong & Den Hartog, 2010; Holman et al., 2011). Furthermore, studies on idea generation (creativity at work) seem to be based on measures not only referring to thinking of new ideas, but also denoting idea suggestion and implementation, and even other behaviours which are not part of the theoretical definitions of these models (e.g. planning, problem solving, risk taking) (Tierney et al., 1999; Zhou & George, 2001).

The above suggests that misspecification between theoretical and measurement models is still a critical issue in the lack of construct validity of innovative work behaviour. This denotes that operationalisation and measurement models used in applied research for a specific construct do not accurately represent theoretical prescriptions for it (MacKenzie et al., 2005). Serious pitfalls arise when misspecification is present, because assuming validity of a construct before obtaining empirically support may lead to knowledge that must be discarded later (Schwab, 1980). In other words, when misspecification happens, there is not a guarantee that a theoretically grounded model is representative of the phenomena studied, or that findings observed in applied research are representative of the theoretical model examined. Furthermore, when testing the relationship between poorly specified constructs and other correlates (e.g. antecedents or consequences), risks of Type I error (incorrect rejection of a true null hypothesis) and Type II error (incorrect acceptance of a false null hypothesis) increase substantially, dampening the validity of inferences deducted from applied research (Law & Wong, 1999). Using Monte Carlo simulation, MacKenzie et al. (2005) observed that measurement model misspecification could deflate relationships between constructs by as much

80%, or inflate them as much 400%. So, if issues on innovative work behaviour misspecification are not addressed, there is a high risk of inferring biased relationships between, for example, job-related moods and idea generation, idea promotion and idea realisation respectively.

Validation of theoretical and measurement models, such as innovative work behaviour, requires distinguishing between *formative* and *reflective* models (MacKenzie et al., 2005). Formative models refer to a conceptual system that account for a theoretical construct through a series of indicators related to some extent, but these indicators are not assumed as equal. Studies where innovative work behaviour was operationalised as single-factor measures are representative of formative modelling. These measures represent composite indices where indicators of a construct's dimensions are collapsed assuming their communalities, but ignoring their unique characteristics. On the other hand, reflective models are abstraction systems in which an underlying construct is reflected in indicators that are related (sharing common characteristics), but they also denote unique contribution to describe characteristics of the construct studied. For example, idea generation, idea promotion and idea realisation may describe a reflective model of innovative work behaviour, as related dimensions with some degree of unique contribution to explain innovative work behaviour, which should not be collapsed into a single-factor measure in order keep their distinctive nature and contribution.

Modelling a construct as formative or reflective, requires to addressing three main questions (MacKenzie et al., 2005). Firstly, dimensions of a model should be distinguished as "defining characteristics" or "manifestations" of the construct of interest. The former implies that dimensions in the model collectively explain the meaning of the construct in which case a formative approach is recommended. On the other hand, dimensions considered as manifestations are related but are distinct

expressions of the examined construct, so reflective models are needed. Secondly, whether dimensions make a unique contribution to understanding the construct examined should be considered. Formative models might be used when the unique contribution is low; however, if dimensions denote a high degree of uniqueness, reflective models should be adopted. Finally, whether a model's dimensions have the same antecedents and consequences need to be considered. If different correlates are possible for different dimensions of a construct, they should not be modelled as formative because unique relationships would be lost, so reflective modelling is required. Conversely, formative models can be adopted only when no differences are expected among dimensions of a construct in relation to the same antecedents/consequences.

Drawing on the above criteria, innovative work behaviour would be better portrayed as a dimensional reflective model. Firstly, idea generation, idea promotion and idea realisation are manifestations, rather than defining characteristics of innovative work behaviour. Theory has emphasised that individuals characterised as innovative *show* behaviours of generating, promoting and realising novel ideas (Kanter, 1988), but not that innovative work behaviour is a *consequence* of individuals' performance of idea generation, idea promotion and idea realisation. Secondly, it is true that idea generation, idea promotion and idea realisation are overlapping dimensions; however, they have a high degree of uniqueness. For example, as discussed in Chapter 2, these dimensions substantively differ in social meaning, because while generating ideas is a highly intrapersonal process where individuals often face their tasks alone, promoting and realising novel ideas is highly dependent on collaboration with other people at work (Axtell et al., 2000; Rank & Frese, 2008). Furthermore, promoting and implementing ideas differ, because while the first represents novel proposals that may or not be carried out, the second necessarily demands actual adoption of changes based on something new.

Thirdly, dimensions of innovative work behaviour may have different antecedents or consequences because of their uniqueness. For example, previous research has shown that idea suggestion is more strongly associated with individual antecedents (e.g. skills, abilities, self-efficacy), whereas idea realisation is mostly linked to contextual/interpersonal factors (e.g. work climate) (Axtell et al., 2000, 2006). In terms of consequences, idea generation would provoke less conflict or resistance to change, because it does not necessarily imply voicing new ideas. On the other hand, as previous research has demonstrated (Janssen et al., 2004; Janssen, 2003), promoting and realising novel ideas may involve dissatisfaction, resistance to change and conflict.

Taken the above points together, the construct of innovative work behaviour is proposed as better represented by a reflective three-factor model of idea generation, idea promotion and idea realisation, which should be operationalised in a three-factor measurement model rather than a two-factor model contrasting creativity and innovation, or a formative single-factor measurement model denoting general innovative work behaviour (e.g. Janssen, 2000; Scott & Bruce, 1994; Yuan & Woodman, 2010).

Hypothesis 1: A three-dimensional model comprised by idea generation, idea promotion and idea realisation will best represent the construct of innovative work behaviour.

6.3 MEASURING JOB-RELATED MOODS

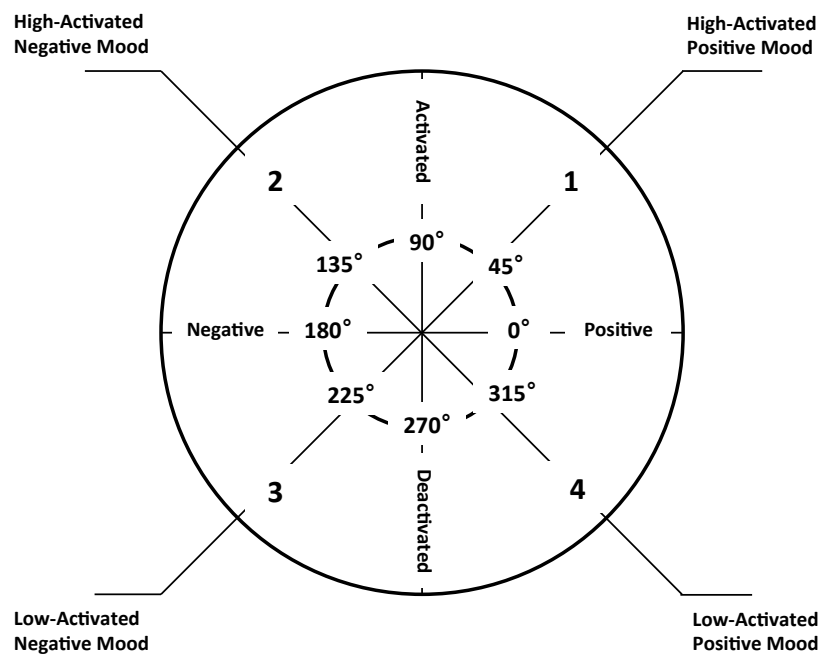
In this thesis the circumplex model of affect (Russell, 1980) has been explicitly adopted as a descriptive system to approach job-related moods (see Chapter 4). This requires the use of precise instruments to measure combination of valence and activation that denotes meaningful

moods in the workplace (Briner & Kiefer, 2009; Ekkekakis, 2013; Warr, 2013). In this section, a Spanish form of the job-related moods developed by Warr and Parker (2010), comprised of four separate scales, proposed and validated according to the circumplex model foundations. This validation represents a crucial step for methodological accuracy in the subsequent empirical studies of this thesis, and further research on affect at work in Spanish-speaking populations.

According to the circumplex model of affect, affective experiences denote linear combination of two bipolar and orthogonal basic dimensions, namely, valence and activation (Russell, 2003; Warr, 2007). Valence refers to the extent to which feelings are experienced as positive or negative in hedonic tone. In this case, bipolarity is given by the theoretical negative correlation of -1.00 expected between positive and negative valence (180° of separation in the circumplex, see Figure 6.1), because in a same frame of time it would not be possible to experience pleasure and displeasure. In turn, activation denotes the state of readiness provided by feelings, being expressed on psychological activation or deactivation. Bipolarity in this dimension is given by the assumption that an individual cannot feel activated or deactivated at the same point in time, so correlation between high activation and low activation is theoretically defined as -1.00 (180° of separation in the circumplex). Finally, the orthogonal association between valence and activation described by the circumplex model implies that these dimensions are theoretically uncorrelated, denoting two independent attributes of affect (45° of separation in the circumplex). When different degrees of valence and activation are combined in a given frame of time, moods with a specific hedonic tone and energy expenditure are described (Yik et al., 2011), namely, high-activated positive moods, high-activated negative moods, low-activated negative moods and low-activated positive moods (see Figure 6.1, Bindl, Parker, Totterdell, & Hagger-Johnson, 2012). In terms of measurement, therefore, the

circumplex approach requires precise instruments in order to capture the affective blends described by two psychological dimensions (valence and activation) interrelated in a complex fashion (Ekkekakis, 2013).

Figure 6.1: Comparison Between PANAS and Warr's Scales



Watson, Clark and Tellegen (PANAS, 1988): Two unipolar scales, clusters 1 and 2.

Warr (1990): Two bipolar scales, clusters 1–3 and 2–4.

Warr and Parker (2010): Four unipolar scales, clusters 1, 2, 3 and 4.

Typically in organisational behaviour research, job-related moods have been measured using the two scales offered by the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988), which is part of the positive and negative model of affect (Watson & Tellegen, 1985; Watson et al., 1999). As discussed in Chapter 4, this theoretical model is problematic, because it only accounts for feelings high in

activation, either positive or negative (Cropanzano et al., 2003; Ekkekakis, 2013; Warr, 2007). Consistent with this, the two scales entailed in PANAS represent unipolar measures that only provide information of the top quadrants in the circumplex model. For example, the top end of the Positive Activation scale (also labelled Positive Affect) denotes positive feelings high in activation, but the bottom end denotes “lack of” the same feelings (centre of the circumplex). Scores from the scale of Negative Activation (Negative Affect) should be correspondingly interpreted; thus, PANAS can only depict a partial view of the affective experience.

In order to deal with the above, Warr (1990) developed a set of bipolar measures to account for the whole circumplex model of affect in work settings. One scale, labelled as enthusiasm–depression, offers measures of high-activated positive affect and low-activated negative affect, which represents a diagonal described by opposite quadrants in the circumplex. Specifically, this scale comprises the markers of enthusiastic, cheerful and optimistic, and reverse-scores of depressed, gloomy and miserable. A second scale labelled as anxiety–contentment provides information about high-activated negative affect and low-activated positive affect, which are also opposite quadrants that describe a second diagonal in the circumplex. Markers of this scale are tense, worried and uneasy, and reverse-scores of calm, relaxed and contented.

Theoretically, the set of measures developed by Warr (1990) provide an improved approach to measuring job-related moods in comparison with the PANAS scales; however, empirical support for Warr’s scales, based on strong measurement models, has been limited over time. Specifically, results of confirmatory factor analysis for the scales of enthusiasm–depression and anxiety–contentment showed weak goodness-of-fit (Makikangas, Feldt, & Kinnunen, 2007). This issue has been explained as a consequence of statistical artefacts resulting from acquiescent bias

when measuring moods (Barrett & Russell, 1998; Green, Salovey, & Truax, 1999; Russell & Carroll, 1999a; Watson, 2000). Acquiescent bias refers to tendencies of individuals to respond in the same range of options in a psychometrical scale, disregarding the valence of items responded. For example, in a set of measures given by enthusiasm, cheerful, depressed and gloomy, people may tend to respond very similar about the extent to which they experienced these feelings (e.g. all responses around “several times”), even when some of these measures denotes different affective valence. This bias attenuates positive and negative correlations between affective measures provoking, for example, problems of misspecification in bipolar measurement models.

Statistical methods have been developed in the literature to tackle acquiescence bias (Billiet & MacClendon, 2000); however, the high complexity of these solutions, which demands a series of strong statistical assumptions and very sophisticated data analysis techniques, makes their adoption less practical. An alternative approach to deal with acquiescence bias is not using bipolar scales, but measuring moods with separate unipolar scales that cover the whole circumplex (Barrett & Russell, 1998; Yik et al., 2011). Makikangas, Feldt and Kinnunen (2007) provided evidence supporting that Warr’s model is better represented by four separated scales: enthusiasm, anxiety, depression, and contentment. Adopting a similar approach, Warr and Parker (2010) developed a new set of measures, labelled as the Multi-Affect Indicator, consisting of four scales to measure independently high-activated positive affect (HAPA), high-activated negative affect (HANA), low-activated negative affect (LANA), and low-activated positive affect (LAPA). Consistent with the proposals of the circumplex model about bipolarity of affect, HAPA and LANA are defined as strongly and negatively correlated as are while HANA and LAPA. Furthermore, assuming orthogonal associations between adjacent areas of

the circumplex, correlations between scales representing contiguous clusters of the circumplex are expected to be very low.

The multi-affect indicator has been steadily adopted in work and organizational research; yet, its use has been mainly limited to English-speaking populations (Bindl, Parker, Totterdell, & Hagger-Johnson, 2012; Warr, Bindl, Parker & Inceoglu, 2013). Thus, in order to have the benefits of this instrument for the current thesis, the translation of the multi-affect indicator into Spanish and its factorial validity in a Spanish-speaking sample was required, since subsequent studies of this thesis were planned to be conducted in Chile. The same as the English form, four factors would comprise the measurement model based on the Spanish form of the multi-affect indicator: high-activated positive affect (HAPA), high-activated negative affect (HANA), low-activated negative affect (LANA), and low-activated positive affect (LAPA).

Hypothesis 2: A measurement model based on the Spanish form of the multi-affect indicator will be represented by a four-factor solution denoting high-activated positive affect, high-activated negative affect, low-activated negative affect, and low-activated positive affect.

6.4 METHOD

Based on the procedure for measures development proposed by Schwab (1980) and Hinkin (1995), two studies were designed in order to test the validity of the theoretical and measurement models of innovative work behaviour, and the factorial validity of the multi-affect indicator as a measurement instrument. Study 1 consisted of a review of the scales typically used in research on innovative work behaviour, with the aim to select the most accurate measures for this behavioural construct. Then, Study 2 was implemented to test the measurement model based on the

instrument selected in Study 1, and to examine whether this model represents the construct of innovative work behaviour theoretically proposed. In this survey study, furthermore, the measurement model and psychometric properties of the multi-affect indicator were assessed.

6.4.1 Study 1: Review of Instruments to Measure Innovative Work Behaviour

Procedure

In order to select a comprehensive pool of measures of innovative work behaviour, a five-stage review of the typical instruments used to measure this construct was performed (Hinkin, 1995; Schwab, 1980). Firstly, a comprehensive literature review was conducted to build up an initial pool of measures of innovative work behaviour and evaluate their content validity, in the major journals on organizational behaviour and work and organizational psychology, such as *Journal of Applied Psychology*, *Journal of Organizational Behavior*, *Journal of Occupational and Organizational Psychology*, *Personnel Psychology* and *Academy of Management Journal*. Secondly, items of the instruments identified in the literature were submitted to examination by two independent English-Speaking subject-matter experts (university researchers) in organisational behaviour. Examination consisted of a deductive strategy of content validation (Hinkin, 1995), classifying the items of the scales in one of the three dimensions theoretically proposed (i.e. idea generation, idea promotion and idea realisation, see Chapter 2). The accuracy of this classification was tested through analysis of inter-rater agreement (Kappa Coefficient; Landis & Koch, 1977). Thirdly, the general content validity of the scales was evaluated based on whether their items denote or not the construct originally described for the respective scale. For example, a scale of creativity was considered valid in terms of content if subject-matter

experts classified most of their items as part of the idea generation dimension. Fourthly, a final pool of items representative of the generation, promotion and realisation of ideas was selected based on the scales assessed as valid in content.

The fifth stage of this study was translating selected items into Spanish, because subsequent empirical studies in this thesis were to be carried out in Chile. Determining whether the Spanish version of these items represents the dimensions of the proposed model of innovative work behaviour was also addressed in this stage. Following the procedure described by Brislin (1970), the English form of the items were translated into Spanish and then translated back into English by two independent translators. In cases of back translation disagreement, both translators decided together the most precise Spanish version of the problematic items. Finally, the same procedure used with the English form of innovative work behaviour measures was utilised to assess the content validity of the translated items in relation to the theoretical model of innovative work behaviour. In this case, two Spanish-Speaking subject-matter experts in organisational behaviour (university researchers) reviewed and classified the Spanish form of innovative work behaviour scales. Reliability of item classification was determined through inter-rater agreement (Kappa Coefficient).

Results

As a result of the literature review, fifty-seven empirical studies were identified, published between 1994 and 2011, comprising at least one dimension of innovative work behaviour according to the definitions adopted for idea generation, idea promotion and idea realisation. Four instruments were found as typically utilised in empirical studies labelled as “innovation research”, namely, the scale of work creativity (28%) (Zhou &

George, 2001), the scale of creativity at work (9%) (Tierney et al., 1999), the scale of individual innovation (14%) (Scott & Bruce, 1994), and the scale of innovative work behaviour (9%) (Janssen, 2000). Furthermore, 40% of studies utilised ad-hoc measures. Taken together, these four instruments comprise thirty-seven items (see Appendix), which were submitted to a subject matter experts review. Furthermore, the nine-item scale of innovative behaviour recently developed by Holman et al. (2011) was included in this review, with the aim to increase the initial number of items to test content validity of measures (Churchill, 1979; Hinkin, 1995). Thus, a total of forty-six items were assessed.

Inter-rater agreement analysis indicates a high degree of correspondence in the classification of items offered by the English-speaking subject matter experts (Kappa = .77, $p < .00$, 95% CI [.63 – .91]), supporting the reliability of the assessment conducted (Landis & Koch, 1977). According to the item review, even when Tierney, Farmer, and Green define their scale as a measure of creativity, most of its items would not represent this construct (8 of 10 items, 80% of misalignment). For example, elements of risk taking, problem solving, and role modelling are present in items of this instrument. A similar situation affects the scale of creativity developed by Zhou and George, because only three of thirteen items fitted with the theoretical construct proposed for this scale (idea generation) (77% of misalignment). Many items of this instrument refer to planning, risk taking and idea promotion. In addition, the scale of innovative behaviour of Scott and Bruce also showed poor fit with its theoretically proposed construct, because a number of items refers to planning and general perceptions of innovativeness (only 2 over 6 items matched, 33% of misalignment). As a result, these instruments showed very limited content validity, and were considered as inappropriate to represent the proposed model of innovative work behaviour.

On the other hand, instruments offered by Janssen, and Holman and colleagues seem to be highly accurate in relation to their construct definitions. Seven of nine items of Janssen’s scale were assessed as corresponding to measures of generating, promoting and realising novel ideas respectively (78% of alignment). Similarly, all the nine items (100% of alignment) of Holman and colleagues were considered as representative of innovative work behaviour. As a result, both these scales were considered as a potential final pool of items to measure innovative work behaviour, given their high content validity.

Table 6.1: Construct Definition of Typical Measures of Innovative Work Behaviour

Original Reference	Construct Definition
Zhou and George (2001)	Creativity “refers to the generation of novel and potentially useful ideas” (p. 683).
Tierney et al. (1999)	Creativity is the “production of novel and useful ideas” (p. 593).
Scott and Bruce (1994)	“Individual innovation begins with problem recognition and the generation of ideas or solutions... during the next step of the process, an innovative individual seeks sponsorship for an idea and attempts to build a coalition of supporters for it... finally... the innovative individual completes the idea producing a prototype or model of the innovation.” (p. 581-582).
Janssen (2000)	“...we conceive [innovative work behaviour] in the workplace as complex behaviour consisting of a set of three different behavioural tasks: idea generation, idea promotion, and idea realization. Individual innovation begins with idea generation, that is, the production of novel and useful ideas in any domain... the next task of the innovation process consists of idea promotion to potential allies... the final task of the innovation process concerns idea realization by producing a prototype or model of the innovation that can be experienced and ultimately applied within a work role, a group or the total organization” (p. 288).
Holman et al. (2011)	“The concept of idea generation is very similar to that of creativity... within the employee innovation literature, idea generation is typically seen to include ideas that are new in a context... after idea generation, the innovation process is progressed further by idea promotion, i.e., suggesting ideas to others, persuading others to adopt new ideas and gaining support for ideas... the innovation process ends with idea implementation, a new idea being integrated within organizational processes or products.” (p. 179).

Table 6.2: Inter-Rater Agreement of Item Review

Questionnaire Form	N Agreement	N Total	Agreement Percentage	N Kappa Test	Kappa Estimate	SE	Confidence Interval 95%
English	36	46	78.26%	44	.77	.07	.63 – .91
Spanish	27	31	87.10%	31	.84	.08	.69 – .99

The next step consisted of a review of the selected Spanish form of the items. Post hoc analysis performed on the English form of retained measures, revealed that neither Janssen nor Holman and colleagues scales offered measures of the idea suggestion component of promoting of novel ideas. Thus, three additional items developed by Holman and colleagues to capture voicing of novel ideas was added to the Spanish revision (Zibarras, Port, & Holman, 2005). Moreover, twelve items referring to non-innovative behaviour (e.g. proficiency) were included as “distractors”, which were expected to be classified as “other behaviour”. In total, thirty-three translated items were finally assessed (see Appendix). Inter-rater agreement analysis indicates a substantial degree of correspondence in the assessment provided by the two independent Spanish-speaking subject matter experts (Kappa = .84, $p < .00$, 95% CI [.69 – .99]), supporting the reliability of this process. Similar to the review of the English form, seven of nine items (78% of alignment) of Janssen’s scale were considered as corresponding to innovative work behaviour, while all the items (100% of alignment) of Holman and colleagues were considered as representative of the same construct. Based on a final content review, seven items of Janssen’s scale and five items of Holman and colleagues’ scales were retained as representative measures for measuring idea generation, idea

promotion and idea realisation³. Table 6.3 summarises the pool of items finally retained for subsequent empirical test.

Conclusions Study 1

Using independent sources of assessment (two English-Speaking and two Spanish-speaking subject-matter experts), results of this study indicated that the instruments largely considered as measures of creativity and innovative behaviour failed to account for this, showing poor content validity. Scales of creativity at work (Tierney et al., 1999; Zhou & George, 2001) entail components falling outside of the theoretical definition provided for idea generation, such as planning, risk taking and role modelling. A similar situation affects the scale of innovative behaviour developed by Scott and Bruce (1994), which contains elements referring to planning and general perceptions of innovativeness. In contrast, instruments of innovative work behaviour developed by Janssen (2000), and Holman and colleagues (Holman et al., 2011; Zibarras et al., 2005) showed greater content validity in terms of idea generation, idea promotion and idea realisation. This was observed in both the English and Spanish form of items. As a result, a twelve-item instrument was retained for the stage of empirical testing, comprising Janssen, and Holman and colleagues' most explicit items referring to the theoretical definition of innovative work behaviour.

³ Original phrasing of Holman and colleagues' of some items were more difficult to translate into Spanish than equivalent items of Janssen. Thus, a pool of items based on Holman's and Janssen was selected according to content validity and translation criteria.

Table 6.3: Items of Innovative Work Behaviour Retained for Empirical Testing

Item ID	Dimension Items [Spanish Translation]
Idea Generation	
IWB1 (Janssen)	Created new ideas for difficult issues [Ha tenido nuevas ideas para resolver dificultades en el trabajo]
IWB2 (Janssen)	Generated original solutions for problems [Ha generado soluciones originales para problemas en el trabajo]
IWB3 (Holman)	Thought of new ideas [Ha pensado en ideas novedosas relacionadas con su trabajo]
Idea Promotion	
IWB4 (Holman)	Offered new ideas to others [Ha propuesto nuevas ideas a otras personas en su trabajo]
IWB5 (Holman)	Suggested how things might be improved [Ha sugerido a otros cómo mejorar el trabajo]
IWB6 (Holman)	Made proposals about doing things differently [Ha propuesto formas diferentes de hacer el trabajo]
IWB7 (Janssen)	Mobilized support for innovative ideas [Ha buscado apoyo de otros para llevar a cabo ideas innovadoras]
IWB9 (Janssen)	Made important organizational members enthusiastic for innovative ideas [Ha hecho que personas importantes de su organización se entusiasmen para implementar ideas innovadoras]
IWB8 (Holman)	Tried to get approval for improvements you suggested [Ha solicitado autorización para llevar a cabo sus propuestas de mejora en el trabajo]
Idea Realization	
IWB10 (Janssen)	Transformed innovative ideas into useful applications [Ha transformado ideas innovadoras en aplicaciones concretas]
IWB11 (Janssen)	Introduced innovative ideas into the work environment in a systematic way [Ha implementado ideas innovadoras en el trabajo]
IWB12 (Holman)	Had your suggestions for improvements adopted [Ha llevado a cabo sus propuestas de como realizar mejoras en el trabajo]

Question frame: "During the last week to what extent have you..." (1 = never, 2 = very few times, 3 = sometimes, 4 = many times, 5 = almost always)

6.4.2 Study 2: Validation of Innovative Work Behaviour Model and Measures of Job-Related Moods

After the item assessment and selection performed in the study 1, a survey study was conducted in order to empirically validate the proposed theoretical model of innovative work behaviour and its respective measurement model. Furthermore, this study aimed to test psychometric properties of the Spanish form of job-related moods measures utilised in the further studies of this thesis.

Procedure and Data

Spanish versions of innovative work behaviour and moods scales were administered using self-reported Internet-based surveys to a sample of individuals working in Chile. Self-report was considered as the best strategy to test behavioural multidimensionality, because third-party ratings (e.g. supervisors) are prone to inflated correlations between components of multidimensional behavioural constructs (Griffin et al., 2007; Lance et al., 1994; Woehr, 1994). Moreover, the use of Internet-based surveys have been increasing in psychological research, given their lower cost of implementation (both in terms of money and time), improved access to groups targeted by research (e.g. employees), and similar quality of data compared to paper-based surveys (e.g. equivalent and often improved measurement error and control of social desirability) (Birnbaum, 2004; Skitka & Sargis, 2006). The latter has been also observed in online application of affective measures. Howell, Rodzon, Kurai, & Sanchez (2010), using PANAS scales, supported the validity, reliability and generalizability of affective measures applied over the Internet, showing equivalent means, standard deviations, reliabilities and factor structure to paper-based and computer-based forms.

Participants were recruited by sending an email with an invitation to participate in the study to contacts of the leading researcher that were working in organisations in Chile. This email provided the URL link to access the online questionnaire and asked participants to forward this link to their own contacts in order to develop a “snowballing” strategy. This email also described the main goal of the study, the anonymity conditions of it, and provided an email address to offer comments or ask for more detailed information about the study. After deleting the responses of 76 individuals, because their ratings of innovative work behaviour and affect were less reliable due to being “on holiday” or “on leave” during the two weeks before participating in the survey (this was explicitly asked at the beginning of the questionnaire), a total number of 430 employees were retained for the subsequent analyses. Participants were 43.9% male and the average age was 34.42 years ($SD = 8.20$). They worked as administrative or technical staff (11.1%), professional staff (58.9%) and supervision/management staff (30%), whilst the average job tenure was 5.11 years ($SD = 5.19$). These participants were employed in private (53.5%) and public organizations (46.5%).

Measures

Innovative Work Behaviour. This was measured with the twelve-item instrument developed in study 1. The main statement and time frame of this scale was as follows (three examples are provided, see appendix for full scales): “*during the last week in your work, to what extent have you ...created new ideas for difficult issues [ha tenido nuevas ideas para resolver dificultades en el trabajo], ...mobilized support for innovative ideas [ha buscado apoyo de otros para llevar a cabo ideas innovadoras], ...transformed innovative ideas into useful applications” [ha transformado ideas innovadoras en aplicaciones concretas] (1 = never, 2 = very few times, 3 = sometimes, 4 = many times, 5 = almost always).*

Job-Related Moods. The sixteen items of the Multi-Affect Indicator (Warr & Parker, 2010) were used in the study. English and Spanish translations of the items follow: *During the last week, how often have you felt in your workplace...?* “Enthusiastic [Entusiasmado(a)]”, “Joyful [Alegre]”, “Inspired [Inspirado(a)]” “Active [Activo(a)]” (HAPA, High-Activated Positive Affect); “Nervous [Nervioso(a)]”, “Anxious [Ansioso(a)]”, “Tense [Tenso(a)]”, “Worried [Preocupado(a)]” (HANA, High-Activated Negative Affect); “Depressed [Deprimido(a)]”; “Dejected [Decepcionado(a)]”; “Despondent [Decaído(a)]”; “Hopeless [Desilucionado(a)]” (LANA, Low-Activated Negative Affect); “Calm [Calmado(a)]”, “Relaxed [Relajado(a)]”, “Laid-back [Distendido(a)]”, “At ease [Tranquilo(a)]” (LAPA, Low-Activated Positive Affect); (1 = *never/almost never*, 2 = *few times*, 3 = *about half the time*, 4 = *a lot of the time*, 5 = *always/almost always*). As well as measures of innovative work behaviour, and following the procedure described by Brislin (1970), items of job-related moods were translated into Spanish and then translated back into English by two independent translators. In cases of back translation disagreement, both translators decided together the most precise Spanish version of the problematic items.

It is important to highlight the time frame used with these measures. The selection of a one week interval of time in data collection was theoretically and empirically guided (Bolger et al., 2003) according to the feasibility of observing variance on both moods and work behaviour over a meaningful period of time. Regarding innovative behaviour, generation of novel ideas has been observed to vary within and between days (Amabile et al., 2005; Binnewies & Woernlein, 2011); however, to the best of my knowledge little is still known about the frame of time associated with promoting and realising novel ideas. Promoting and realising novel ideas are emphasised as entailing collaborative work with others (Kanter, 1988); thus, they are highly dependent on events that are

likely to be separated by several days or weeks (e.g. planning, coordination or implementation meetings). This proximal time frame was also relevant to control inflated higher correlations between dimensions of innovative work behaviour, associated with memory bias and tendencies to provide general behavioural ratings when unspecific (e.g. behaviour in general) or longer (e.g. last months, last year) time frames are used.

In turn, theory and research have suggested the value of weekly moods in explaining organisational behaviour outcomes, such as task performance, organisational citizenship behaviour, and job attitudes (e.g. George & Zhou, 2002, 2007; Madjar, Oldham, & Pratt, 2002; Tsai, Chen, & Liu, 2007; Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011). Furthermore, even when moods are temporary affective states that can unfold within a day or between a couple of days (Totterdell & Niven, 2012), Parkinson, Brinner, Reynolds and Totterdell (1995) observed that moods ratings for a whole previous week are quite close to the average daily ratings of moods, supporting the validity of one-week retrospective measures of moods. Similarly, Beal and Ghandour (2011) observed that daily observations of affective states do not dramatically differ from the remaining days of the week.

Analytical Strategy

A three-stage strategy was employed to analyse the data. In the first stage, the factorial validity of the theoretical and measurement model of innovative work behaviour was tested (Hypothesis 1), through confirmatory factor analysis and reliability analysis (Brown, 2006; Byrne, 2012), using MPlus 6 (Muthén & Muthén, 2010). Three models based on raw measures were examined in order to determine the best conceptual and measurement representation of innovative work behaviour. Adopting a trimming procedure (Kline, 2011), the one-factor model (general

innovative work behaviour) was firstly estimated, then the two-factor model (idea generation and idea promotion-realisation) and finally the three-factor model (idea generation, idea promotion and idea realisation). Chi-square difference test was utilised to determine which model best represents the data (Brown, 2006; Kline, 2011). This test denotes the difference between chi-squares of two hierarchically nested models, namely, models with exactly the same variables but different patterns of relationships between these variables. When comparing two models, the null hypothesis is that both models have comparable goodness-of-fit, explaining observed data well. A smaller chi-square (non statistically significant) fails to reject the null hypothesis, whereas larger values (statistically significant) indicate that the model with larger goodness-of-fit has been oversimplified; therefore, the model with smaller goodness-of-fit explains better the observed data.

The second stage consisted of examining the factorial validity of the Spanish form of the multi-affect indicator as a measurement instrument to represent the four main affective clusters described by the circumplex model of affect (Hypothesis 2), using confirmatory factor analysis and reliability analysis (Byrne, 2012). Hence, the four-factor measurement model described by high-activated positive mood, high-activated negative mood, low-activated negative mood and low-activated positive mood was tested.

The above confirmatory factor analyses (innovative work behaviour and moods) were performed in two sub-samples resulting from the splitting of all available data. This was useful to build measurement models in a sub-sample, and then cross-validate these models in a second and independent sub-sample (Kline, 2011). Splitting was performed through a random algorithm; each one comprised approximately the half of the total sample available ($N_{ss1} = 216$; $N_{ss2} = 214$).

Finally, the third stage of analysis aimed to provide additional evidence of the validity of the Spanish form of the multi-affect indicator, and the use of the circumplex model of affect in Spanish-Speaking samples. Thus, whether affective markers measured describe a circular pattern of relationships was tested by using a Circular Stochastic Modelling with a Fourier Series (CSMF; Browne, 1992; Fabrigar, Visser, & Browne, 1997). This is a type of covariance structure analysis in which common variance among observed variables (i.e. affective measures) can be represented as points in a circular diagram. This implies using one observed variable as a reference point in the circle, while covariances of this reference with the other observed variables are computed as polar angles (Fabrigar et al., 1997; Remington et al., 2000). Thus, the correlation between any two observed variables represents a function of their angle separation. This modelling strategy was applied using CIRCUM (Browne, 1992), a statistical software designed to test circular stochastic models, which provides polar angles and their 95% confidence intervals for observations analysed (e.g. affective measures). Furthermore, CIRCUM offers Root Mean Square Error of Approximation values (RMSEA) and a Discrepancy Function of the model estimated, which allow assessment of its goodness-of-fit⁴. CIRCUM analyses were performed in the whole sample available ($N = 430$), in order to have adequate statistical power for estimating all the parameters involved in circular stochastic modelling.

Results

Normal distribution of the innovative work behaviour and affective measures was initially tested, in order to select the method of estimation used in confirmatory factor analyses and CIRCUM analysis. This was relevant considering that violation of normality and the use of

⁴ Chi-Square statistic of the model can be computed based on the Discrepancy Function observed: (Discrepancy Function * ($N - 1$)).

inappropriate estimation method might lead to biased results in confirmatory factor analysis in general (Byrne, 2012), and in testing associations between affective measures in particular (Schmukle & Egloff, 2009). Implementing the procedure defined by Byrne (2012), normal distribution of the twelve items of the innovative work behaviour scale, and the sixteen items of the multi-affect indicator was tested. Results indicated that values of kurtosis and skewness for all these measures minimally deviate from zero (innovative work behaviour kurtosis interval [-.87 – .38], skewness interval [-.50 – .01]; multi-affect indicator kurtosis interval [-.96 – 1.54], skewness interval [-.53 – 1.36])⁵, indicating that they do not violate the assumption of normal distribution. Based on this, Maximum Likelihood was adopted as method of estimation.

Hypothesis 1 stated that a three-dimensional model comprised by idea generation, idea promotion and idea realisation would best represent the construct of innovative work behaviour. Models defined to conduct the trimming strategy of model comparison (Kline, 2011) are summarised in Table 6.3. Results of confirmatory factor analyses conducted in the first random sub-sample indicate very poor goodness-of-fit to the one-factor model of innovative work behaviour (see Model 1, Table 6.4). Inspection of modification indices indicates large correlations between residual errors of items theoretically expected as components of the same dimensions of innovative work behaviour (M.I.'s over 10; Byrne, 2012). This supported the idea that the twelve measures analysed denotes more than a single dimension. Results for the two-factor model showed increased, but still poor, goodness-of-fit (see Model 2, Table 6.4). Again, large error correlations were observed. The three-factor model showed adequate goodness-of-fit for most of the indices (see Model 3, Table 6.4); however, RMSEA was still over the threshold agreed as acceptable (.08), which

⁵ According to Byrne (2012), absolute values above 3.00 indicate violation of normality assumption.

suggests that some degree of misspecification was still a threat to the measurement model.

Examination of modification indices indicates large correlations between items of idea realisation that denotes coalition building (M.I. between IWB7 and IWB8 = 15.73; M.I. between IWB8 and IWB9 = 27.94, M.I. between IWB7 and IWB9 = 30.49). This indicated that idea suggestion and coalition building might represent two separate dimensions, rather than a single dimension of idea promotion (MacKenzie et al., 2005). So, model 3 was re-specified splitting idea promotion into two factors, i.e. idea suggestion and coalition building, defining a four-factor model. Results of this post-hoc model (Model 4, Table 6.4) showed excellent goodness-of-fit for the four-factor solution (see Figure 6.2). This re-specified model was subsequently tested in the second random sub-sample (Model 4.R1, Table 6.4), and the whole original sample (Model 4.R2, Table 6.4), showing excellent goodness-of-fit. Moreover, scales showed high reliabilities (based on the whole sample), which were observed as follows: idea generation ($\alpha = .85$), idea suggestion ($\alpha = .93$), coalition building ($\alpha = .82$), and idea realization ($\alpha = .93$). As a result, hypothesis 1 was not supported (summary of descriptive results, correlations and reliabilities is presented in Table 6.5).

Table 6.3: Models of Innovative Work Behaviour Tested

Model	Factorial Structure	Factors	Items
Model 1	One-factor	F1. Innovative work behaviour	IWB1-12
Model 2	Two-factor	F1. Idea generation	IWB1-3
		F2. Idea realisation	IWB4-12
Model 3	Three-factor	F1. Idea generation	IWB1-3
		F2. Idea promotion	IWB4-9
		F3. Idea realisation	IWB10-12

Table 6.4: Goodness-of-fit and Model Comparison for Innovative Work Behaviour Measures

Model	N	χ^2	df	p-value	$\Delta\chi^2$ (Δdf)	CFI	TLI	RMSEA (90% C.I.)	SRMR
Model 1	205	543.71	54	.00		.73	.67	.21 (.19 – .23)	.09
Model 2	205	381.68	53	.00	162.03 (1)**	.82	.78	.17 (.16 – .19)	.07
Model 3	205	163.98	51	.00	217.70 (2)**	.94	.92	.10 (.09 – .12)	.06
Model 4	205	74.21	48	.00	89.77 (1)**	.99	.98	.05 (.03 – .07)	.03
(Post Hoc)									
Model 4.R1	199	95.85	48	.00		.97	.97	.07 (.05 – .09)	.04
(Cross-validation)									
Model 4.R2	404	76.59	48	.01		.99	.99	.04 (.02 – .05)	.02
(All Data)									

Models estimation was based on Maximum Likelihood (ML). Models 1–4 were tested in the first half of the original sample (randomly split). Then model 4 was tested in the second half of the sample, and the whole original sample. Model 4 is a post-hoc re-specification of model 3 in which idea promotion was split into idea suggestion and coalition building. Rejection of Chi-square test null hypothesis: **p < .01

Figure 6.2: Model 4 of Innovative Work Behaviour (N = 404)

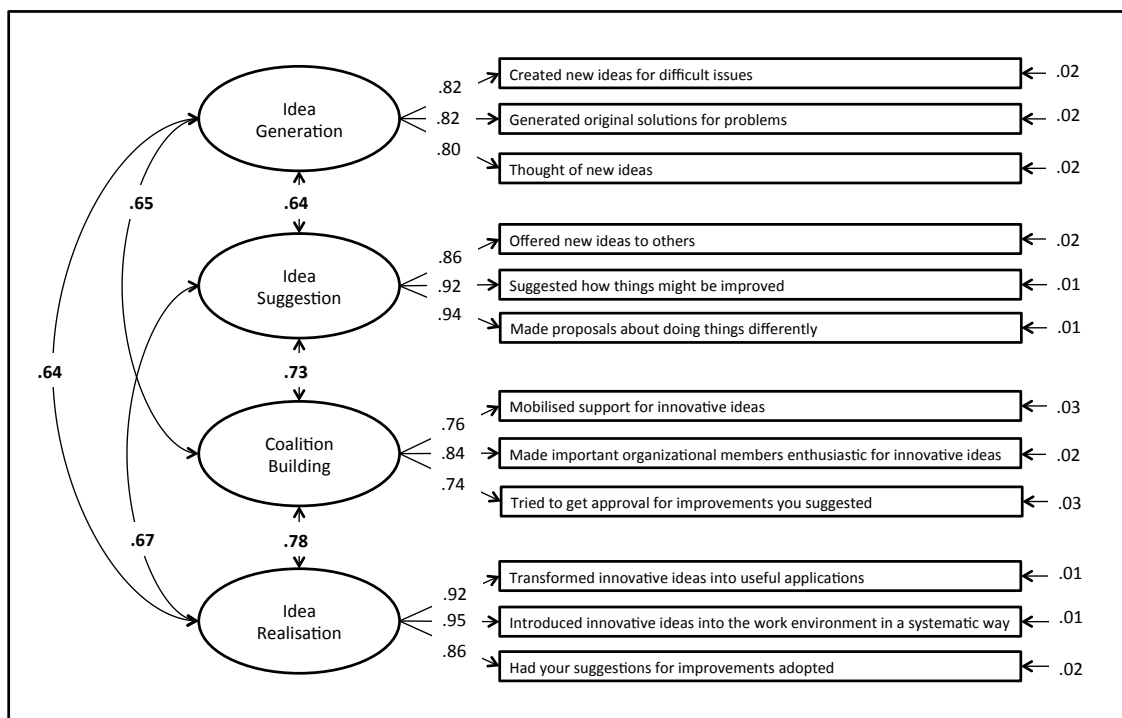


Table 6.5: Descriptive Statistics, Correlations and Reliability for Innovative Work Behaviour Measures

Dimension	M	SD	1	2	3	4
1. Idea Generation	3.48	.75	(.85)			
2. Idea Suggestion	3.44	.91	.64**	(.93)		
3. Coalition Building	3.12	.95	.65**	.73**	(.82)	
4. Idea Realisation	3.03	1.01	.64**	.67**	.78**	(.93)

Reliability of the scales is parenthesized on the diagonal. Means, standard deviations and bivariate correlations (two-tailed test). * $p < .05$. ** $p < .01$.

Hypothesis 2 stated that the measurement model based on the Spanish form of the multi-affect indicator would be represented by a four-factor solution denoting high-activated positive affect (HAPA), high-activated negative affect (HANA), low-activated negative affect (LANA), and low-activated positive affect (LAPA) respectively. Confirmatory factor analyses based on the sixteen items of the multi-affect indicator (four items each factor), and conducted in the first sub-sample showed acceptable goodness-of-fit for the four-factor model of job-related moods (see Model 5 in Table 6.5). However, inspection of the modification indices indicated problems of misspecification associated with error correlation for “nervous” and “hopeless” with other items of their factors (HANA and LANA respectively). These items, in a post hoc fashion, were removed from the measurement model because misspecification suggested that they provide redundant information. In addition, the items with the lowest factor loadings for HAPA and LAPA (active and laid-back respectively) were also removed from the model in order to define an instrument with a balanced number of items for all its four factors (three items each). The re-specified model showed greater and excellent goodness-of fit (see Model 6 in Table 6.5), and a substantial decreasing of the Akaike Information

Criterion ($\Delta AIC = 2046.8$) which is used to compare non-hierarchical nested models, supporting the robustness of the twelve-item solution of moods measures grouped in a four-factor model (see Figure 6.3). Excellent goodness-of fit was replicated in the sub-sample 2 (see Model 6.R1 in Table 6.6), and the whole sample (see Model 6.R2 in Table 6.6). Reliabilities based on all data available ($N = 430$) were observed as follow: HAPA ($\alpha = .85$), HANA ($\alpha = .76$), LANA ($\alpha = .76$), and LAPA ($\alpha = .85$) (summary of descriptive results, correlations and reliabilities is presented in Table 6.7). Therefore, hypothesis 2 was supported.

Table 6.6: Goodness-of-fit and Model Comparison for Job-Related Moods

Model	N	χ^2	df	p-value	CFI	TLI	AIC	RMSEA (90% C.I.)	SRMR
Model 5	216	211.41	98	.00	.94	.92	8404.93	.07 (.06 – .09)	.05
Model 6 (Post Hoc)	216	78.54	48	.00	.97	.97	6358.13	.05 (.03 – .08)	.04
Model 6.R1 (Cross-validation)	214	105.40	48	.00	.95	.93		.08 (.06 – .09)	.06
Model 6.R2 (All Data)	430	100.78	48	.00	.98	.97		.05 (.04 – .06)	.04

Models estimation was based on Maximum Likelihood (ML).

Figure 6.3: Confirmatory Factor Analysis for Job-Related Moods (N = 430)

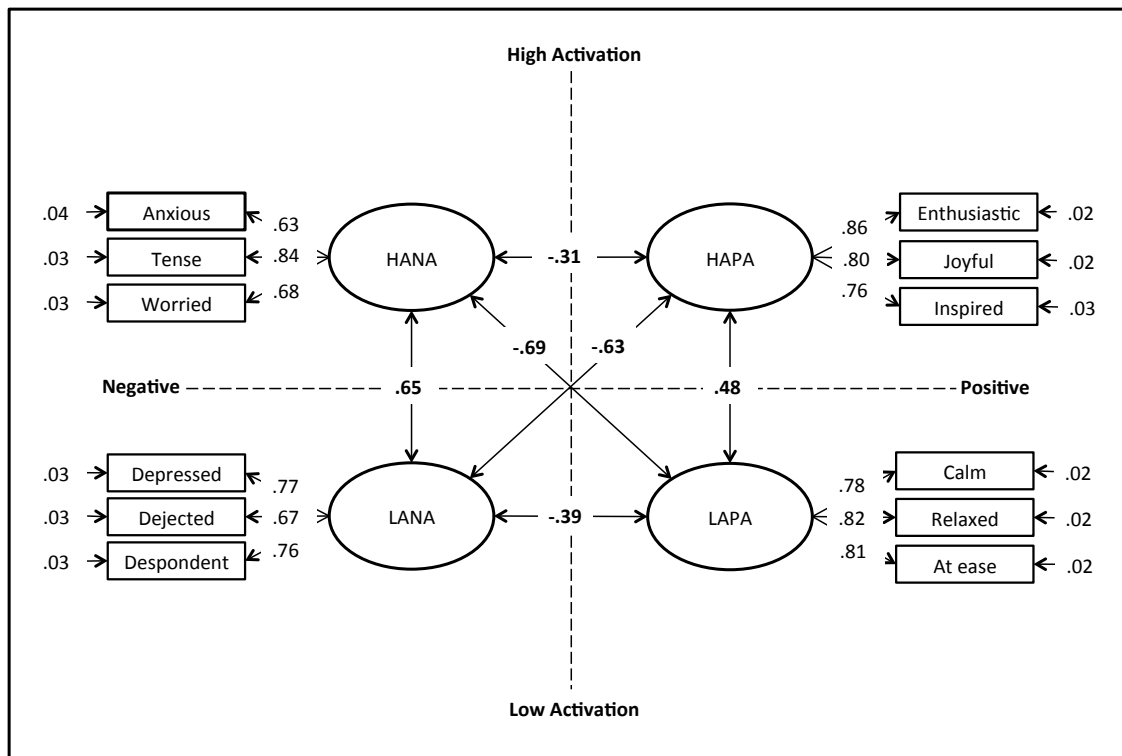


Table 6.7: Descriptive Statistics, Correlations and Reliability for Job-Related Moods

Dimension	M	SD	1	2	3	4
1. HAPA	3.50	.87	(.85)			
2. HANA	2.73	.91	-.31**	(.76)		
3. LANA	1.97	.81	-.63**	.65**	(.76)	
4. LAPA	3.23	.90	.48**	-.69**	-.39**	(.85)

Reliability of the scales is parenthesized on the diagonal. Means, standard deviations and bivariate correlations (two-tailed test). * $p < .05$. ** $p < .01$.

As part of CIRCUM analysis and following Browne (1992), examining the pattern of zero-order correlations between the twelve items of moods was the next step to provide additional support for the validity of the Spanish form of the multi-affect indicator. The detailed inspection of correlations presented in Table 6.8, show that correlations between joyful, enthusiastic and inspired were positive and strong, which suggests that they are proximal affective markers denoting a similar degree of positive valence and high activation. Secondly, correlation between enthusiastic, and anxious, worried and tense were negative and ranged from weak to moderate strength, suggesting some degree of orthogonal association between them. Thus, markers of high-activated positive mood and high-activated negative mood seem to be moderately distant and mainly differentiated by opposite affective valence. Thirdly, correlations between enthusiastic, despondent, dejected and depressed were negative and strong. This suggests that measures of high-activated positive mood and low-activated negative mood are fairly bipolar, being differentiated by both valence and activation. Finally, correlations between enthusiastic, and calm, relaxed and at ease were positive and moderate, highlighting that markers of high-activated positive mood and low-activated positive mood are proximal, but distinguished by different degrees of activation. This pattern of increasing positive correlation, then increasing of negative correlation followed again by an increasing of positive correlation, which is observed for any affective marker in the correlation matrix in Table 6.8 supported the likelihood of a complex circumplex description for the associations among items of the Spanish form of the multi-affect indicator (cf. Browne, 1992). So, the correlation matrix depicted in Table 6.8 was submitted to CIRCUM in order to confirm whether these measures denote the representation described by the circumplex model of affect.

Table 6.8: Correlation Matrix for Affect Markers of the Multi-Affect Indicator (N = 430)

Item	1	2	3	4	5	6	7	8	9	10	11	12
1. Joyful	1.00											
2. Enthusiastic	.69	1.00										
3. Inspired	.60	.67	1.00									
4. Anxious	-.09	-.03	-.03	1.00								
5. Worried	-.23	-.19	-.12	.52	1.00							
6. Tense	-.27	-.27	-.18	.45	.56	1.00						
7. Despondent	-.40	-.41	-.28	.30	.46	.36	1.00					
8. Dejected	-.41	-.42	-.28	.27	.38	.35	.62	1.00				
9. Depressed	-.41	-.45	-.32	.19	.38	.32	.61	.46	1.00			
10. Calm	.35	.27	.27	-.31	-.47	-.35	-.19	-.20	-.21	1.00		
11. Relaxed	.35	.27	.30	-.35	-.48	-.36	-.23	-.24	-.26	.65	1.00	
12. At ease	.37	.36	.32	-.37	-.48	-.38	-.29	-.24	-.29	.62	.68	1.00

Observed correlations obtained from confirmatory factor analysis using *MPlus*.

Theoretically, it was expected that items of the multi-affect indicator should be placed in the circumplex representation as follows: HAPA between 0° and 90°, HANA between 90° and 180°, LANA between 180° and 270° and LAPA between 270° and 360°. In CIRCUM, determining the polar angles of the Multi-Affect Indicator items in a circumplex required constraining communalities of items as equal, while leaving estimation of polar angles unconstrained. This implies that items are assumed as equidistant from centre of the circular representation, while polar angles of these items in the perimeter of the circumference are freely estimated. The item “enthusiastic [entusiasmo(a)]” was defined as the point of reference. Diverse studies in English samples have shown this item with a polar angle around 30° (Remington et al., 2000; Yik et al., 2011).

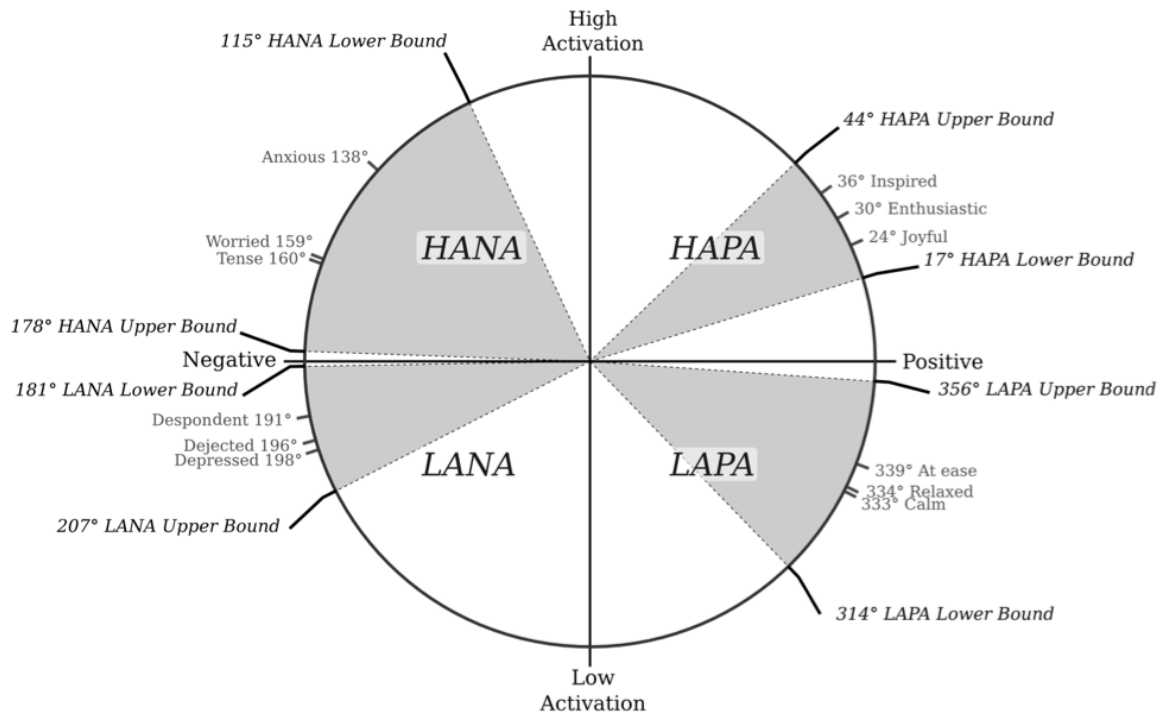
Therefore, the polar angles observed in the CIRCUM analyses in this study were corrected, adding 30° to each item analysed. The model showed very good goodness-of-fit ($\chi^2 = 139.85$, $df = 51$, $p = .00$; $\chi^2/df = 2.74$, RMSEA = .06)⁶, indicating also that moods markers have polar angles in the areas of the circumplex expected according to theoretical description (see Figure 6.4). For example, inspired showed a value of 36° being part of the HAPA region of the circumplex, tense showed a polar angle of 160° which is part of the HANA zone, and so on. Inspection of the Figure 6.4 shows that items of HAPA are fairly opposite to LANA, whilst the same is observed to markers of HANA and LAPA. So, taken together, results of confirmatory factor analyses, zero-order correlations and stochastic modelling supported the Spanish form of the multi-affect indicator as a valid tool to represent the proposals of the circumplex model of affect.

Conclusions Study 2

Through this study the validity of the theoretical model of innovative work behaviour and its respective measures have been empirically tested. Results of confirmatory factor analyses and reliability analysis did not support the hypothesised three-dimensional, because data indicated that a four-dimension model better represents the construct of innovative work behaviour, namely, idea generation, idea suggestion, coalition building and idea realisation. This suggests that innovative work behaviour is a highly complex behavioural construct, highlighting also that using single-factor or two-factor measures might be highly inappropriate if a finer grained approximation is pursued in research.

⁶ Since the CIRCUM model presented is not being compared with an alternative model, the Chi-square Ratio (χ^2/df) (Schermelleh-Engel, Moosbrugger, & Muller, 2003) was used to evaluate the size of the Chi-square observed. Values of Chi-square Ratio below a value of 3.00 indicates good goodness-of-fit.

Figure 6.4: Polar Angles for the Spanish Version of the Multi-Affect Indicator (N = 430)



A second goal of this study was testing the validity of the Spanish form of the multi-affect indicator, as an instrument to measure job-related moods based on the proposals of the circumplex model of affect. Results of advanced analytical techniques, such as confirmatory factor analyses and circular stochastic modelling provided strong support for a twelve-item instrument, which describes a four-factor solution given by high-activated positive affect (HAPA), high-activated negative affect (HANA), low-activated negative affect (LANA), and low-activated positive affect (LAPA). These results also offered support for the circumplex model of affect (Russell, 1980), which states that moods can be described as linear combination of valence and activation of feelings. Furthermore, as

correlation and CIRCUM analyses showed, diagonally opposed moods were strongly and negatively correlated. Even when these results did not absolutely fit the theoretical bipolarity proposed by the circumplex model ($\rho = -1.00$), the strength of negative correlations observed between HAPA-LANA ($\rho = -.63$) and HANA-LAPA ($\rho = -.69$) indicates a relative bipolarity between measures corresponding to opposing quadrants of the circumplex.

Results were less supportive with regards to the orthogonal relationships expected between adjacent quadrants of the circumplex. An orthogonal relationship demands a correlation close to zero; however, correlations between measures representing adjacent quadrants of the circumplex were observed as sizeable. In the case of the correlations between HAPA and HANA ($\rho = -.31$), and between LAPA and LANA ($\rho = -.39$), correlations were low to moderate. Nevertheless, correlations between HAPA and LAPA ($\rho = .48$), and between HANA and LANA ($\rho = .65$) were moderate to high. Inspection of the Figure 6.4 confirmed the above pattern of associations, showing that areas covered by the markers of the multi-affect indicator denotes high proximity between adjacent quadrants (the latter is particularly evident for HANA and LANA). The above indicates that measures of the multi-affect indicator may have some degree of overlap, so they should not be considered as absolutely independent.

Taken together, results of this study suggests that the Spanish form of the multi-affect indicator offers valid measures of moods that are relatively bipolar but very few orthogonal. In substantive terms, HAPA and HANA were observed as measures covering areas of the circumplex described by the combination of moderate-high activation with positive and negative valence, which are relatively opposed to LANA and LAPA respectively. On the other hand, measures of LANA and LAPA offer information of moods with mild activation.

6.5 GENERAL DISCUSSION

In this chapter issues of conceptualising and measuring innovative work behaviour and job-related moods have been addressed. Even when largely investigated, research on these constructs still face ill-defined descriptions in the literature, and misspecification between theoretical and measurement models. Thus, having only a partial understanding of how innovative behaviour and affect relate is a serious risk if these issues are not resolved. In order to tackle this, studies presented in this chapter firstly contribute to establishing a theoretically and empirically grounded model of innovative work behaviour, based on explicit descriptions of its most relevant components. However, results indicated that innovative work behaviour is more complex than the original theoretical expectations, because four, rather than three, factors best represent actions oriented to develop novel ideas in organisations, namely, idea generation, idea suggestion, coalition building and idea realisation. So, distinguishing between the components of idea promotion (idea suggestion and coalition building) matters. This likely denotes that only suggesting ideas lacks a commitment to strive for their implementation, being limited to the mere proposal of previously creative thoughts developed. On the other hand, coalition building represents a step further of actively asking for support for novel ideas, in order to make them happen. As a result, in the following sections, this thesis will understand innovative work behaviour as described in Table 6.9:

Table 6.9: Construct Definition of Innovative Work Behaviour

Dimension	Definition
Idea Generation	Refers to thinking of and creating, new solutions or approaches to work-related issues. Idea generation, therefore, is conceptualised as comprising creative thinking at work.
Idea Suggestion	Refers to voicing novel ideas resulting from idea generation.
Coalition Building	Refers to building up coalitions around novel ideas with other relevant people in the workplace, with the aim that these ideas gain power to be adopted.
Idea Realisation	Refers to explicit attempts to implement novel ideas.

Regarding affect, this study contributes by offering a Spanish form of the multi-affect indicator originally developed in English by Warr and Parker (2010). This instrument provides measures of moods that do not strictly satisfy bipolarity and orthogonal relationships prescribed by the circumplex model of affect. However, the instrument offers information of affective states that are logical and meaningfully distinct when differences on valence and activation are taken into account: high-activated positive affect, high-activated negative affect, low-activated negative affect and low-activated positive affect. Therefore, the same as to the original English form, this instrument represents a stronger tool compared to PANAS (Watson et al., 1988) which only informs about feelings high in activation.

Limitations of this study have to be discussed. Firstly, the use of Internet-based surveys might affect the generalisation of the results, due to lower representativeness of participants, higher levels of non-response rate and lack of control of response context (Birnbau, 2004; Howell et al., 2010; Skitka & Sargis, 2006). Regarding the latter, for example, URL links of the surveys were emailed at working time in Chile, but there was no way to determine whether participants responded at work or at home. This might

represent a source of uncontrolled bias, so complementary studies testing possible issues concerning completion of innovative work behaviour and job-related affect measures at home are needed. Secondly, because this study relied on cross-sectional data, it was not possible to examine the longitudinal invariance of the multi-affect indicator (Brown, 2006; Byrne, 2012; Little, Preacher, Selig, & Card, 2007). This may be an important issue considering that moods represent fluctuating experiences over time (see Chapter 4). Thirdly, the evaluation of scales was not fully performed, because concurrent and criterion validity were not tested (Churchill, 1979; Hinkin, 1995). So, future studies are necessary to complete the process of validity assessment offered in this thesis.

In this chapter an explicit effort to build strong theoretical and measurement models of innovative work behaviour and job-related moods have been presented. This represents an essential initial step for this thesis in order to have conceptual and measurement approaches supported as valid and reliable. Theory would be impossible without concomitant variables measured properly (Cook, Hepworth, Wall, & Warr, 1981; Schwab, 1980; Torgerson, 1958) and, as Hinkin (1995) pointed out, “quality research must begin with accurate measurement” (p. 983). This contribution is not only limited to this thesis, because improvements in theory and measurement offered here could be adopted in further research aimed at studying innovative work behaviour and/or job-related moods.

CHAPTER 7: TESTING THE RELATIONSHIP BETWEEN JOB RELATED MOODS AND INNOVATIVE WORK BEHAVIOUR

7.1 INTRODUCTION

In this chapter the second research question of this thesis is addressed, namely, *which are the moods mainly associated with innovative work behaviour?* In Chapter 4, moods were discussed as having directive properties in the way that people think and behave, such that the combination of affective valence and activation were argued as influencing cognitive broadening-narrowing and behavioural readiness-passiveness. Drawing on this, the relationships between moods experienced at work and innovative work behaviour (idea generation, idea suggestion, coalition building and idea realisation) are tested and discussed, through two empirical studies. As expected, results indicated that innovative work behaviour is mainly related to high-activated positive mood. However, results also suggest that depending on the research design (i.e. cross-sectional vs. longitudinal) low-activated negative mood may also be observed as related to idea generation, idea suggestion and coalition building. Thus, both methodological and theoretical implications are discussed in detail.⁷

7.2 MOODS AND IDEA GENERATION

Idea generation refers to thinking of novel ideas in order to solve problems or develop new opportunities at work (see Chapter 2). As such,

⁷ Theory and findings presented in this Chapter were published as a full paper in the *Journal of Organizational Behavior* (Madrid, H. P.; Patterson, M. G.; Birdi, K. S.; Leiva, P. I.; Kausel, E. E. (2013). The role of weekly high-activated positive mood, context and personality in innovative work behavior: A multilevel and interactional model. *Journal of Organizational Behavior*. DOI: 10.1002/job.1867.

idea generation mainly denotes an intrapersonal process of reorganising in unconventional ways knowledge already available (Amabile, 1982; Kanter, 1988)⁸. Thus, as discussed in Chapter 4, moods experienced at work could have implications for idea generation, due to the directive properties of affect for processes of thinking and behaving. Drawing on recent experimental evidence (Fredrickson, 2004; Frijda, 1986; Gable & Harmon-Jones, 2008, 2010; Harmon-Jones & Gable, 2008, 2009; Schwarz, 2000; Watson, 2000), the linear combination of valence and affect has been argued as influencing broadening-narrowing in cognition, along with readiness-passiveness in behaviour. Broadening cognition refers to processes of high reflexion where divergent thinking, the association of available knowledge in an unconventional way, is dominant (Fredrickson, 2001, 2004). Furthermore, broadening cognition also entails a wide attentional focus when reasoning (Gable & Harmon-Jones, 2010). In a different way, focused attention and processes of convergent thinking represent narrowing cognition, where the use of pre-established rules and heuristics are primarily adopted (Forgas & George, 2001; Forgas, 1995). In addition, cognitive rumination (typically observed in depressive feelings) also denotes a kind of narrowing cognition, because it involves exacerbated convergent thinking on negative feelings experienced, which is linked to a narrow attentional focus linked to oneself (Lyubomirsky & Nolenhoeksema, 1993, 1995). In turn, readiness involves a state of energy expenditure which disposes individuals to action, whereas passiveness denotes low energy, behavioural disengagement and acquiescent action tendencies.

When considered alone (see Table 7.1), valence denotes the extent to which a given context is appraised as problematic or not and, therefore,

⁸ Idea generation can be also conceptualised as an interpersonal process when the focus is “group creativity”. However, the explicit focus of this thesis is innovative work behaviour at individual level of analysis.

whether the situation is good or not for one’s own well-being. So, positive valence signals that everything in the environment is well, leading to broad cognition; whereas negative valence cues that something is wrong in the environment leading to narrow cognition (George & Zhou, 2007; George, 2011; Martin & Stoner, 1996). In turn, high activation denotes that action is needed to perform well in the environment, leading to behavioural readiness and also an narrowing cognition (attentional focus), in order to improved effectiveness of actions performed (Easterbrook, 1959; Gable & Harmon-Jones, 2008, 2010). On the other hand, low activation signals that reflection, rather than active behaviour, is functional leading to broader attentional focus and behavioural passiveness (Frijda, 1986; Harmon-Jones & Gable, 2008).

Table 7.1: Dimensions of Moods, Cognition and Behaviour

Mood Basic Dimensions		Appraisal	Cognitive/Behavioural Implications
Valence	Positive	“In the context, everything is well”	Broad cognition
	Negative	“In the context, something is problematic”	Narrow cognition
Activation	High	“In the context, action is functional”	Narrow cognition Behavioural readiness
	Low	“In the context, reflection is functional”	Broaden cognition Behavioural passiveness

However, this thesis proposes that detachment of valence and activation is possible and valuable only for heuristic goals. In reality, individuals experience an indissoluble blend of valence and activation that configures a specific mood state and its consequences. So, when valence and activation are considered together to describe and understand the implications of specific moods, four different blends of cognition and behavioural tendencies should be described (i) cognitive implications of valence, (ii) cognitive implications of activation, and (iii) behavioural implications of activation (see Table 7.2). Specifically, high-activated positive moods denotes a complex state of broadening–narrowing–readiness, described by high reflection (divergent thinking), narrow attentional focus, and action willingness, oriented to exploring and striving for new opportunities in the environment. Low-activated positive mood is linked to a broadening–broadening–passiveness state, given by high reflection, broader attentional focus and limited action readiness, facilitating experiences of recovery in a given context. In turn, high-activated negative mood implies a state of narrowing–narrowing–readiness, described by limited reflection (convergent thinking), narrow attentional focus, together with action willingness, oriented to avoid risks and downsides present in the environment. Finally, low-activated negative mood denotes a narrowing–broadening–passiveness state, where high rumination, broad attentional focus, and limited action readiness are dominant.

Table 7.2: Moods and their Cognitive-Behavioural Implications

		Valence	
		Negative	Positive
Activation	High	<i>Narrowing – Narrowing – Readiness:</i>	<i>Broadening – Narrowing – Readiness:</i>
		Limited reflection (convergent thinking) Narrow attentional focus Energy expenditure, action willingness	High reflection (divergent thinking) Narrow attentional focus Energy expenditure, action willingness
	<i>Other correlates:</i>	<i>Other correlates:</i>	
	Concerns about risks, negative attitudes, active withdrawal	Positive judgements about oneself and the environment (e.g. self-efficacy, perception of contextual responsiveness), increased risk-taking, dedication, persistence, and social engagement	
	Low	<i>Narrowing – Broadening – Passiveness:</i>	<i>Broadening – Broadening – Passiveness:</i>
		High cognitive rumination Broad attentional focus Lack of vitality, behavioural disengagement	High reflection (divergent thinking) Broad attentional focus Limited energy, acquiescent behaviour
	<i>Other correlates:</i>	<i>Other correlates:</i>	
	Negative judgements about oneself and the environment (e.g. hopeless, perceptions of lack of support)	Acquiescent cognition (e.g. resignation), state of comfort, limited risk-taking	

Three cognitive-behavioural components are proposed as linked to moods, namely, (i) cognition associated with valence, (ii) cognition associated with activation, and (iii) behavioural tendencies associated with activation. Based on this, a composite title comprising these three components, e.g. “*Narrowing – Narrowing – Readiness*”, is offered for each mood described by the circumplex model of affect.

Now, if idea generation is mainly understood as a cognitive process of divergent thinking and reorganising knowledge previously developed (Chapter 2), the adoption of the theoretical framework proposed above indicates that low-activated positive mood might be primarily linked to thinking of, and producing novel ideas. This affective state is characterised by tendencies to think, rather than behave, having the potential of helping the reorganisation of knowledge previously acquired by individuals. However, the association between moods and idea generation seems to be less straightforward. A weight of experimental studies on creativity has indicated that *high-activated positive affect*, but not low-activated positive affect, is strongly related to developing novel ideas (Baas et al., 2008). So, *how do we deal with this tension between these findings, and theory presented here?* This issue may be reflecting that most empirical studies on creativity have been focused on feelings high in activation, neglecting low-activated positive mood (Chapter 4). However, this seems to be an inadequate explanation, because according to the theoretical approach developed in this thesis, high-activated positive mood should be linked to creativity less (due to narrowing attentional focus), disregarding whether low-activated positive moods are or not included in research designs.

An alternative explanation to the above issues is that enhancing idea generation at work demands both broadening and narrowing cognition (George, 2011), which would unfold in quick succession under a specific mood state. Specifically divergent thinking (broadening process) improves “kaleidoscopic” reasoning (Kanter, 1988), which would increase unconventional associations of available knowledge and the likelihood of producing novel ideas. In addition, a focused attention (narrowing process) is relevant for task performance and producing novel ideas with *useful potential* in the practical realm (Amabile, 1988). The latter is denoted by evaluation of novel ideas produced in terms of, for example, weighing their possible advantages and downsides, and their cost/benefit ratio (cf.

George, 2011). This highlights that random generation of novel ideas disconnected from their practical implications would be less relevant in work settings (Amabile, 1988; George & Zhou, 2007; George, 2011). Creative ideas *at work* demand not only novelty but also practical usefulness for which both broad and narrow cognition are very important. Taken together, positive moods in general are proposed as positively related to idea generation. High-activated positive mood would have a positive association with idea generation, because these feelings comprise both flexible thinking and greater attentional focus to produce *novel* and *useful* ideas with practical value at work. Furthermore, low-activated positive mood would be also related to idea generation; however, this relationship will be weaker compared with high-activated positive mood. Positive feelings low in activation facilitate greater cognitive flexibility and reflection, but broader attentional focus and lack of concentration which diffuses the production of novel and useful ideas.

Hypothesis 1: High-activated positive mood will be positively related to idea generation.

Hypothesis 2: Low-activated positive mood will be positively related to idea generation.

Hypothesis 3: The relationship between low-activated positive mood and idea generation will be weaker than the relationship between high-activated positive mood and idea generation.

Regarding negative affective states, high-activated negative mood would not be related to idea generation, because even when it increases attentional focus and persistence, at the same time it implies distress which consumes psychological resources (e.g. self-efficacy) which are essential for high performance (Luthans, Youssef, & Avolio, 2007; Parker et

al., 2010). Accordingly, previous research has not supported a direct relationship between high-activated negative mood and creativity at work (George & Zhou, 2007; To et al., 2011). In turn, low-activated negative mood is proposed as negatively related to idea generation. Firstly, according to the circumplex model of affect, low-activated negative mood denotes the opposite state of high-activated positive moods (Russell, 1980; Warr, 2007; Yik et al., 2011); thus, contrary implications are logically expected for cognition and behaviour when comparing both these kind of moods. Specifically, low-activated negative feelings, broad attentional focus and reflection; however, processes of thinking are often dysfunctional in this case, being characterised by exacerbated self-focused rumination attached to experiences of frustration or feeling lost (e.g. when achieving intended goals was not possible) (Lyubomirsky & Nolenhoeksema, 1995; Nolenhoeksema, Parker, & Larson, 1994; Treynor et al., 2003). Consequently, low-activated negative mood involves lack of concentration, apathy, disinterest and disengagement with the environment (Frijda, 1986; Verhaeghen et al., 2005), all of which utterly conflicts with psychological processes needed for creating novel ideas with practical implications at work.

Hypothesis 4: Low-activated negative mood will be negatively related to idea generation.

7.3 MOODS, IDEA SUGGESTION AND COALITION BUILDING

Idea suggestion refers to proposing novel solutions or opportunities in the work environment, while coalition building entails searching for support for novel ideas with relevant others at work, such as colleagues, supervisors and managers (Chapter 2). In both cases, these behaviours represent interpersonal actions, demanding high willingness and persistence to face the social environment at work, with the aim of

increasing the adoption of novel ideas (West, 2002). Thus, moods high in activation are more likely to stimulate these behaviours, because these feelings entail action readiness, while low-activated moods dispose individuals to passiveness (Frijda, 1986).

Specifically, high-activated positive mood is proposed as positively related to idea suggestion and coalition building, since it would make individuals prone to perceive the work environment as having opportunities for exploration and risk taking (Edmondson, 1999; Siegel & Kaemmerer, 1978). Positive self-evaluations also unfold under positive mood high in activation, such as an increased self-efficacy (Luthans et al., 2007; Parker, 1998). Having positive evaluations about both the work environment and self belief is crucial for proposing ideas and asking for support in them, in order to challenge the status quo and resistance to change in the work environment (George, 2007; Janssen, van de Vliert, & West, 2004). Furthermore, high-activated positive mood would facilitate idea suggestion and coalition building through narrow attentional focus and energy expenditure, increasing direction and persistence in striving to obtain power for adopting novel ideas (Kanter, 1988; Van de Ven, 1986). In turn, low-activated positive mood is not expected to be associated with proposing and searching for support for novel ideas, because these feelings involve a “comfort zone” (Warr, 2007), which might unfold in beliefs that changes are not needed in the environment (resignation), and consequently acquiescent behaviour is predominant (Warr et al., 2013).

Regarding negative feelings, high-activated negative mood would not be related to idea suggestion and coalition building, because this affective state makes individuals concerned about risk taking and possible downsides of voicing novel ideas are more salient (resistance to change, negative evaluations, conflict) (cf. Watson, Wiese, Vaidya, & Tellegen, 1999; Watson, 2000), leading to actively avoiding “rocking the boat” (Yuan

& Woodman, 2010). In this case, energy expenditure of feelings might be utilised to actively inhibit voicing and championing of ideas in order to elude possible negative consequences. In turn, low-activated negative mood would be negatively related to idea suggestion and coalition building. These feelings entail a strong state of disengagement with the environment and absorption within the intrapersonal domain (greater defocused and introverted reflection) (Lyubomirsky et al., 1998; Lyubomirsky & Nolenhoeksema, 1995; Nolenhoeksema et al., 1994), which substantially decrease interpersonal behaviour (Warr, Bindl, Parker, & Inceoglu, 2013), even when individuals might have developed some novel thoughts (Bindl et al., 2012). Furthermore, low-activated negative mood denotes pessimism, disappointment and hopelessness, all of which may reduce interest in contributing novel ideas to improve conditions at work.

Hypothesis 5: High-activated positive mood will be positively related to idea suggestion and coalition building.

Hypothesis 6: Low-activated negative mood will be negatively related to idea suggestion and coalition building.

7.4 MOODS AND IDEA REALISATION

Idea realisation corresponds to the materialisation of innovative ideas at work (Chapter 2), such as when an employee spends time implementing a new procedure or technology in his/her work unit. Similar to idea suggestion and coalition building, adopting novel ideas demands focus, dedication and persistence in order to transform ideas in effective solutions; thus, high-activated positive mood would offer the fuel to sustain this effort (Bindl et al., 2012; Bindl & Parker, 2010). Furthermore, implementation of novel ideas usually requires collaborative work, because transformation of work practices often requires abilities located in

different individuals (Kanter, 1988; West, 2002). Collaboration and group work is substantively improved when employees experience high-activated positive mood (Barsade, 2002; Fredrickson & Losada, 2005; Kelly & Barsade, 2001; Losada & Heaphy, 2004), since these feelings lead to positive attitudes toward colleagues, supervisors and managers, enhancing social engagement at work. In turn, the “comfort zone” denoted by low-activated positive mood would make this affective state less relevant for implementing novel ideas (Warr, 2007). When feeling in a comfortable state, employees may have positive work-related attitudes; however, they are prone to unwillingness to strive for changes, which is expressed in dominant reflection, passiveness and limited action readiness (Gable & Harmon-Jones, 2008).

In terms of negative feelings, high-activated negative mood is not expected to be associated with idea realisation. These feelings involve negative judgements and active avoidant behaviour (Watson, 2000), such as a sense of cynicism or distrust about the willingness of colleagues and supervisors to collaborate on implementing changes at work, and active withdrawal (Yik et al., 2011). The same feelings may drain ones own psychological resources, such as efficacy, resilience and optimism (Avey, Luthans, Smith, & Palmer, 2010; Luthans et al., 2007) needed for an effective interpersonal collaboration. Finally, low-activated negative mood is proposed as negatively related to idea realisation, because this involves negative attitudes about oneself and others, while very limited behavioural energy. Specifically, dissatisfaction, decreased self-efficacy, pessimism, perceptions of poor working climate, boredom, tiredness, and compliance may be dominant when individuals experience negative feelings low in activation, all of which are highly detrimental for endeavouring changes at work.

Hypothesis 7: High-activated positive mood will be positively related to idea realisation.

Hypothesis 8: Low-activated negative mood will be negatively related to idea realisation.

7.5 METHOD

In order to test the hypotheses proposed above, two survey studies were conducted (thesis studies 3 and 4). Study 3 was based on a cross-sectional design where job-related moods and innovative work behaviour were measured at one time. Study 4 consisted of a longitudinal design in order to confirm, or discard the findings observed in Study 3. Specifically, Study 4 was based on diary methods, where repeated measures of job-related moods and innovative work behaviour were collected over a period of ten weeks.

7.5.1 Study 3: Cross-sectional Method

Procedure and Data

This study was conducted using the same data utilised in Chapter 6, where measures of job-related moods and innovative work behaviour were validated. This consisted of weekly measures of moods and innovative work behaviour self-reported by participants through a cross-sectional survey. The procedure of data collection and sample characteristics described in Chapter 6 also applied in this study.

An important issue in the procedure of this study is the use of self-reported data for testing the relationships between moods and innovative work behaviour. According to general theory and research on behavioural

measurement, this procedure might lead to misleading interpretations due to, for instance, common method, implicit theories and self-service biases (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). So, for example, supervisor ratings are highly recommended. But, this does not necessarily apply to innovative behaviour, because employees are more sensitive of the extent to which they create and suggest novel ideas to others at work (Janssen, 2000; Shalley, Gilson, & Blum, 2009). Actually, supervisors in some cases can overlook ideas developed by their subordinates, offering risks of construct deficiency and deflation in hypothesis testing (Conway & Lance, 2010; Griffin et al., 2007; Kammeyer-Mueller, Steel, & Rubenstein, 2010). Furthermore, as discussed in Chapter 6, supervisor ratings of innovative work behaviour may be prone to mask differences among its dimensions. Lastly, previous research has also supported that ratings of innovative work behaviour are highly consistent between employee ratings, supervisor ratings and objective measures of innovation (Axtell et al., 2000; Janssen, 2000; Scott & Bruce, 1994). Therefore, it is proposed that the use of self-reports of innovative work behaviour are valuable, but potential issues associated with common method bias should be considered in order to make sure that results observed are meaningful.

In a recent meta-analysis (Ng & Feldman, 2012), the associations between positive affect and self-reports of innovative-related outcomes were minimally affected by common method threats. However, it is not possible to discard some degree of common method issues. In order to deal with this, a two-step strategy was designed following the proposals of Podsakoff et al. (2003). Firstly, when testing the measurement model between moods and innovative behaviour (detailed later), Harman's single factor test was performed using confirmatory factor analysis (Podsakoff et al., 2003). This offers a general assessment to determine whether common method issues substantively affects data. Furthermore, as a post hoc

strategy, extroversion and neuroticism were included in all regression analyses, in order to control for possible systematic trait influences. Previous research has supported that extroversion is highly related to positive trait affect, whereas neuroticism is substantively related to negative trait affect (Watson & Clark, 1992). Secondly, when testing the hypotheses, the parameter estimated between high-activated positive mood and innovative work behaviour was contrasted to the typical amount of common method variance observed in organizational behaviour research. To the best of my knowledge, there are no specific values estimated for method variance associated with innovative-related outcomes or moods. Nevertheless, important work about these issues has been conducted in relation to job satisfaction and work performance (Bagozzi & Yi, 1990; Cote & Buckley, 1987; Doty & Glick, 1998; Lance, Dawson, Birkelbach, & Hoffman, 2010; Williams, Cote, & Buckley, 1989). The value of method variance typically observed between job satisfaction and work performance is between twenty-three and twenty-five percent (Bagozzi & Yi, 1990; Cote & Buckley, 1987, 1988; Williams et al., 1989). This has led to arguments that common method variance should be acknowledged as an issue, but it does not seem to be so harmful as to invalidate results (Conway & Lance, 2010; Lance et al., 2010; Richardson, Simmering, & Sturman, 2009). So, assuming that job satisfaction has a substantial degree of overlap with job-related moods (Warr, 2007), while innovative work behaviour is a form of work performance, an approximate of twenty-four percent of method variance was expected in the relationship between these constructs.

Measures

Innovative Work Behaviour and Job-related Moods. Scales resulting from the validation conducted in Chapter 6 were utilised to measure idea generation ($\alpha = .85$), idea suggestion ($\alpha = .93$), coalition

building ($\alpha = .82$), idea realisation ($\alpha = .93$), high-activated positive mood ($\alpha = .85$), low-activated positive mood ($\alpha = .85$), high-activated negative mood ($\alpha = .76$), and low-activated negative mood ($\alpha = .85$).

Extroversion and Neuroticism. These personality traits were measured in order to account for individual tendencies on experiencing positive and negative feelings in general. Controlling for individual affective disposition also help to account for possible issues on common method variance, since the use of self-reported ratings and cross-sectional design (Podsakoff et al., 2003). Thus, extroversion and neuroticism were measured using six items from the Big-Five measures validated in Spanish by Benet-Martinez and John (1998), which were framed as follows: *Indicate how accurately each statement describes you, I see myself as someone who...* “is outgoing, sociable”, “is talkative”, “is sometimes shy, inhibited (reverse scored)” (Extraversion, $\alpha = .77$); “gets nervous easily”, “worries a lot”, “can be moody” (Neuroticism, $\alpha = .72$) (1 = *strongly disagree* – 5 = *strongly agree*). These measures were translated into Spanish and then translated back into English by two independent translators, following the procedure described by Brislin (1970). In cases of back translation disagreement, both translators decided together the most precise Spanish version of the problematic items.

Control Variables. Gender, age and organisational tenure of participants were also used as control variables in all analyses, with the aim to account for possible confounding effects. For instance, higher tenure might lead to increased innovative work behaviour, because a greater experience in an organisation could make employees more skilled and confident to generate, promote and realise novel ideas.

Analytical Strategy

Confirmatory factor analyses, using Mplus (Muthén & Muthén, 2010), was conducted to test the robustness of the measurement model described by innovative work behaviour, moods and personality traits. Results for a ten-factor model, namely, idea generation, idea suggestion, coalition building, idea realisation, high-activated positive mood, low-activated positive mood, high-activated negative mood, low-activated negative mood, extroversion and neuroticism showed excellent goodness-of-fit ($\chi^2 = 520.21$, $df = 360$, $p = .00$; RMSEA = .04; SRMR = .05; CFI = .97; TLI = .96) supporting the measurement model to be used in this study (for detailed benchmarks see Brown, 2006; Byrne, 2012; Kline, 2011). Then, the Harman's single factor test (Podsakoff et al., 2003) was conducted using the measures of moods and innovative work behaviour in order to determine if common method variance would be an important issue on data analysis. Results for this model showed very poor good-of-fitness ($\chi^2 = 3335.71$, $df = 252$, $p = .00$; RMSEA = .17; SRMR = .17; CFI = .49; TLI = .44), indicating that common method variance is not a substantive threat for interpretation of results. With regards to hypotheses testing, this was performed through structural equation modelling, where associations between moods and innovative behaviour were estimated using latent variables structural regressions (Byrne, 2012; Kline, 2011).

Results

Means, standard deviations, correlations and reliabilities are summarised in Table 7.3. Hypothesis 1 indicated that high-activated positive mood would be positively related to idea generation. Results in Table 7.4 showed these variables as positively and significantly related ($b = .50$, $SE = .15$, $p < .01$); thus, hypothesis 1 was supported. Hypothesis 2 stated that low-activated positive mood would be positively related to idea

generation, while hypothesis 3 indicated that the relationship between low-activated positive mood and idea generation would be weaker than the relationship between high-activated positive mood and idea generation. Low-activated positive mood was not significantly related to idea generation ($b = -.21, SE = .18, p > .05$); thus, hypotheses 2 and 3 were not supported. Hypothesis 4 indicated that low-activated negative mood would be negatively related to idea generation. A positive relationship between low-activated negative mood and idea generation was observed ($b = .52, SE = .27, p < .05$). Thus, hypothesis 4 was not supported.

Hypothesis 5 stated that high-activated positive mood would be positively related to idea suggestion and coalition building. A positive and significant association of high-activated positive mood with idea suggestion ($b = .59, SE = .16, p < .01$), and with coalition building ($b = .68, SE = .17, p < .01$) were observed, supporting hypothesis 5. Hypothesis 6 indicated that low-activated negative mood would be negatively related to idea suggestion and coalition building. Results showed a positive relationship between low-activated negative mood and idea suggestion ($b = .56, SE = .29, p < .05$), and between low-activated negative mood and coalition building ($b = .67, SE = .31, p < .05$). Thus, hypothesis 6 was not supported.

Hypothesis 7 proposed that high-activated positive mood would be positively related to idea realisation. Results showed these variables as positively and significantly related ($b = .86, SE = .21, p < .01$). Thus, hypothesis 7 was supported. Finally, hypothesis 8 stated that low-activated negative mood would be negatively related to idea realisation. Results showed these variables as not significantly related ($b = .69, SE = .37, p > .05$). Therefore, hypothesis 8 was not supported.

Table 7.3: Descriptive Statistics, Correlations and Reliabilities

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	1.56	.50	---												
2. Age	34.37	8.32	.04	---											
3. Organisational Tenure	5.13	5.21	.01	.53**	---										
4. Extroversion	3.69	.94	.18**	.17*	.07	(.86)									
5. Neuroticism	2.76	.86	.00	-.09	.07	-.20**	(.72)								
6. High-Activated Positive Mood	3.50	.87	-.01	.13**	.02	.28**	-.23**	(.85)							
7. Low-Activated Positive Mood	3.23	.90	.02	.09	.04	.04	-.34**	.41**	(.85)						
8. High-Activated Negative Mood	2.73	.91	-.09	-.04	.03	.04	.34**	-.21**	-.55**	(.85)					
9. Low-Activated Negative Mood	1.97	.81	.00	.01	.08	-.03	.30**	-.52**	-.33**	.49**	(.76)				
10. Idea Generation	3.48	.75	.00	.03	.02	.26**	-.23**	.34**	.11*	.04	-.10	(.85)			
11. Idea Suggestion	3.44	.91	-.06	.09	.02	.21**	-.19**	.34**	.07	.03	-.12*	.57**	(.93)		
12. Coalition Building	3.12	.95	.03	.07	.03	.26**	-.12	.32**	.00	.08	-.07	.54**	.61**	(.82)	
13. Idea Realisation	3.03	1.01	-.03	.09	.03	.21**	-.16*	.40**	.10*	-.03	-.17**	.57**	.62**	.69*	(.93)

Scale reliabilities are parenthesised in the diagonal. * $p < .05$, ** $p < .01$

Table 7.4: Structural Equation Modelling for Moods and Innovative Work Behaviour

Estimate	Model 1 Idea Generation	Model 2 Idea Suggestion	Model 3 Coalition Building	Model 4 Idea Realisation
Gender	-.02 (.11)	-.08 (.12)	-.06 (.13)	-.01 (.16)
Age	-.12 (.06)*	-.13 (.07)*	-.08 (.07)	-.10 (.09)
Organisational Tenure	.10 (.06)†	.12 (.06)†	.05 (.07)	.02 (.08)
Extroversion	.01 (.07)	.04 (.08)	.04 (.09)	-.01 (.10)
Neuroticism	-.33 (.12)**	-.20 (.12)	-.19 (.13)	-.15 (.15)
High-Activated Positive Mood	.50 (.15)**	.59 (.16)**	.68 (.17)**	.86 (.21)**
Low-Activated Positive Mood	-.21 (.18)	-.16 (.19)	-.38 (.21)†	-.32 (.25)
High-Activated Negative Mood	-.09 (.26)	-.23 (.29)	-.28 (.32)	-.36 (.38)
Low-Activated Negative Mood	.52 (.27)*	.56 (.29)*	.67 (.31)*	.69 (.37)†
χ^2 (df)	297.22 (210)**	286.01 (210)**	313.16 (210)**	303.67 (210)
CFI, TLI	.96, .94	.97, .95	.95, .93	.96, .95
RMSEA, SRMR	.05, .05	.04, .05	.05, .05	.05, .05
R^2	.33 (.08)**	.30 (.08)**	.35 (.09)**	.31 (.08)**

Unstandardised estimates. Standard errors are parenthesised. † $p < .10$, * $p < .05$, ** $p < .01$

Discussion Study 3

As expected, results of this study showed high-activated positive mood as positively and strongly related to all the dimensions of innovative work behaviour. This suggests that cognitive and behavioural processes linked to both positive valence and high levels of activation (i.e. broad and narrow cognition, together with action readiness) are relevant for generating, promoting and realising novel ideas. However, the magnitude of the relationship between high-activated positive mood and dimensions of innovative work behaviour (all over .50, see Table 7.4) should be

considered in detail, since cross-sectional designs are prone to issues on inflated estimation. As discussed in the procedure section, twenty-four percent of method variance is expected between moods and innovative work behaviour ($b = .12$ for idea generation, $b = .14$ for idea suggestion, $b = .16$ for coalition building, $b = .21$ for idea realisation). This bias estimation suggests that relationships between high-activated positive moods and dimensions of innovative work behaviour are not invalidated, because these relationships can still be considered as substantive after accounting for method variance. Regarding low-activated positive mood, this was not related to idea generation, which is contrary to the proposed hypothesis. This result suggests that greater reflection joined to broadened attentional focus, which is typically associated with feelings low in activation, are insufficient for generating novel ideas at work. Results of Study 4 will offer additional evidence to determine if low-activated positive mood is likely or not to be associated with generating novel ideas.

Regarding negative affect, the results are puzzling because, contrary to the proposed hypotheses, low-activated negative mood was positively related to idea generation, idea suggestion and coalition building (Table 7.4). This indicates that when experiencing displeasure and limited action readiness, individuals are prone to creating, voicing, and asking for support for novel ideas. This challenges the theoretical approach developed in this thesis, which proposed that rumination, broad attentional focus, passiveness and disengagement embedded in low-activated negative feelings would be detrimental for thinking and striving for novel ideas at work (Frijda, 1986; Gable & Harmon-Jones, 2010; Lyubomirsky & Nolenhoeksema, 1995). However, results observed in this study must be carefully considered, because examination of zero-order correlations (Table 7.3) indicates that low-activated negative mood was negatively and statistically related to the dimensions of innovative work behaviour. This discrepancy between zero-order correlations and

regression coefficients suggests that issues of “negative suppression” may be present when conducting structural regressions (MacKinnon, Krull, & Lockwood, 2000; Tzelgov & Henik, 1991). This denotes observation of substantive and significant effects (i.e. low-activated negative mood) on a specific outcome (i.e. dimensions of innovative work behaviour), with an opposite direction than their respective zero-order correlations, only when other highly correlated predictors (i.e. other moods described by the circumplex) are included as covariates. Regression analyses based on cross-sectional designs are prone to suppression effects, due to inflated correlation between variables measured. Suppression effects often represent “statistical artefacts” if there is not a strong theoretical basis to interpret them. Results observed in relation to low-activated negative mood and innovative work behaviour do not make sense in relation to the theoretical arguments developed in this thesis, since they are suggesting that when individuals experience limited vitality, apathy and social disengagement they are more inclined to propose and ask for support in novel ideas with others. So, additional research would be helpful to confirm or discard these findings.

To sum up, results of this study supported the proposal that high-activated positive mood is substantially linked to generating, promoting and realising novel ideas. However, some disconcerting results were also observed in relation to low-activated negative mood. This highlights the need for a stronger research design in order to determine whether results observed here represent true effects or statistical artefacts. These issues are tackled in the study 4 presented below.

7.5.2 Study 4: Diary Method

Procedure

This study was based on diary methods in order to test the proposed hypotheses, which accounts for time-variant dynamics of moods and behaviour over time (Totterdell & Niven, 2012). A diary study in general is based on repeated measures collected hourly, daily or weekly over a specific interval of time, which offers greater accuracy in capturing within-person variance when constructs of interest have short or mid life span (Bolger et al., 2003; Fisher & To, 2012; Ohly et al., 2010). Participants of this study were professionals employed in 73 different companies in Chile, who attended a part-time MBA program (N= 49) or a part-time Master Degree program of management (N= 45) offered by one of the major universities in this country. Data was collected weekly through paper-based questionnaires when participants attended their activities at the university. Conceptualisation of moods and behaviour in a weekly time frame is argued as meaningful for understanding the relationship between affective states and variables that are not too transitory, such as innovative work behaviour. This, relies on Bandwidth-Fidelity Theory (Cronbach & Gleser, 1965), which highlights that constructs examined in research have to be defined and measured congruently in terms of their conceptual and operational scope, in order to make meaningful conclusions. So, weekly moods are defined as generalized and long-lasting affective states that are representative of the way that individuals feel over their last work week, which has been shown to be valuable in understanding work-related cognition and behaviour, such as job satisfaction and commitment, turnover intentions, creativity and task performance (George & Zhou, 2002, 2007; Madjar et al., 2002; Tsai et al., 2007; Vandenberghe et al., 2011). In terms of behaviour, recent studies have shown that generation of novel ideas may vary within and between days (Amabile et al., 2005;

Binnewies & Woernlein, 2011); yet, to the best of my knowledge, little is still known about the time fluctuation associated with promoting and implementing novel ideas. Since the latter behaviours entail collaborative work with others (Kanter, 1988), they would be highly dependent on activities that are likely to be separated by several days or weeks (e.g. planning, coordination or implementation meetings). So, conceptualization of both moods and innovative work behaviour in a weekly time frame is proposed as appropriate.

In the first week, participants answered a questionnaire about demographics and trait affect. Starting from the second week, participants were asked once a week over 10 weeks about their job-related moods and innovative work behaviour during the preceding week in their workplaces. The final sample size of the study comprised 92 participants after the exclusion of two people due to missing data, obtaining 893 observations of innovative work behaviour. Participants were 52% male, the average age was 33 years (SD = 6.21) and the average work tenure was 3.87 years (SD = 3.81). Occupations of participants were distributed as follows: business/management professional (33.7%), civil engineer (27.2%), social worker, sociologist or psychologist (33.7%), and others (designer, architect, teacher; 5.4%). At the time of the study 34.8% of participants worked as team/group members with no supervisory roles, 41.3% were supervisors or team leaders, and 23.9% worked as executive managers. Finally, participants were members of organizations within the services (80.4%), manufacturing (14.1%) and other (5.5%) economic sectors.

Measures

Innovative Work Behaviour and Job-related Moods. Scales resulting from the validation conducted in Chapter 5 were utilised to measure idea generation ($\alpha = .88$), idea suggestion ($\alpha = .92$), coalition

building ($\alpha = .88$), idea realisation ($\alpha = .94$), high-activated positive mood ($\alpha = .93$), low-activated positive mood ($\alpha = .91$), high-activated negative mood ($\alpha = .90$, and low-activated negative mood ($\alpha = .94$).⁹

Positive and Negative Activation: Positive and negative trait affectivity factors were included as covariates in order to control for common method variance issues (Podsakoff et al., 2003), while accounting for possible influences of individual affective dispositions on innovative work behaviour. This was measured using markers from the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988). Five items were used for positive activation (enthusiastic, excited, strong, interested, determined; $\alpha = .83$) and five items for negative activation (irritable, jittery, hostile, upset, nervous; $\alpha = .85$). This scale was framed as “indicate to what extent you feel the following feelings in general” (1 = *very slightly or not at all* to 5 = *extremely*) with the aim of capturing the affective tendency of participants in reference to their general life, so not limiting these affective measures to the job domain (Warr, 2007, 2013). The above measures were translated into Spanish and then translated back into English by two independent translators, following the procedure described by Brislin (1970). In cases of back translation disagreement, both translators decided together the most precise Spanish version of the problematic items.

Control variables. Gender, age and organizational tenure of the participants were used as control variables in order to account for possible confounding effects (see Study 1). Moreover, to control for potential time serial dependence (auto-correlation) and monotonic time trend of innovative behaviour over waves of data (Singer & Willett, 2003), -1 lagged

⁹ Cronbach’s alphas reported correspond to average reliabilities observed over the ten waves of data.

factor of innovative behaviour and the linear time index variable were included in all analyses.

Analytical Strategy

A series of multilevel confirmatory factor analyses were conducted for estimating the robustness of the measurement model of moods, dimensions of innovative work behaviour and trait affect using Mplus (Byrne, 2012; Muthén & Muthén, 2010). Because the number of observations at level-2 was limited to test all the variables in a single model ($N = 92$), the factorial structure of moods were tested in relation to idea generation, idea suggestion, coalition building and idea realisation respectively in separate models. Results displayed in Table 7.5 show excellent goodness-of-fit for all models tested, supporting robustness of the measurement models for moods and innovative work behaviour.

Table 7.5: Multilevel Confirmatory Analysis for Moods and Innovative Work Behaviour

Model	N	χ^2	df	p-value	CFI	TLI	RMSEA	SRMR
	L-1/L-2							Within/Between
Idea generation, idea suggestion, coalition building, idea realisation	886/92	204.49**	96	.00	.98	.97	.04	.03/.03
Idea generation and moods	857/92	278.26**	160	.00	.97	.96	.03	.04/.07
Idea suggestion and moods	857/92	269.58**	160	.00	.98	.97	.03	.04/.07
Coalition building and moods	860/92	266.17**	160	.00	.97	.96	.03	.04/.08
Idea realisation and moods	859/92	282.77**	160	.00	.97	.96	.03	.04/.06

** $p < .01$

Testing of hypotheses was performed using Multilevel Structural Equation Modelling (MSEM; Preacher, Zyphur, & Zhang, 2010). A two-level model was described, where weekly moods and innovative work behaviour (time-variant variables) were defined at level-1, whilst trait affect and demographic variables (time-invariant) were defined at level-2. Analyses of the within and between variance components from the null models (Hox, 2010) indicated that innovative work behaviour substantially varied over time (49.7% idea generation, 51.7% idea suggestion, 58.7% coalition building, 60.8% idea realisation). Similar results were observed for high-activated positive mood (53%), low-activated positive mood (50.3%), high-activated negative mood (51.9%) and low-activated negative mood (54.3%). These percentages of within-subjects variance support that both innovative work behaviour and moods have substantial fluctuation over weeks, corroborating also the nested structure of the data and justifying the use of a multilevel approach (Kozlowski & Klein, 2000). Hypotheses were tested using random intercept and slope models. In these, level-1 predictors were person-mean centered, whereas level-2 predictors were grand-mean centered in order to interpret each effect in their respective level (Hoffman & Gavin, 1998; Hox, 2010).

Results

Means, standard deviations, correlations and reliabilities of the variables are summarised in Table 7.6. Hypothesis 1 indicated that high-activated positive mood would be positively related to idea generation. Results in Table 7.7 showed these variables as positively and significantly related ($b = .34$, $SE = .06$, $p < .01$); therefore, hypothesis 1 was supported. Hypothesis 2 stated that low-activated positive mood would be positively related to idea generation, while hypothesis 3 indicated that the relationship between low-activated positive mood and idea generation would be weaker than the relationship between high-activated positive

mood and idea generation. Results indicated that low-activated positive mood was unrelated to idea generation ($b = .00, SE = .06, p > .05$). Thus, hypotheses 2 and 3 were not supported. Hypothesis 4 indicated that low-activated negative mood would be negatively related to idea generation. Results showed these variables as unrelated ($b = -.01, SE = .04, p > .05$). Therefore, hypothesis 4 was not supported.

Hypothesis 5 stated that high-activated positive mood would be positively related to idea suggestion and coalition building. Results showed a positive and significant association of high-activated positive mood with idea suggestion ($b = .31, SE = .07, p < .01$), and with coalition building ($b = .28, SE = .07, p < .01$). Therefore, hypothesis 5 was supported. Hypothesis 6 indicated that low-activated negative mood would be negatively related to idea suggestion and coalition building. Results showed low-activated negative mood and idea suggestion as unrelated ($b = .02, SE = .03, p > .05$). The same applied to low-activated negative mood and coalition building ($b = .02, SE = .04, p > .05$). Thus, hypothesis 6 was not supported.

Hypothesis 7 proposed that high-activated positive mood would be positively related to idea realisation. Results showed these variables as positively and significantly related ($b = .31, SE = .07, p < .01$). Thus, hypothesis 7 was supported. Finally, hypothesis 8 stated that low-activated negative mood would be negatively related to idea realisation. Results showed these variables as unrelated ($b = .01, SE = .05, p > .05$). Therefore, hypothesis 8 was not supported.

Table 7.7: Multilevel Structural Equation Modelling for all Moods Factors

Estimate	Model 1 Idea Generation	Model 2 Idea Suggestion	Model 3 Coalition Building	Model 4 Idea Realisation
Intercept	3.27 (.06)**	3.22 (.07)**	2.97 (.08)**	2.91 (.08)
<i>Level 1 Variables</i>				
Time index	-.01 (.01)	.01 (.01)	.02 (.01)*	.02 (.01)**
Lagged Behaviour (t-1)	-.04 (.04)	-.06 (.05)	-.01 (.03)	-.07 (.04)†
High-Activated Positive Mood	.34 (.06)**	.31 (.07)**	.28 (.07)**	.31 (.07)**
Low-Activated Positive Mood	.00 (.06)	-.03 (.06)	.02 (.06)	.02 (.06)
High-Activated Negative Mood	.02 (.04)	.03 (.05)	.01 (.05)	.06 (.05)
Low-Activated Negative Mood	-.01 (.04)	.02 (.05)	.02 (.04)	.01 (.05)
Residual Variance Level 1	.22 (.02)**	.29 (.03)**	.28 (.03)	.28 (.03)**
R ² Level 1	.33	.23	.28	.28
<i>Level 2 Variables</i>				
Gender	.15 (.13)	.15 (.14)	.14 (.16)	.06 (.18)
Age	.08 (.06)	.05 (.07)	.05 (.07)	.03 (.08)
Organisational Tenure	.08 (.06)	.09 (.08)	.14 (.06)**	.13 (.07)†
Positive Activation	.36 (.10)**	.42 (.11)**	.44 (.11)**	.55 (.12)**
Negative Activation	-.02 (.07)	.01 (.09)	.04 (.09)	-.08 (.10)
Residual Variance Level 2	.28 (.05)**	.37 (.06)**	.48 (.09)**	.51 (.04)**
R ² Level 2	.15	.09	.13	.18
Deviance	1383.62	1569.35	1552.48	1557.94

Unstandardised estimates. Standard errors are parenthesised. Error variance null models: idea generation (w = .33, b = .33, ICC = .50); idea suggestion (w = .38, b = .41, ICC = .52); coalition building (w = .39, b = .55, ICC = .59); idea realisation (w = .40, b = .62, ICC = .61). † $p < .10$, * $p < .05$, ** $p < .01$

Post-Hoc Analyses

Based on the theoretical argumentation provided in this chapter, the hypotheses tested above assume that moods predicts behaviour; however, the opposite causal direction cannot be ruled out (cf. Baumeister, Vohs, DeWall, & Zhang, 2007; Briner & Kiefer, 2009; Glomb, Bhave, Miner, & Wall, 2011). In other words, the positive association observed between high-activated positive mood and dimensions of innovative work behaviour can also be interpreted as innovative work behaviour predicting high-activated positive mood (Briner & Kiefer, 2009). So, in order to gather evidence about which is the most likely causal relationship between these constructs, a series of longitudinal regression models were performed in a post-hoc fashion. Specifically, within-subjects (level 1) cross-lagged models were adopted (cf. Anderson & Kida, 1982; Cole & Maxwell, 2003; Kessler & Greenberg, 1981), where mood and behaviour of one week were regressed on mood and behaviour of the previous week, controlling for autocorrelation of moods and behaviour over time. Between-subjects positive activation was also used as a covariate to control for positive trait affect (see Figure 7.1). So, if lag mood statistically relates to subsequent week behaviour, a causal effect of mood on behaviour is interpreted. In turn, if in the same model lag behaviour statistically relates to subsequent week mood, there is evidence to support that behaviour predicts mood. Finally, if both mood and behaviour predicts subsequent week behaviour and mood respectively, there is evidence to support a reciprocal causal relationship between mood and behaviour.

Table 7.8 shows the results for high-activated positive moods, idea generation and idea suggestion. Lag high-activated positive mood was neither related to subsequent week idea generation (Model 5, $b = .02$, $SE = .05$, $p > .05$) nor idea suggestion (Model 6, $b = -.03$, $SE = .07$, $p > .05$). In turn, lag idea generation was not related to subsequent week high-

activated positive mood (Model 5, $b = .07$, $SE = .04$, $p > .05$); nevertheless, lag idea suggestion was positively related to subsequent week high-activated positive mood (Model 6, $b = .08$, $SE = .04$, $p < .05$), and this has an effect size equal to 4%. This suggests that idea suggestion has a small but significant causal prediction on high-activated positive mood over time.

Table 7.9 shows the results for high-activated positive moods, coalition building and idea realisation. Lag high-activated positive mood was neither related to subsequent week coalition building (Model 7, $b = .07$, $SE = .05$, $p > .05$) nor idea realisation (Model 8, $b = .05$, $SE = .05$, $p > .05$). However, lag coalition building was related to subsequent week high-activated positive mood (Model 7, $b = .09$, $SE = .03$, $p < .01$; $R^2 = .03$), while lag idea realisation was also related to the same feelings (Model 8, $b = .11$, $SE = .04$, $p < .01$; $R^2 = .05$). This also highlights that coalition building and idea realisation predicts high-activated positive moods over time. Figure 7.1 depicts the model estimated for high-activated positive mood and idea realisation, since this showed the largest effect size among models tested. The above results will be examined in detail in the discussion section.

Table 7.8: Longitudinal Cross-Lagged Models for High-Activated Positive Mood, Idea Generation and Idea Suggestion

Estimate	Model 5		Model 6	
	HAPA	Idea Generation	HAPA	Idea Suggestion
Intercept	2.14 (.17)**	3.27 (.06)**	2.49 (.16)**	3.22 (.07)**
<i>Level 1 Variables</i>				
Time index	.01 (.01)	.00 (.01)	.01 (.01)	.02 (.01)*
Behaviour	.33 (.05)**		.23 (.05)**	
Lagged HAPA (t-1)	.05 (.05)	.02 (.05)	.07 (.05)	-.03 (.07)
Lagged Behaviour (Gen or Sug) (t-1)	.07 (.04)†	.00 (.04)	.08 (.04)*	-.08 (.05)
Residual Variance Level 1	.21 (.02)**	.31 (.04)**	.21 (.03)**	.30 (.04)**
R ² Level 1	.00		.04	
<i>Level 2 Variables</i>				
Gender	.00 (.10)	.14 (.13)	.02 (.12)	.16 (.15)
Age	.00 (.05)	.08 (.06)	.02 (.06)	.05 (.07)
Organisational Tenure	.02 (.06)	.07 (.06)	.01 (.07)	.09 (.07)
Positive Activation	.46 (.09)**	.37 (.10)**	.49 (.10)**	.42 (.12)**
Residual Variance Level 2	.15 (.03)**	.27 (.05)**	.17 (.03)**	.36 (.06)**
Deviance		2791.15		2925.17

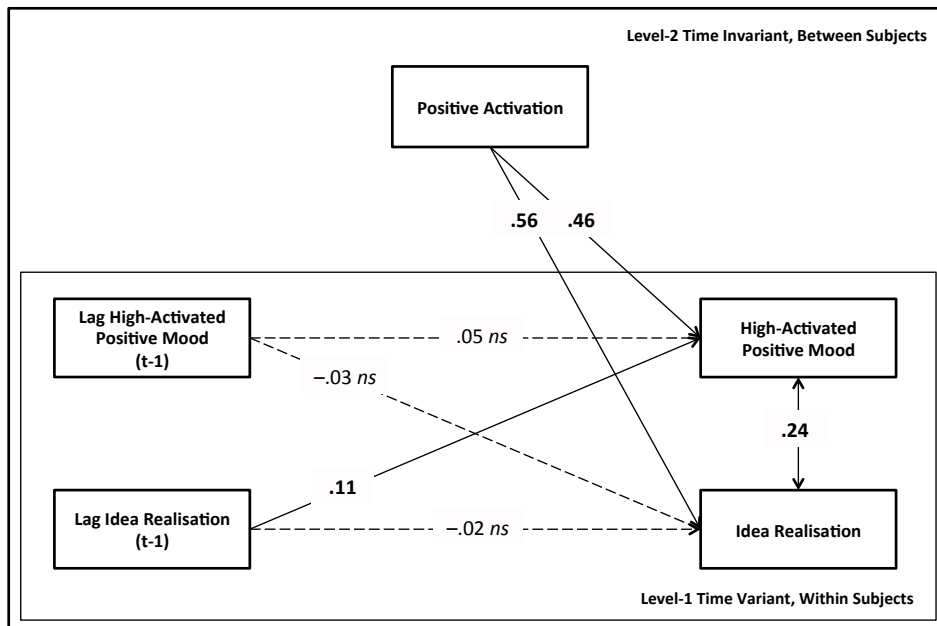
Unstandardised estimates. Standard errors are parenthesisised. † $p < .10$, * $p < .05$, ** $p < .01$

Table 7.9: Longitudinal Cross-Lagged Models for High-Activated Positive Mood, Coalition Building and Idea Realisation

Estimate	Model 7		Model 8	
	HAPA	Coalition Building	HAPA	Idea Realisation
Intercept	2.55 (.19)**	2.97 (.08)**	2.53 (.17)**	2.91 (.08)**
<i>Level 1 Variables</i>				
Time index	.00 (.00)	.02 (.01)**	.01 (.01)	.03 (.01)**
Behaviour	.23 (.06)**		.24 (.05)**	
Lagged HAPA (t-1)	.07 (.05)	.01 (.05)	.05 (.05)	-.03 (.05)
Lagged Behaviour (Coa or Rea) (t-1)	.09 (.03)**	.00 (.05)	.11 (.04)**	-.02 (.05)
Residual Variance Level 1	.22 (.03)**	.33 (.04)**	.21 (.02)**	.36 (.05)**
R^2 Level 1	.03		.05	
<i>Level 2 Variables</i>				
Gender	.02 (.11)	.13 (.17)	.03 (.11)	.05 (.18)
Age	.02 (.05)	.05 (.07)	.01 (.05)	.04 (.08)
Organisational Tenure	.01 (.07)	.14 (.05)**	.01 (.06)	.11 (.07)
Positive Activation	.47 (.10)**	.44 (.11)**	.46 (.10)**	.56 (.12)**
Residual Variance Level 2	.18 (.03)**	.47 (.09)**	.17 (.03)**	.50 (.09)**
Deviance	2974.14		2984.48	

Unstandardised estimates. Standard errors are parenthesised. † $p < .10$, * $p < .05$, ** $p < .01$

Figure 7.1: Longitudinal Cross-Lagged Models for High-Activated Positive Mood and Idea Realisation



Discussion Study 4

Using advanced methodology, this study corroborates that job-related moods are substantially related dimensions of innovative work behaviour. Taken together, the four moods described by the circumplex model of affect explains the 33% of idea generation, 23% of idea suggestion, 28% of coalition building and 28% of idea realisation. Nevertheless, high-activated positive mood is the main affective state linked to thinking of and implementing novel ideas at work. Contrary to the theoretical proposition, low-activated positive mood was unrelated to all the dimensions of innovative work behaviour, which highlights that energy expenditure is central for performing innovative endeavours (this is discussed in detail in the next section).

In turn, results showed that high-activated negative mood did not have a direct relationship with innovative work behaviour, which is consistent with theory and most previous research on affect and organisational behaviour (George, 2007; To et al., 2011). Moreover, results of this diary study showed low-activated negative mood as unrelated to any dimension of innovative work behaviour, which is contrary to the hypotheses proposed (this is discussed in detail in the next section), and opposed to the positive associations between these constructs observed in Study 3 (cross-sectional). Since diary methods are stronger than cross-sectional designs, results suggest that positive associations between low-activated negative mood and innovative work behaviour observed in Study 3 most likely represent statistical artefacts. This may be resulting from suppression effects, which typically unfold when predictors used in regression analysis are highly correlated (e.g. moods) (MacKinnon et al., 2000; Tzelgov & Henik, 1991). Cross-sectional studies are particularly prone to suppression since there are inflated correlations between variables due to common-method variance. In contrast, diary studies control risk for the suppression through intensive repeated measuring of constructs investigated whilst accounting for autocorrelation and linear tendency of data. Furthermore, partitioning within and between variance and centering constructs examined help to control issues on exacerbated correlation between variables (Hoffman & Gavin, 1998; Hox, 2010). In this study, for example, moods were operationalised as within-subject constructs, being person-mean centered. This implies that differences in trait affectivity (between-person variance of moods) were removed when testing the relationships between moods and innovative work behaviour. As a result, moderate and more realistic coefficients (around .30) were observed in the diary study, compared to the inflated coefficients observed in the cross-sectional study (around .70). These results highlight the relevance of using more accurate methods in order to avoid inappropriate theoretical conclusions.

In terms of causality issues, post-hoc cross-lagged longitudinal models showed interesting results about the association between high-activated positive moods and dimensions of innovative work behaviour. Drawing on a strict interpretation of cross-lagged models, results suggest that, contrary to assumptions of this thesis, behaviour is the predictor of moods but not vice versa. Specifically, lag high-activated positive mood was not related to subsequent week innovative work behaviour; but, except for idea generation, lag dimensions of innovative work behaviour predicted subsequent week high-activated positive mood. Nevertheless, causal directionality should be examined and interpreted carefully using the data available. Lack of longitudinal prediction of mood on behaviour might be explained due to the weekly basis of measures used in this study. In this case, moods are fluctuating states representative of the affective experience in a specific week, so effects of moods on behaviour are likely to be limited to the same week. Furthermore, the longitudinal effect of moods on behaviour might entail greater complexity. Third variables, for instance emotional regulation (Gross & Thompson, 2007), could be involved in long-lasting effects of moods on behaviour, such that individuals more skilled in sustaining their high-activated positive moods would be more likely to perform innovative work behaviour over days, and even a week. As such, it is not possible to rule out a causal effect of mood on behaviour based on the research design used here, and it is believed that results of cross-lagged models do not invalidate causal effects of high-activated positive mood on innovative work behaviour, considering that theory and previous research has supported the prediction of moods on behaviour (Totterdell & Niven, 2012).

In turn, the prediction of lag innovative work behaviour on subsequent week high-activated positive mood has risen as a substantive contribution to the organisational behaviour literature. Previous research has indicated that creativity (idea generation) predicts positive feelings,

such as joy and elation only over a couple of days (Amabile et al., 2005). Consistent with this, evidence observed here indicates that idea generation does not predict high-activated positive mood over extended periods of time, such as a week later. However, idea suggestion, coalition building and idea realisation positively predict subsequent week high-activated positive feelings. Although effect sizes of the latter predictions are fairly small (between 3% and 5%), they suggest that working on novel ideas could have long-lasting effects on employee well-being, when the innovation process crosses the limits of the intrapersonal domain (idea generation). This can be explained because interacting with others at work through suggesting, promoting and implementing novel ideas emphasise opportunities for sharing autonomous thinking, increasing a sense of competence and relatedness (social connection), all of which are linked to the experience of positive feelings (Deci & Ryan, 1985, 2000; Ryan & Deci, 2001). Furthermore, idea realisation seems to have the stronger longitudinal effect on high-activated positive mood, which suggests that an achievement experience of innovation has a stronger effect on well-being, compared with the mere generation and promotion of innovative ideas (cf. Latham & Locke, 2007; Locke, Saari, Shaw, & Latham, 1981). The above findings, furthermore, suggest that innovative work behaviour and high-activated positive mood can configure a loop given by a reciprocal causation, such as an upward spiral (Fredrickson, 2004), where innovative behaviour elicits high-activated positive feelings over time, which in turn fuel again innovative work behaviour. Indeed, this initial evidence highlights new ways for future longitudinal research on moods and innovative work behaviour.

7.6 GENERAL DISCUSSION

In this chapter, theoretical proposals about the relationships between job-related moods and innovative work behaviour have been

empirically tested. In terms of positive affect, results convincingly support high-activated positive mood as related to idea generation, idea suggestion, coalition building and idea realisation. On the other hand, low-activated positive mood was not observed as being related to the same outcomes. These findings might not appear surprising, due to the weight of studies on positive affect and creativity (Amabile et al., 2005; Baas et al., 2008; Binnewies & Woernlein, 2011; Isen et al., 1987); however, results observed here contribute to the organisational behaviour literature in several ways. To the best of my knowledge, the studies presented in this chapter are the first attempts of testing together job-related moods with different degrees of activation in relation to innovative work behaviour. Most of the past research in this field has only relied on measures of positive feelings high in activation, generalising their results to positive affect as a whole (Seo et al., 2008). However, the latter seems to be inaccurate under the light of studies presented here, because according to the results observed both positive valence and high-activation are needed for creating and implementing novel ideas.

The unique association observed between high-activated positive mood and innovative work behaviour also challenge today's dominant theoretical explanations about the influences of positive affect on work-related outcomes. Traditionally, the effects of high-activated positive mood on creativity have been explained as resulting from "broaden-and-build" psychological processes (Amabile et al., 2005; Fredrickson, 2001, 2004; Isen et al., 1987; Isen, 1984). In other words, these feelings would facilitate defocused and divergent thinking, increasing the likelihood of reorganising available knowledge and, therefore, the generation of novel ideas. However, proposals of broaden-and-build theories have been recently challenged as inaccurate, because they do not account for differences in affective activation (Gable & Harmon-Jones, 2008; Harmon-Jones & Gable, 2008). Experimental research has provided evidence supporting that

affective activation joined to either positive or negative affective valence increases attentional focus (Gable & Harmon-Jones, 2008, 2010; Harmon-Jones & Gable, 2009), which represents a form of narrow cognition. This suggests that cognitive operations of affective processes are more complex than scholars have traditionally believed over the last decades (e.g. Forgas, 1995; Fredrickson, 2001; Isen et al., 1987; Schwarz & Clore, 1983, 2003). When high-activated positive feelings are experienced, positive valence would facilitate broadening processes, such as divergent thinking, whilst high activation would increase complementarily narrowing processes, such as greater attentional focus, in order to think and behave effectively in a given context. As such, a specific combination of both valence and activation seems to involve a particular and complex blend of cognition, which can be only detached in heuristical terms. In other words, a specific balance between affective valence and activation, and between cognitive broadening and narrowing are amalgamated in the daily psychological experience (cf. Russell, 2003).

Adopting the above arguments, the substantive relationship between high-activated positive mood and idea generation is proposed as explained by both high reflection and greater attentional focus (George & Zhou, 2007; George, 2011). When individuals are facing problems of opportunities at work, positive affective valence may help them to reorganise their available knowledge in unconventional ways. However, in order to transform this divergent thinking process into useful ideas, individuals should keep their attentional focus on task performance, which is facilitated by high affective activation. In contrast, when low-activated positive mood is predominant, individuals have the potential of developing divergent thinking helped by positive valence; however, broader attentional focus embedded in low activation would make individuals distracted from task performance reducing the likelihood of producing useful ideas.

High-activated positive mood is also uniquely associated with idea suggestion, coalition building and idea realisation. Proposing and building coalitions are often risky endeavours, because novel ideas are the object of scepticism and even resistance among colleagues, supervisors and managers (George, 2007; Janssen et al., 2004; West, 2002). So, positive feelings high in activation can facilitate proposing and searching support for ideas, because positive valence leads to positive perceptions and attributions, such as self-confidence to effectively expose own ideas to others at work (e.g. role-breadth self-efficacy) (Parker et al., 2010; Parker, 1998), and perceptions of good responsiveness from others toward novel ideas (Siegel & Kaemmerer, 1978). Moreover, high-activation increases dedication and perseverance through narrowing attentional focus on the goal of getting support for ideas, while energising interpersonal interaction (Barsade, 2002; Bindl et al., 2012; Parker et al., 2010). The latter is indispensable for proposing and building coalitions because, in contrast to idea generation, they necessarily demand social interchange. Positive attitudes, increased attentional focus and energy are also beneficial for the dedication and collaborative work demanded for the implementation of novel ideas (Fredrickson & Losada, 2005; Losada & Heaphy, 2004). Transforming novel ideas in practice rarely involves individuals working alone, because it requires integrating capabilities available in different employees, all of whom, in most cases, will be also affected by the transformations resulting from novel ideas (West, 1990, 2002).

Regarding negative affect, results did not show convincing direct associations of either high-activated or low-activated negative moods with dimensions of innovative work behaviour. Analyses performed in the diary study also indicated that random slopes between innovative work behaviour and both forms of negative moods did not vary significantly between individuals. Thus, the possibilities that dimensions of innovative work behaviour results from the direct influence of negative feelings or

from interactions between them and third-factors at the person-level (e.g. perceptions of social support, goal-orientation) were not supported. Previous research has supported the interaction between social support and high-activated negative mood on creativity using cross-sectional design (George & Zhou, 2007), or the interaction between goal orientation and high-activated negative mood on creative engagement using samples of university students (To et al., 2011). Thus, results presented here suggest that complexities between negative moods and innovative work behaviour over time among proper workers, differs from knowledge yielded from previous studies.

Previous research has argued the association between high-activated negative mood and idea generation as plausible, through persistence in finding out novel solutions when facing problems in individual tasks (Baas et al., 2008; Nijstad et al., 2010). However, support for this effect has been very elusive in empirical research in work settings. This situation may be explained because the experience of distress linked to the experience of high-activated negative mood might increase attentional focus and determination; yet, at the same time it drains psychological resources (e.g. efficacy, optimism, commitment) to perform high performance behaviour (Luthans et al., 2007; Parker et al., 2010). Accordingly, idea suggestion, coalition building and idea realisation can be particularly sensitive to depletion of resources, given their higher social meaning. For example, individuals under a high-activated negative mood may increase sense of threat, scepticism, perceptions of lacking of social support or limited psychological safety (Clegg et al., 2002; Edmondson, 1999; Siegel & Kaemmerer, 1978), restricting interpersonal engagement needed to promote and realise novel ideas.

Relationships between low-activated negative mood and dimensions of innovative work behaviour were the least convincing in the

studies conducted. This mood was proposed as negatively related to innovative work behaviour because of processes of exacerbated reflection and social withdrawal (Lyubomirsky & Nolenhoeksema, 1995; Treynor et al., 2003; Warr et al., 2013). However, the cross-sectional study showed these constructs as positively related, while the diary study showed these variables as unrelated. Taken together, results of the diary study appear to be more precise because there are fewer theoretical reasons to believe that negative attitudes, lack of vitality and interpersonal disengagement, typically linked to low-activated negative moods, could facilitate innovative work behaviour. Laboratory studies have supported that depressive feelings lead to creativity through processes of cognitive rumination (Verhaeghen et al., 2005). However, this sounds unlikely for suggesting and building coalitions (as observed in the cross-sectional study), since these behaviours demand attentional focus, dedication, persistence and social interaction, which is very limited under depressive feelings. Consequently, results suggesting positive relationships between low-activated negative mood and innovative work behaviour most likely represent statistical artefacts explained by suppression effects.

Finally, the studies presented in this chapter highlight the relevance of adopting advanced methods in research, in order to have a finer grained approach to the associations between moods and behaviour at work and drawing appropriate conclusions (Beal & Weiss, 2003; Bolger et al., 2003; Fisher & To, 2012; Ohly et al., 2010; Totterdell & Niven, 2012). Analysis of the information collected through the cross-sectional study offered results difficult to interpret. Associations between high-activated positive mood and innovative work behaviour seemed overestimated, given the large regression coefficients observed. Although some methodological strategies were used to mitigate common method variance issues (controlling for extroversion and neuroticism), models estimated using the cross-sectional data were still affected by inflation in their coefficients if they are

compared to results observed in the diary study. However, the most critical issue on the cross-sectional dataset were the possible suppression effects observed for low-activated negative mood and innovative work behaviour. These issues were substantially tackled in the diary study. In this, issues on common-method variance were not absent, but controlled using between and within variance modelling (multilevel approach), accounting for auto-correlation and linear tendency of behaviour, removing trait affect from measures of moods through within-subject centering, and accounting for trait affect at person level of analysis (between-subjects) (cf. Hoffman & Gavin, 1998; Hox, 1995; Kozlowski & Klein, 2000; Podsakoff et al., 2003; Singer & Willett, 2003). All of these methodological strategies make the results of the diary study more reliable than findings observed in the cross-sectional study.

7.7 LIMITATIONS, FUTURE RESEARCH AND CONCLUSION

Although the studies presented here offer important contributions to the understanding of the association between moods and innovative work behaviour, there are a number of limitations to be mentioned. Studies relied on weekly measures of moods, providing a long-lasting approach on affect and innovative work behaviour. However, complementary studies have supported that short-term affective states varying between days, or even within days (Watson, 2000), can also account for work relevant outcomes, such as proactivity and organizational citizenship behaviour (Fritz & Sonnentag, 2009; Glomb et al., 2011; Ilies, Scott, & Judge, 2006). This transient variability has been associated with specific events unfolding in the workplace (Weiss & Cropanzano, 1996). So, testing how innovative-relevant episodes lead to positive feelings high in activation would enrich the findings presented here, such as being explicitly asked for novel ideas, being invited to take part in innovative-oriented projects or reflecting in team meetings.

In terms of methods, even when common method variance was substantially controlled in the diary study, some degree of bias associated with it should not be discarded. Further research using supervisor or colleague's ratings of innovative work behaviour might be helpful to corroborate the findings observed here. Moreover, the studies described and tested models that assume a causal effect of moods on behaviour; however, this causal direction can be only theoretically inferred given that moods and behaviour were measured at the same points of time. Actually, post-hoc cross-lagged longitudinal analysis suggests that, *over time*, innovative work behaviour can predict high-activated positive mood as well. This highlights that working in something new involves meaningfulness at work through autonomy, competence and social connection (Deci & Ryan, 2000), specially when actions involve an experience of achievement (idea realisation). Future studies should explore in depth these alternative models.

In conclusion, empirical investigation offered in this chapter represents an explicit effort to understand the relationship between moods and innovative work behaviour, showing that positive but high-activated moods have strong potential to lead the generation, promotion and realisation of novel ideas. In the next chapter, how contextual and individual factors interplay in the relationship between high-activated positive mood and innovative work behaviour will be addressed.

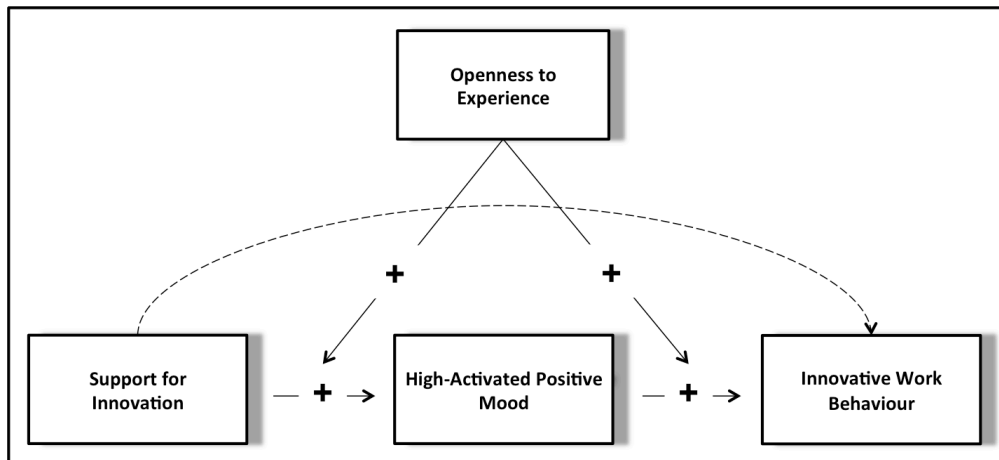
CHAPTER 8: SUPPORT FOR INNOVATION AND OPENNESS TO EXPERIENCE AS CONTEXTUAL AND INDIVIDUAL ANTECEDENTS OF MOODS AND INNOVATIVE WORK BEHAVIOUR

8.1 INTRODUCTION

In this Chapter, the final research question of this thesis is addressed, namely, *how do contextual and individual factors interplay in the associations between job-related moods and generating, promoting and realising novel ideas?* Drawing on Cognitive Appraisal Theory, the Big Five Model of personality and the conceptual model depicted in Chapter 4, support for innovation and openness to experience are proposed as contextual and individual variables respectively, which interplay in the process between high-activated positive mood and innovative work behaviour (Figure 8.1). Support for innovation interacts with openness to experience leading to high-activated positive mood. Furthermore, openness interacts with these feelings leading to greater levels of innovative work behaviour. Overall, this model entails a moderated mediation process where high-activated positive mood represents a core variable for transforming contextual and individual resources into innovative outcomes. These propositions were tested and supported using a diary methodology and multilevel structural equation modelling.¹⁰

¹⁰ Theory and findings presented in this Chapter were published as a full paper in the *Journal of Organizational Behavior* (Madrid, H. P.; Patterson, M. G.; Birdi, K. S.; Leiva, P. I.; Kausel, E. E. (2013). The role of weekly high-activated positive mood, context and personality in innovative work behavior: A multilevel and interactional model. *Journal of Organizational Behavior*. DOI: 10.1002/job.1867.

Figure 8.1: Moderated Mediation Model Proposed



8.2 SUPPORT FOR INNOVATION, HIGH-ACTIVATED POSITIVE MOOD AND INNOVATIVE WORK BEHAVIOUR

As discussed in detail in Chapter 3, support for innovation has been one of the stronger contextual factors predicting innovation in organisations (Hammond et al. 2011; Hulsheger et al., 2009). So, this climate factor is believed to be very relevant in understanding the function of moods between work context and behaviour. Specifically, encouraging innovative endeavours has been described as being dependent on supportive work contexts (Amabile et al., 1996). Such environments are perceived as being oriented “toward creativity and innovative change” (Scott & Bruce, 1994; p. 583) and encouraging of organisational members “in their functioning independently and in pursuit of new ideas” (Siegel & Kaemmerer, 1978; p. 559). As such, perception of support for innovation would increase positive feelings high in activation (e.g. enthusiasm, inspiration, excitement) which in turn foster innovative work behaviour, because perceiving support indicates that both to create and implement novel ways to do the work are important and welcome in the organisation.

However, the extent to which support for innovation increases innovative work behaviour through the experience of affective states has been investigated less.

In Chapter 7, high-activated positive mood was supported as related to dimensions of innovative work behaviour. Expanding on these findings in this Chapter, this kind of mood is proposed as an essential factor in understanding how support for innovation influences innovative actions at work. Specifically, support for innovation is described as a distal antecedent of innovative work behaviour, such that this first relates to high-activated positive mood, which leads in turn to innovative endeavours. The mediating function of affective experience between environment and individual behaviour has been widely acknowledged in theory and research (Seo et al., 2008), emphasising that affective experience offers individuals' relevant information to behave in a certain way in a given environment (Martin & Stoner, 1996; Schwarz & Clore, 1983, 2003). Furthermore, a number of climate models propose that perceptions of the work environment impact on individual behaviour through their effect on affective states (Kopelman et al., 1990; Ostroff & Bowen, 2000), and two meta-analytic reviews of climate research at the individual level support such a mediating mechanism (Carr et al., 2003; Parker et al., 2003). Correspondingly, theory on innovation has highlighted the encouragement effect of support for innovation (e.g. making individuals feel enthusiastic, active, inspired) to stimulate the generation and implementation of novel ideas (Amabile et al., 1996; Anderson & West, 1998; West, 1990).

Support for innovation may elicit positive feelings high in activation because innovative work offers opportunities to enhance intrinsic motivation (Amabile et al., 1996) and build valued psychological resources, such as mastery, autonomous thinking and social collaboration (Deci &

Ryan, 2000); all of which have been observed to be positively related to enthusiasm, excitement, joy and inspiration while working (Warr, 2007). In turn, as showed in Chapter 7, high-activated positive mood can lead to innovative work behaviour through facilitating cognition and behavioural readiness to work on change-oriented endeavours. The mediation process proposed between support for innovation, mood and innovative work behaviour is described for generating, proposing, building coalitions and realising novel ideas, since high-activated positive mood has been supported as equivalently relevant for all these behavioural dimensions (Chapter 7).

Hypothesis 1a: High-activated positive mood will mediate the relationship between support for innovation and idea generation, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea generation.

Hypothesis 1b: High-activated positive mood will mediate the relationship between support for innovation and idea suggestion, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea suggestion.

Hypothesis 1c: High-activated positive mood will mediate the relationship between support for innovation and coalition building, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to coalition building.

Hypothesis 1d: High-activated positive mood will mediate the relationship between support for innovation and idea realisation, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea realisation.

8.3 OPENNESS TO EXPERIENCE AS A BOUNDARY CONDITION

Whether the meditational process between support for innovation, high-activated positive mood and innovative work behaviour unfolds with similar strength for every individual represents an additional issue. Drawing on the Big Five Model of Personality (Costa & McCrae, 1992; McCrae & Costa, 1987) and Cognitive Appraisal Theory (Lazarus & Folkman, 1984), openness to experience is theorised as enhancing the strength of the mediation function described by these constructs. As discussed in Chapter 3, openness to experience has been supported as an important individual disposition linked to generating and implementing novel ideas (Hammond et al., 2011), since it entails interest and value for novel ideas, making individuals prone to actively seek out diverse experiences involving a variety of thoughts and perspectives (Costa & McCrae, 1992; McCrae & Costa, 1997; McCrae, 1987). Thus, levels of openness to experience should denote the extent to which innovation is valuable for individuals, which would influence the effect of support for innovation on moods and subsequent innovative work behaviour.

The first issue of the suggested moderating process is determining whether openness influences the extent to which support for innovation relates to high-activated positive mood. According to cognitive appraisal theory (Lazarus & Folkman, 1984; Lazarus, 1982), the elicitation of specific feelings is explained by the encounter between goals involved in contextual conditions and the relevance of these goals to individuals. So, when there is fit between goals present in the environment (e.g. work settings) and individuals' values, beliefs and commitments, the context is appraised as benign for well-being triggering positive feelings (e.g. joy, enthusiasm, happiness). Lazarus (1994) highlights that similar to emotion, long-lasting affective states "are brought about the way one appraises ongoing relationships with the environment" (p. 84); however, appraisal

processes embedded in affective states are linked to beliefs that have major implications for one's life (e.g. occupational roles) rather than specific and contingent events. Accordingly, long-lasting affective experiences, such as moods, have been described as elicited by relatively stable features of meaningful environments (Davidson, 1994; Parkinson et al., 1996). Therefore, it is proposed that the strength of the relationship between stable cognitive representations entailed in perceptions of support for innovation and high-activated positive mood depends on the extent that individuals are open to experience. In other words, mood will be influenced by whether an organisation and individuals believe that innovation is valuable and are committed to it. Since support for innovation refers to work contexts denoting the expectation and encouragement of novel ideas, it should elicit greater high-activated positive mood for people high in openness to experience, because innovative actions are valuable for them. In contrast, since novelty seeking is not particularly important to individuals low in openness to experience, perceiving their work environment as supportive for innovation should have lower contributions to their high-activated positive mood.

Hypothesis 2: The relationship between support for innovation and high-activated positive mood will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.

The second issue is determining if openness to experience influences the strength of the association between high-activated positive mood and innovative work behaviour. In relation to affect, openness has been described as amplifying affective experiences and its correlates (e.g. further cognition and behaviour). Coan (1974) highlighted that openness denotes, in addition to aesthetic interest, enhanced emotional sensitivity, while Tellegen and Atkinson (1974) described openness as involving

motivation with affective components. These proposals are contained in the big five model of personality that describe openness as a trait with an experiential function to the affective life (McCrae & Costa, 1991, 1997). In contrast to the temperamental implications of extroversion and neuroticism, which directly lead to affective states and behaviour (DeNeve & Cooper, 1998), openness to experience primarily enlarges the experience of affect, both positive and negative, and its correlates. High openness denotes emotionality, passion and impulsiveness, while low openness implies isolation of feelings and shallow affective experiences (McCrae & Costa, 1997). Supporting this, studies on subjective well-being have shown that openness is associated with experiencing positive feelings high in activation (e.g. happiness, enthusiasm, inspiration) (Gutierrez, Jimenez, Hernandez, & Puente, 2005; Quevedo & Abella, 2011; Steel et al., 2008), while also linked to disinhibiting impulses (McCrae & Costa, 1997) and the impulsiveness sub-dimension of neuroticism (Mussel, Winter, Gelleri, & Schuler, 2011), which often bring negative feelings high in activation (e.g. anxiety, tension and agitation).

In congruent reasoning about openness within the work domain, George & Zhou (2001) theorised that a greater attunement to affective experiences of individuals high in openness explains greater creativity performance. Similarly, Baer and Oldham (2006) argued that high levels of openness to experience might offer greater psychological activation leading to innovative endeavours. However, to the best of my knowledge, the above processes have not been empirically tested using direct measures of affect or psychological activation. Thus, it is proposed that cognitive flexibility and readiness offered by high-activated positive mood can be heightened when openness to experience is high, leading to greater innovative work behaviour. So, high openness provides access to a variety of ideas and perspectives which when interacting with cognitive processes produced by positive feelings (i.e. divergent thinking, greater attentional

focus), leads to generation of novel ideas. Furthermore, people high in openness should experience activation of positive feelings with greater intensity and therefore will be more willing to face resistance to change and challenge the status quo, increasing the likelihood of suggesting, asking support and implementing novel ideas. Conversely, given that people low in openness are characterised by hesitant attitudes toward novelty, and preference for familiar ideas and relationships (McCrae & Costa, 1997; McCrae, 1987, 1996), the meeting between high-activated positive feelings and low openness to experience should not offer a substantial increase in their innovative performance.

Hypothesis 3a: The positive relationship between high-activated positive mood and idea generation will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.

Hypothesis 3b: The positive relationship between high-activated positive mood and idea suggestion will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.

Hypothesis 3c: The positive relationship between high-activated positive mood and coalition building will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.

Hypothesis 3d: The positive relationship between high-activated positive mood and idea realisation will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.

Taken together, hypotheses 3 and 4 involve a moderated mediation process (MacKinnon & Fairchild, 2009; MacKinnon, 2008; Muller, Judd, & Yzerbyt, 2005), where the strength of the mediation described between support for innovation, high-activated positive mood and innovative work behaviour is moderated by openness to experience:

Hypothesis 4: The mediation mechanism between support for innovation, high-activated positive mood and innovative work behaviour (idea generation, idea suggestion, coalition building and idea realisation) will be moderated by openness to experience, such that this mediation would be stronger for individuals high in openness to experience than those low in openness to experience.

8.4 METHOD

8.4.1 Procedure, Data and Sample

Hypotheses proposed in this chapter were tested using the same diary data utilised in Study 4 of Chapter 7. Thus, the same procedure of data collection and sample characteristics described in the latter also applied to the study presented here. Measures of support for innovation and openness to experience involved in hypothesis testing in this study were collected once at the beginning of the study, joined to measures of trait affect and demographics.

8.4.2 Measures

Innovative Work Behaviour and High-Activated Positive Mood. Scales resulting from the validation conducted in Chapter 6 were utilised to measure idea generation ($\alpha = .88$), idea suggestion ($\alpha = .92$), coalition building ($\alpha = .88$), idea realisation ($\alpha = .94$) and high-activated positive

mood ($\alpha = .93$). Low-activated positive mood, high-activated negative mood, and low-activated negative mood were not included as covariates in the models estimated in order to reduce complexity in statistical estimation, as multilevel mediation modelling involves a high number of parameters to be computed. This strategy should not affect results observed, since the moods factors excluded were not observed as relevant to understanding innovative work behaviour in the previous studies of this thesis.

Support for Innovation. Perceptions of organisational support for innovation were measured using five items of the scale developed by Scott & Bruce (1994): “in my organisation people are allowed to try to solve the same problems in different ways”, “my organisation can be described as flexible and continually adapting to change”, “assistance in developing new ideas is readily available in my organisation”, “innovation is encouraged in my organisation”, “this organisation publicly recognises those who are innovative” ($\alpha = .86$; 1 = *strongly disagree* to 5 = *strongly agree*).

Openness to Experience. This was measured with four items of the International Personality Item Pool (Donnellan, Oswald, Baird, & Lucas, 2006; Goldberg et al., 2006). Participants were asked to rate how each of the next statements described themselves: “get excited by new ideas”, “enjoy thinking about things”, “believe in the importance of art” and “enjoy hearing new ideas” ($\alpha = .75$; 1 = *strongly agree* to 5 = *strongly agree*).

Positive Activation: Positive trait affectivity was included as covariates in order to control for common method variance issues (Podsakoff et al., 2003), while accounting for possible influences of individual affective dispositions on innovative work behaviour. This was measured using markers from the Positive and Negative Affect Schedule

(PANAS, Watson, Clark, & Tellegen, 1988). Five items were used for positive activation (enthusiastic, excited, strong, interested, determined; $\alpha = .83$). This scale was framed as “indicate to what extent you feel the following feelings in general” (1 = *very slightly or not at all* to 5 = *extremely*) with the aim of capturing the affective tendency of participants in reference to their general life, so not limiting these affective measures to the job domain (Warr, 2007, 2013).

All the above measures were translated into Spanish and then translated back into English by two independent translators, following the procedure described by Brislin (1970). In cases of back translation disagreement, both translators decided together the most precise Spanish version of the problematic items.

Control variables. Gender, age and organisational tenure of the participants were used as control variables in order to account for possible confounding effects (see Chapter 6). Moreover, to control for potential time serial dependence (auto-correlation) and monotonic time trend of innovative behaviour over waves of data (Singer & Willett, 2003), -1 lagged factor of innovative behaviour and the linear time index variable were included in all analyses.

8.4.3 Analytical Strategy

As with Study 4 in Chapter 7, testing of hypotheses was performed using Multilevel Structural Equation Modelling (MSEM; Preacher, Zyphur, & Zhang, 2010). A two-level model was described, where high-activated positive mood and innovative work behaviour (time-variant variables) were defined at level-1, whilst trait affect and demographic variables, support for innovation and openness to experience (time-invariant variables) were defined at level-2. Hypotheses were tested using random intercept and

slope models (Hox, 2010). In these, level-2 predictors were grand-mean centered in order to remove their within-subject variance, while level-1 variables (high-activated positive mood and innovative work behaviour) were not centered, because testing multilevel mediation modelling requires within and between-subjects variance (Preacher, Zyphur, & Zhang, 2010).

Hypothesis testing entails relationships between variables only with between-subjects variance at the level-2 of analyses (support for innovation and openness to experience) and variables having both within and between-subjects at level-1 (high-activated positive mood and innovative work behaviour). However, these hypothesised relationships (i.e. direct effects, mediation and mediated moderation processes) can be tested only at between-subjects level controlling for within variance of mood and behaviour, because support for innovation and openness to experience are only able to exert effects at this level given their lack of within-subjects variance. This implies that variables operationalised as time-invariant (observed variables) are tested in relation to the means around the ten waves of data on mood and behaviour over time (latent variables) (Muthén & Muthén, 2010). This does not imply that level-2 predictors have no effect on level 1 variables, they do, but only since within measures of mood and behaviour belong to individuals either high or low in openness to experience, and working in environments either high or low in support for innovation (cf. Preacher et al., 2010). So, in substantive terms, hypotheses 1 (a, b, c and d) test the extent to which people tend to feel positive mood high in activation and behave innovatively in relation to work environments characterised by some degree of stable support for innovation. Hypothesis 2 tested the extent to which individuals with different degrees of openness to experience working in environments characterised by some degree of support for innovation tend to experience high-activated positive mood. Hypotheses 3 (a, b, c and d) and 4 denote a

“cross-level moderation” and a “multi-level moderated mediation” respectively. This unfolds at both within and between levels of analyses, given that the effect of openness to experience is on the random slope between high-activated positive mood and innovative work behaviour. In the statistical models, this random slope is modelled as a latent variable between subjects based on the within variance of mood and behaviour observed over time (Preacher, personal communication, January 27, 2013).

8.4.4 Results

Means, standard deviations, correlations and reliabilities of the variables are summarised in Table 8.1. Hypothesis 1a stated that high-activated positive mood would mediate the relationship between support for innovation and idea generation, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea generation. Results show that the direct relationship between support for innovation and high-activated positive mood was not significant ($b = .09$, $SE = .11$, $p > .05$). This indicates that a minimum condition to estimate mediation processes was not observed (the path from the independent variable to the mediator) (Iacobucci, Saldanha, & Deng, 2007); consequently, Hypothesis 1a was rejected. Hypotheses 1b, 1c and 1d were rejected too, since they also denote a positive association between support for innovation and high-activated positive mood.

Hypothesis 2 proposed that the relationship between support for innovation and high-activated positive mood would be moderated by openness to experience, such that this relationship will be stronger for people high in openness than those low in openness. Model 2 (Table 8.2) shows the interaction term between support for innovation and openness to experience positively related to high-activated positive mood ($b = .24$, SE

= .12, $p < .05$). This interaction was plotted (Figure 8.2) and submitted to a simple slope test (Aiken & West, 1991), observing that the relationship between support for innovation and high-activated positive mood was positive and significant for individuals high in openness to experience (+1SD, $b = .23$, $SE = .09$, $p < .01$), but negative and non-significant for those low in openness (-1SD, $b = -.10$, $SE = .10$, $p > .05$). Therefore, hypothesis 2 was supported.

Hypothesis 3 stated that the positive associations of high-activated positive mood with idea generation (H3a), idea suggestion (H3b), coalition building (H3c) and idea realisation (H3d) would be moderated by openness to experience, such that these relationships will be stronger for people high in openness than those low in openness. Results indicated that the interaction term between high-activated positive mood and openness was positively related to idea generation ($b = .26$, $SE = .09$, $p < .05$) and idea realisation ($b = .37$, $SE = .09$, $p < .01$), explaining the 25% and 40% of these random slopes respectively. Interaction effects were plotted (Figure 8.3 and Figure 8.4) and submitted to simple slope tests, observing that high-activated positive mood was positively related to idea generation for individuals high in openness (+1SD, $b = .51$, $SE = .09$, $p < .01$), and positively but less strongly related for individuals low in openness (-1SD, $b = .19$, $SE = .06$, $p < .01$). Similarly, high-activated positive mood was positively related to idea realisation for individuals high in openness to experience (+1SD, $b = .52$, $SE = .09$, $p < .01$), while positively but non-significantly related for individuals low in openness to experience (-1SD, $b = .07$, $SE = .07$, $p > .05$). In contrast, the interaction term between high-activated positive mood and openness to experience was not observed as significantly related to idea suggestion ($b = .16$, $SE = .07$, $p > .05$) and coalition building ($b = .33$, $SE = .18$, $p > .05$), and the size effect of these moderation effects was very limited (9% and 8% respectively). As a result hypotheses 3a and 3d were supported, while hypotheses 3b and 3c were rejected.

Table 8.1: Descriptive Statistics, Correlations and Reliabilities

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	.52	.50	---										
2. Age	33.09	6.21		---									
3. Organisational Tenure	3.87	3.81			---								
4. Positive Activation	3.98	.60				---							
5. Openness to Experience	4.15	.61					---						
6. Support for Innovation	3.28	.86						---					
7. High-Activated Positive Mood	3.31	.61							---				
8. Idea Generation	3.29	.81								---			
9. Idea Suggestion	3.23	.88									---		
10. Coalition Building	2.99	.96										---	
11. Idea Realisation	2.92	1.00											---

Between-subjects correlations are presented upper the diagonal, while within-subject correlation are showed lower the diagonal. Scale reliabilities are parenthesised in the diagonal. * $p < .05$, ** $p < .01$

Figure 8.2: Interaction Effect between Support for Innovation and Openness to Experience on High-Activated Positive Mood

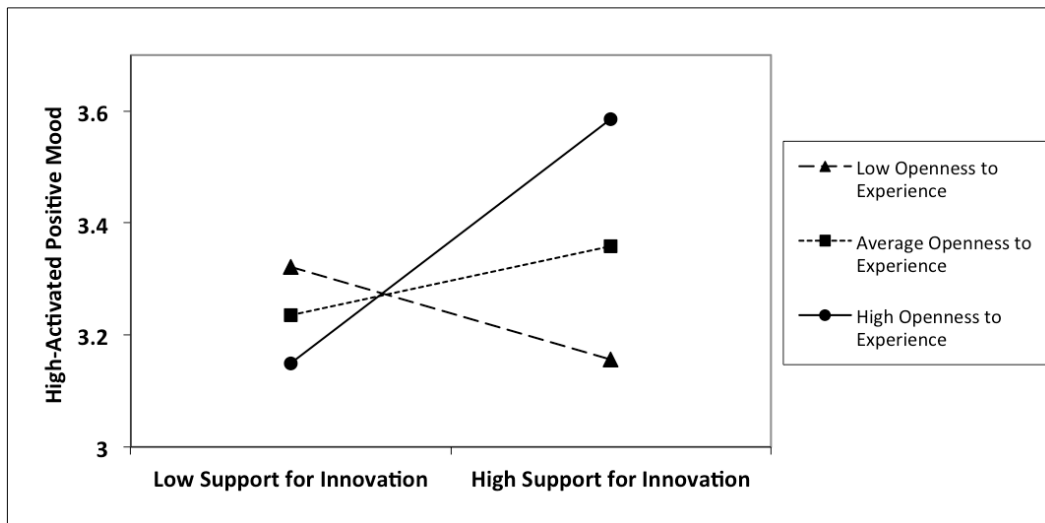


Figure 8.3: Interaction Effect between High-Activated Positive Mood and Openness to Experience on Idea Generation

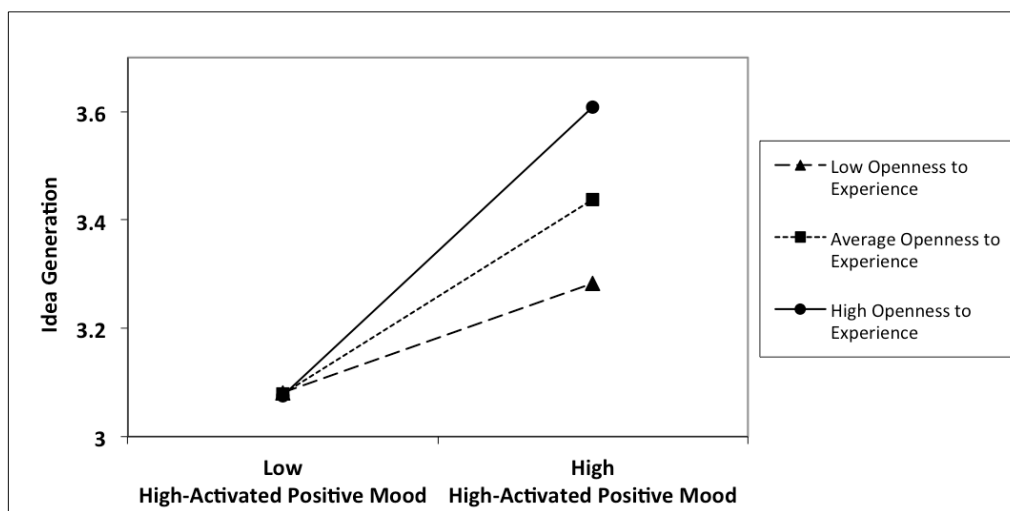
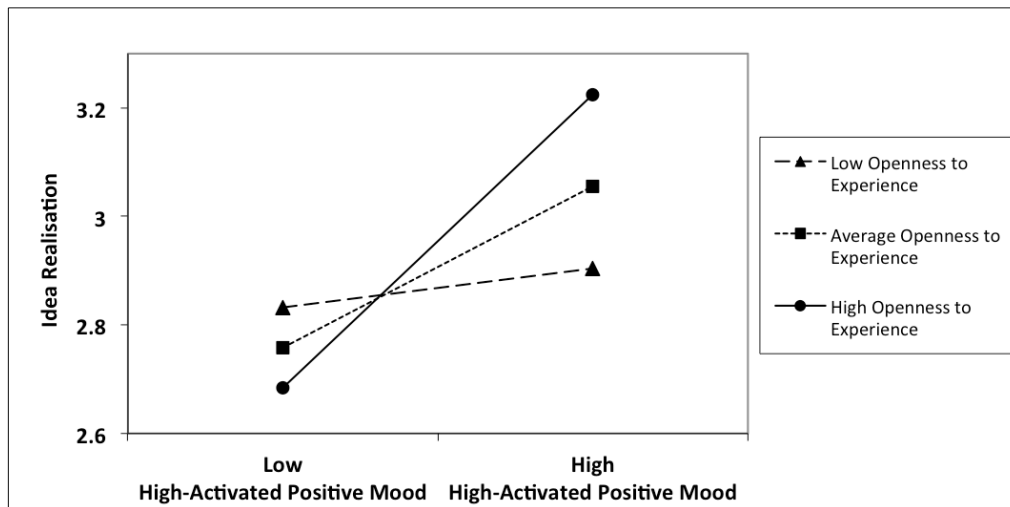


Figure 8.4: Interaction Effect between High-Activated Positive Mood and Openness to Experience on Idea Realisation



Finally, hypotheses 4 stated that the mediation mechanism between support for innovation, high-activated positive mood and innovative work behaviour (idea generation, idea suggestion, coalition building and idea realisation) would be moderated by openness to experience, such that this mediation would be stronger for individuals high in openness to experience than those low in openness to experience. Idea suggestion and coalition building were excluded from hypothesis testing, since the interaction terms between high-activated positive mood and openness to experience for these dimensions of innovative work behaviour were not supported. Figure 8.2 shows the results of the multilevel-moderated mediation estimation. Results of Model 1 indicate a positive effect of the interaction term between support for innovation and openness to experience on high-activated positive mood ($b = .24, SE = .12, p < .05$), and a positive effect of the interaction term between high-activated positive mood and openness to experience on idea generation ($b = .23, SE = .07, p < .05$). However, the indirect effect of the interaction term

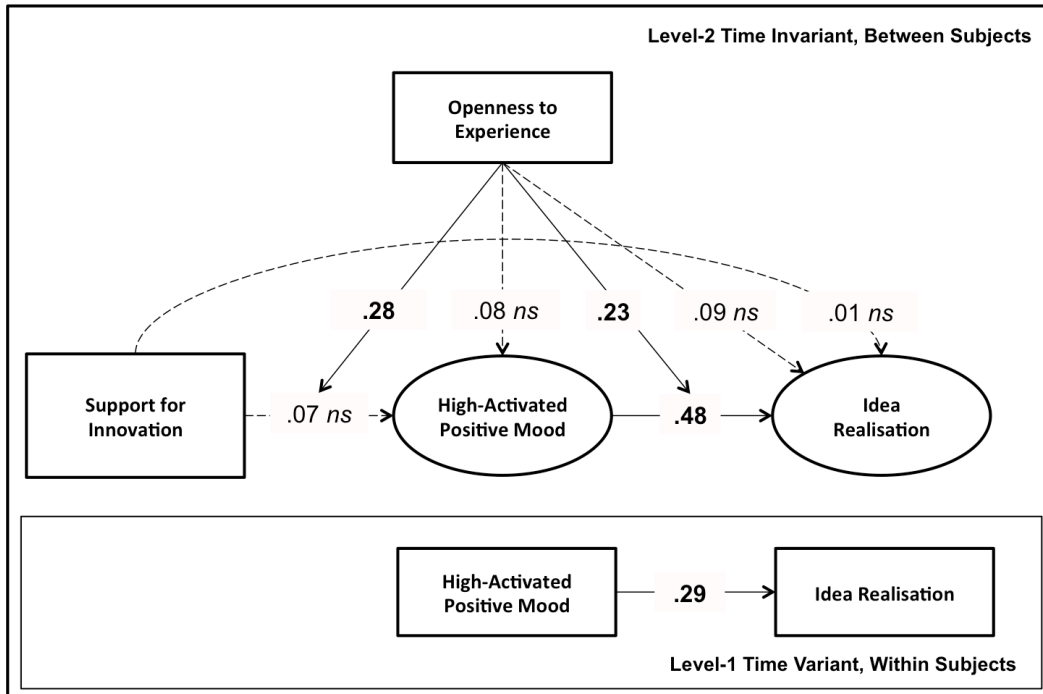
between support for innovation and openness to experience on idea generation and idea generation was not significant ($b = .14$, $SE = .08$, $p > .05$; 95% CI [.01, .28]). As a result, the moderated mediation hypothesis was not supported for idea generation. Results of Model 2 indicate a positive effect of the interaction term between support for innovation and openness to experience on high-activated positive mood ($b = .23$, $SE = .12$, $p < .05$), and a positive effect of the interaction term between high-activated positive mood and openness to experience on idea realisation ($b = .48$, $SE = .18$, $p < .05$). Furthermore, a positive indirect effect of the interaction term between support for innovation and openness to experience on idea generation was observed ($b = .18$, $SE = .10$, $p < .05$; 95% CI [.01, .35]). Therefore, the moderated mediation hypothesis was supported for idea realisation (Figure 8.5).

Table 8.2: Multilevel Moderated Mediation between Support for Innovation, Openness to Experience, High-Activated Positive Mood (HAPA) and Idea Innovative Work Behaviour (Idea Generation and Idea Realisation)

Estimate	Model 1		Model 2	
	HAPA	GENERATION	HAPA	REALISATION
Intercept	-.01 (.05)	3.26 (.05)**	-.02 (.05)	2.92 (.08)**
<i>Level 1 Variables</i>				
Time index	.02 (.01)†	-.01 (.01)	.02 (.01)†	.02 (.01)
Lagged High-Activated Positive Mood (t-1)	.18 (.05)**	---	.18 (.05)**	---
Lagged Behaviour (t-1)	---	-.02 (.04)	---	-.06 (.03)
High-Act. Positive Mood	---	.36 (.05)**	---	.29 (.05)**
Residual Variance Level 1	.25 (.03)**	.25 (.02)**	.28 (.03)**	.31 (.03)**
R ² Level 1	.19	.24	.10	.23
<i>Level 2 Variables</i>				
Gender	.08 (.12)	-.05 (.12)	.05 (.11)	-.10 (.17)
Age	.00 (.05)	.06 (.04)	.00 (.05)	.04 (.07)
Org. Tenure	.02 (.07)	.01 (.04)	.02 (.07)	.09 (.05)
Positive Activation	.53 (.11)**	.00 (.09)	.55 (.11)**	.03 (.15)
Openness to Experience	.08 (.10)	.10 (.08)**	.08 (.10)	.09 (.12)
Support for Innovation	.07 (.06)	-.15 (.07)*	.07 (.06)	-.15 (.08)†
High-Activated Positive Mood	---	b .23 (.14)**	---	b .48 (.18)**
<i>Interaction Terms</i>				
Support X Openness to Experience	a .24 (.12)*	c .01 (.05)	a .23 (.12)*	c .01 (.05)
Mood X Openness to Experience	---	.23 (.07)**	---	.36 (.07)**
Residual Variance Level 2	.22 (.04)**	.16 (.04)**	.21 (.04)**	.35 (.07)
Residual Variance Slope Mood-Behaviour	---	.06 (.03)**	---	.06 (.02)**
R ² Level 2	.54	.52	.40	.44
R ² Slope Mood-Behaviour	---	.25	---	.40
Indirect effect Open. X Sup → Behaviour		.14 (.08)† CI 95% [.01, .28]		.18 (.10)* CI 95% [.01, .35]
Deviance		2887.10		3069.32

Unstandardised estimates, standard errors are parenthesised. Error variance null model high-activated positive mood ($w = .31$, $b = .35$, $ICC = .53$), idea generation ($w = .33$, $b = .33$, $ICC = .50$), and idea realisation ($w = .40$, $b = .62$, $ICC = .61$). † $p < .10$, * $p < .05$, ** $p < .01$

Figure 8.5: Moderated Mediation Between Support for Innovation, Openness to Experience, High-Activated Positive Mood and Innovative Work Behaviour



Path between openness to experience and the random slope between high-activated positive mood and idea realisation was depicted at level-2, because the random slope moderated represents a latent variable varying between subjects. Nevertheless, in substantive terms, this effect corresponds to a cross-level interaction.

8.5 DISCUSSION

In this Chapter, issues on how contextual and individual factors interplay in the association between high-activated positive mood and innovative work behaviour have been addressed. In contrast to the expected mediation, high-activated positive mood was not supported as a mediator between the *direct effects* of climate of support for innovation on dimensions of innovative work behaviour. A mediation process is described by the multiplicative effect between the relationship of a predictor (e.g. work climate) with a mediator (e.g. mood), and the relationship between this mediator and an outcome (e.g. behaviour) (Baron & Kenny, 1986;

MacKinnon & Fairchild, 2009; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, 2008; Rucker, Preacher, Tormala, & Petty, 2011; Shrout & Bolger, 2002). In the case of the model tested here, mediation failed because the effect between support for innovation and high-activated positive mood was not supported, which suggests that perceptions of organisational interest to develop novel ideas is not necessarily a source of positive feelings charged with energy (i.e. enthusiasm, joy, inspiration). These are surprising findings, because the literature on innovation has widely argued that perceptions of support for novel ideas, either at team or organisational level, are one of the strongest contextual forces that fosters innovative outcomes, through *encouraging* and *energising* employees to strive for changes at work (Amabile et al., 1996; Anderson & West, 1998; Scott & Bruce, 1994; Siegel & Kaemmerer, 1978; West & Anderson, 1996).

An explanation of the above findings is given from the perspective of cognitive appraisal theory (Lazarus & Folkman, 1984; Lazarus, 1982, 1994), which highlights that affective implications of environmental conditions are dependent on whether the meaning of contextual features are valuable for individuals. Based on this, openness to experience was argued, and supported, as a boundary condition of support for innovation influences on high-activated positive mood. As such, positive feelings high in activation are elicited when both work environments and individuals value innovation. When openness to experience is high, results indicated that support for innovation has a positive and strong relationship to high-activated positive mood; however, when openness to experience is low, the association of support with mood is negative and non-significant. In other words, paraphrasing Lazarus (1994), positive affective states high in activation emerge when individuals open to experience see their work environments as good (supportive of innovation), because the meanings on which they depend are reaffirmed. As a result, the mediation of high-

activated positive mood between support for innovation and innovative work behaviour results is plausible, only when the moderating effect of openness to experience on support is considered.

The value of openness to experience is also expressed in heightening the benefits of positive feelings high in activation to some dimensions of innovative work behaviour (cf. DeNeve & Cooper, 1998; McCrae & Costa, 1991, 1997). Specifically, high-activated positive feelings are positively related to idea generation either when openness to experience is low or high; nevertheless, the association of mood-behaviour is substantially stronger when openness is high. Furthermore, idea generation reaches the highest level when both high-activated positive mood and openness to experience are high; otherwise, when mood and openness are low the level of idea generation is virtually the same. A slightly different result was depicted for idea realisation. In this case, when openness to experience is high the association between high-activated positive mood and idea realisation is positive and strong, but non-different from zero when openness is low. The latter suggests that high openness to experience is a decisive condition to transform high-activated positive mood into the adoption of novel ideas, which most likely operates through enlarging effects of energy expenditure needed to face the work environment with changes (Baer & Oldham, 2006; McCrae & Costa, 1997).

Taken together, results supported high-activated positive mood as a core construct to connect contextual and individual variables with innovative work behaviour. In this process, furthermore, openness to experience was observed as a highly relevant individual disposition for regulating the processes given between climate, affect and behaviour. Firstly, disposition to novelty and interest in unconventional ideas, thoughts and practices embedded in openness to experience seem to be essential for experiencing joy, enthusiasm, and inspiration under

environments stimulating innovation at work. This is utterly congruent with the notion of *primary appraisal* of cognitive appraisal theory (Lazarus & Folkman, 1984); namely, affect is not solely the function of an individual or the environment, because it is resulting from the *encounter* of interests, goals and commitments between the individual and the environment. Secondly, the interaction between openness and high-activated positive mood on generation and realisation of novel ideas is coherent with the idea of *secondary appraisal*. This denotes a psychological process where affect experienced (e.g. high-activated positive mood) is used as a source of information for regulating further behaviour. In concrete terms, when high-activated feelings are experienced at work, individuals high in openness to experience may interpret these feelings as the presence of opportunities to work on novel ideas, increasing idea generation and realisation. An alternative explanation is that openness enhances innovative-related psychological resources linked to high-activated positive mood (divergent thinking, energy expenditure (see Chapters 4 and 7), since openness offers greater access to different ideas and individual disposition to strive for changes (McCrae, 1987).

Interestingly, the interactional process between support for innovation, openness to experience and high-activated positive mood seems to be particularly relevant for idea generation and idea realisation. This is because the interaction between openness and mood was weaker (non statistically significant) for idea suggestion and coalition building, and the moderated mediation process predicted was only observed for idea realisation. This is consistent with proposals of theory and research on affect suggesting that moods are particularly relevant for tasks that are highly demanding in terms of cognition and readiness (Affect Infusion Model, Forgas & George, 2001; Forgas, 1995). Idea generation often entails facing complex problems through complex solutions, while practical adoption of novel ideas demands facing risk, controversy and even conflict.

So, the joint functions between openness to experience, support for innovation and high-activated positive mood would be critical when generating and realising novel ideas. These individual and contextual variables offer appropriate and enhanced cognitive-behavioural processes to thinking of and adopting changes based on novel ideas, such as attentional focus and action readiness.

In contrast, the cognitive-behavioural blend of resources linked to support for innovation, openness to experience and high-activated positive mood may be less relevant for suggesting ideas and building coalitions, because these actions are more sensitive to contextual and individuals' factors with greater interpersonal meaning. In order to be effective when promoting novel ideas (suggesting ideas, building coalitions), contextual conditions such as participative safety (Anderson & West, 1998; Edmondson, 1999; West, 1990, 2002), with traits like agreeableness (Costa & McCrae, 1992; Goldberg et al., 2006; McCrae & Costa, 1987) may be more significant than support for innovation and openness to experience. Safety provides improved conditions for voicing ideas, participating in decision-making and negotiation, while individuals high in agreeableness are characterised for being friendly, collaborative and cared about others. Indeed, when novel ideas come to one's own mind, perceiving safety and being concerned about others might be facilitators for promoting these ideas (Grant & Berry, 2011), in order to improve work conditions and benefiting members/users of an organisation.

8.6 LIMITATIONS, FUTURE RESEARCH AND CONCLUSION

In order to examine the interplay of context, personality, affect and behaviour, the study presented here has relied on measures of work climate, which are conceptualised as contextual features relatively stable over time (Kopelman et al., 1990; Kuenzi & Schminke, 2009). This strategy

was adopted in order to understand how perceptions and beliefs that people have about their work environments influence affective processes and behaviour having extended life span (i.e. weeks). Nevertheless, complementary research on organisational behaviour has emphasised the use of short-lived episodes varying within days or between a couple of days as denotation of work context (Beal et al., 2005; Beal & Weiss, 2003; Fisher & To, 2012; Ohly et al., 2010). This research relied on Affective Events Theory (AET; Weiss & Beal, 2005; Weiss & Cropanzano, 1996), which proposes that direct antecedents of emotions and mood are contingent events, such as episodes of achieving goals, receiving recognition, being involved in decision-making, interacting with customers, making mistakes or arguing with colleagues (Basch & Fisher, 1998). According to AET, these kinds of events would mediate effects of more stable work features, such as work climate, on moods and subsequent behaviour. Therefore, further research oriented to define a nomological network describing innovative-relevant events would improve the understanding of influences of work context, and moods on innovative work behaviour.

Furthermore, this study described and tested a moderated mediation process between contextual and individual variables, which assumes a causality chain between support for innovation, openness to experience, high-activated positive mood and innovative work behaviour. Despite being based on a theory-driven approach, previous empirical findings and the use of advanced research design and data analyses, this study can only offer evidence but not absolute proof of causality. In substantive terms, as detailed in Chapter 7, innovative work behaviour can also be an antecedent of moods. Similarly, behaving innovatively can change perceptions of support for innovation. If actual innovative actions are welcomed and recognised by colleagues, supervisors and managers, then perceptions of support can be heightened. In contrast, if innovative

behaviour is arbitrarily rejected or minimised by others, this can lead to negative perceptions to the extent that innovation is supported in the workplace. Future research would be helpful in determining if these alternative explanations are supported.

Finally, the goal of this study was to develop a model about basic psychological processes involved in innovative work behaviour; nevertheless, broader contextual factors, such as cultural values, should be considered as possible additional influences in the model presented. This is relevant considering that the study was conducted in a group of Chilean professionals, which represents a non-traditional sample in organisational behaviour research. Thus, cross-cultural research would be valuable for improving the understanding of the connection between context, personality, affect and innovative work behaviour.

To sum up, this study represents one of the first research initiatives discussing and supporting the meditational and interactional function given between climate for innovation, innovative-related traits, moods and innovative work behaviour. Results showed that affective implications of high-activated positive mood on idea generation and realisation denote high complexity, due to the incremental benefits offered by support for innovation and openness to experience. Future research oriented to control limitations of the study presented here and to expand the findings observed would be very valuable, in order to improve knowledge about how organisational effectiveness and employee well-being could be enriched through working on novel ideas.

CHAPTER 9: DISCUSSION

9.1 INTRODUCTION

Through this thesis, issues on how job-related moods relate to innovative work behaviour have been described, theorised and discussed, leading to the empirical examination of a total number of twenty hypotheses (see Table 9.1). Resulting from this work, diverse contributions in the theoretical, methodological and practical grounds have been developed in order to understand innovation as an affect-driven behaviour at work. These contributions, limitations of this thesis, and challenges for future research are integrated and discussed in detail in this last chapter.

9.2 THEORETICAL CONTRIBUTIONS

This thesis contributes to the organisational behaviour literature through challenging and improving the conceptualisation of innovative work behaviour and the conceptualisation of job-related moods, while examining the associations between job-related moods, work climate, personality disposition and innovative work behaviour, details of which are discussed in this section.

9.2.1 Innovative Work Behaviour denotes a Multidimensional Behavioural Construct

In Chapter 2, innovative work behaviour was discussed as a multidimensional construct from a theoretical perspective, denoting the generation, promotion and realisation of novel ideas, but at the same time this multidimensionality was highlighted as having very little supportive empirical evidence. After a comprehensive review of the literature, this issue was explained as resulting from multiple and often messy

conceptualisations of innovative work behaviour available in the organisational behaviour literature, and also because most empirical research about this has been based on inappropriate measures. In concrete terms, proliferation of numerous definitions and labels to describe dimensions of innovative work behaviour have blurred this construct, since in many cases these labels and definitions confound behavioural components depending on the theoretical model in question. Furthermore, research on innovative work behaviour has been deeply affected by a misalignment between theoretical descriptions and measures used for operationalizing them. In other words, typical measures used in empirical studies in many cases do not represent the definitions proposed by theory.

In order to tackle the above limitations, in this thesis an integrative theoretical model of innovative work behaviour and their respective measures were developed, through a thorough conceptual and empirical review. Firstly, the diverse models available in the literature were critically evaluated in order to build a clear set of behavioural components embedded in the concept of innovative work behaviour. Results of this review (Chapter 2) lead to the conclusion that the seminal theory on innovation of Kanter (1988), subsequently contained in the empirical research of Janssen (2000), best describes the key actions involved in working with novel ideas. These dimensions denote thinking of novel ideas (idea generation), suggesting novel ideas and building coalitions with other relevant people at work (idea promotion), and transforming novel ideas into reality at work (idea realisation).

A second step was the implementation of an empirical review with subject-matter experts on organisational behaviour (Chapter 6), to determine whether measures available in the literature represent the dimensions of the theoretical model developed in this thesis. Results of this indicate that most scales available in the organisational behaviour

literature failed to account for the respective descriptions of idea generation, promotion and realisation, except for the instruments developed by Janssen (2000), and Holman and colleagues (Holman et al., 2011; Zibarras et al., 2005), which paradoxically are the instruments less adopted in empirical studies. Therefore, the most representative items of the latter instruments were selected for building a thorough pool of measures denoting the dimensions of innovative work behaviour.

Results of the subsequent psychometric analysis conducted on a large dataset comprising employees of diverse occupations indicate that four, rather than three dimensions best represent the construct of innovative work behaviour (Chapter 6). Specifically, components of idea suggestion and coalition building described for idea promotion were observed as having a substantive amount of unique variance in measurement models tested. As a result, it was concluded that the dimensions of idea generation, idea suggestion, coalition building and idea realisation better represent the set of actions that individuals perform when working with novel ideas in organisations. This represents an important advance in research on innovation, since diverse behavioural components often studied in an atomised way, such as creativity (idea generation) and voice behaviour (idea suggestion), were integrated in a single model depicting a more comprehensive picture of what innovative work behaviour is. This model, in contrast to most of the frameworks previously developed in the literature on innovation, received both *theoretical* and *empirical support* in this thesis. Regarding the latter, for example, results of longitudinal lag models indicated that idea suggestion, coalition building and idea realisation predict high-activated positive mood over time, but idea generation does not (see Chapter 7). Thus, it is proposed that the multidimensional model of innovative work behaviour offered here should be adopted in future research.

9.2.2 Dimensions of Innovative Work Behaviour Differ in Social Meaning

One essential characteristic contained in the conceptualisation of innovative work behaviour offered in this thesis refers to the notion of social meaning. This denotes the extent to which a behavioural process is given in the intrapersonal or interpersonal domain. As such, low social meaning implies that behaviour is essentially linked to the intrapersonal realm of an individual, such as when an employee spends time on thinking of novel solutions, or when he or she actively chooses to be silent and not communicate his or her ideas to others (Morrison, 2011; Van Dyne et al., 2003). In contrast, behaviour high in social meaning refers to actions requiring social interaction or actions explicitly observed by others in a given context (interpersonal domain). Applying this rationale to innovative work behaviour, idea generation was defined as having limited social meaning, while idea suggestion, coalition building and idea realisation were proposed as substantively unfolding in the interpersonal domain.

Specifically, idea generation was proposed as being primarily an intrapersonal cognitive process of re-organising knowledge already available in an unconventional way, which is given when an individual is facing his or her tasks at work, either performing alone or in groups (Janssen, 2000; Kanter, 1988). This entails that generating novel ideas does not necessarily involve suggesting or promoting them, as much of the previous theory and research have assumed, because creation rather than communication is the key psychological process when novel ideas are generated. As such, idea generation is mostly a cognitive phenomenon in the mind of people, whose results (novel ideas) may or may not cross the borders of this intrapersonal domain. This would lead to criticisms about whether idea generation should be considered as behaviour, since it is not directly observed by others just by the individual creating ideas. It is

acknowledged that the conceptualisation of idea generation offered here mostly denotes a cognitive rather than a behavioural construct; nevertheless, its inclusion as part of a model of innovative work behaviour is believed to be essential, since generation of novel ideas is a necessary condition for the other actions involved in innovative work behaviour, namely, suggesting, building coalitions and realising *novel ideas*.

In turn, idea suggestion and coalition building are charged with social meaning. These actions can only occur through interacting with others, being connected with characteristics of the social work environment, such as the quality of the social exchange within organisational settings (Morrison, Wheeler-Smith, & Kamdar, 2011; Morrison, 2011). Similarly, idea realisation is also given in the interpersonal domain; however, in this case social meaning is more characterised by the exposure of oneself to attitudes and reactions from others to this behaviour rather than the quality of the social work environment (Rank et al., 2009; Yuan & Woodman, 2010). Implementation of novel ideas could be performed alone or in groups, but in both cases this behaviour influences and is influenced by interpersonal meanings. This is because introducing changes in procedures, processes or products in a work unit unavoidably sparks attitudes and evaluations, either positive or negative, from members of this unit toward the adoption of novel ideas. So, realising novel ideas is stimulated if reactions and evaluations in the social work environment are in general positive, but this behaviour would be lessened if there are dominant adverse attitudes and reactions toward adopting changes among members of a work unit.¹¹

¹¹ In terms of measurement of innovative work behaviour, idea generation (creativity) is typically investigated in experimental research through the performance of cognitive tasks, which results are evaluated by subject-matter experts in terms of the originality and fluency of ideas proposed. According to the conceptualisation of idea generation offered here, this experimental procedure captures both idea generation and idea suggestion. This confounding, however, is marginal since the idea suggestion variance captured in this case

Issues on differences in social meaning of innovative work behaviour dimensions have been theorised and assumed in this thesis, but they have not been directly tested in an empirical way. In the discussion section of Chapter 7, differences in social meaning were argued as central to understand why negative moods seems to be not related to innovative work behaviour. According to this, for example, high-activated negative moods could be related to idea generation, because these feelings make individuals concerned with limitations to achieving effective individual task performance, increasing the creation of alternative solutions (George & Zhou, 2007; George, 2011). However, the same process would not be applicable to idea suggestion, coalition building and idea realisation, because in this case high-activated negative moods make individuals concerned about possible issues in the quality of the social work environment and responsiveness of others at work towards novel ideas. Although the above processes were not observed in the empirical studies of this thesis, they should not be ruled out because studies here were not designed to deal with differences social meaning. The latter requires using methodologies such as social relations modelling (Kenny, Kashy, & Cook, 2006), which complexities could involve the work of a dissertation itself. So, empirical examination of differences on social meaning of innovative

is minimal compared to idea generation, because all participants must provide a response, more or less creative, to tasks presented as part of the experimental setting. In turn, processes of idea generation and idea suggestion are slightly different within an organisational setting. In real work, people who have generated novel ideas may or not may share these ideas with others. For example, developments in organisational behaviour research have suggested that employees sometimes decide to actively withhold their novel ideas, which has been labelled employee silence (Morrison & Milliken, 2000; Pinder & Harlos, 2001; Van Dyne et al., 2003). As a result, measures of innovative work behaviour rated by other relevant individuals at work (colleagues, supervisors, managers) are inappropriate to capture idea generation. Third persons only can rate behaviours than are explicitly observable in the interpersonal domain, in other words, actions than are high in social meaning. So, idea suggestion, coalition building and idea realisation could be assessed by ratings by others at work, whereas idea generation can only be measured by self-report of the individual in question. This highlights that selecting an appropriate method to study innovative work behaviour requires bearing in mind issues on social meaning.

work behaviour offers great opportunities for future research, since these issues have not been thoughtfully investigated until today.

9.2.3 *Innovative Work Behaviour is a Dynamic Construct over Time*

In Chapter 6, a central issue was determining which reference of time (e.g. today, the last week, the last month) should be adopted to capture variance of innovative work behaviour when using longitudinal research. According to the discussion provided in this chapter, previous research has shown idea generation as fluctuating within a day or between couples of days (Amabile et al., 2005; Binnewies & Woernlein, 2011); however, at this time little was known about the rate of fluctuation of idea suggestion, coalition building and idea realisation. Based on theoretical argumentation, a weekly time frame was chosen (e.g. “during the last week to what extent have you transformed innovative ideas into useful applications”), because suggesting, building coalitions and realising novel ideas require social interaction and collaborative work, which are highly dependent on events separated by days and even weeks (e.g. team meetings). Results of Study 2 presented in Chapter 7 supported this decision, showing that an approximate of half innovative work behaviour variance was observed fluctuating over weeks, namely, 50% for idea generation, 52% for idea suggestion, 59% for coalition building and 61% for idea realisation.

Important theoretical and methodological implications derive from the above findings. Firstly, in addition to change orientation, high motivation and social meaning (see Chapter 2), time dynamics should be added as a key attribute when conceptualising innovative work behaviour. Secondly, in methodological terms, it is corroborated that a cross-sectional design would be less recommended to examine innovative work behaviour and its antecedents and/or consequences, because this method is not able

to account for time dynamics of the constructs studied. Multilevel theories have clearly demonstrated that neglecting within variance of a construct over time could lead to inappropriate conclusions when examining covariates of this construct (Kozlowski & Klein, 2000). The direction and size of a relationship between two variables could be the same, partially distinct, and even opposite when this relationship is compared using within and between subjects designs (Bolger & Laurenceau, 2013). A clear example of this was the unexpected positive effect of low-activated negative moods on dimensions of innovative work behaviour observed in the cross-sectional (between-subjects) model of the Study 1 in Chapter 6, which was not observed in the within-subjects model of the Study 2 in the same Chapter.

Taken together, research presented in this thesis contributes to the organisational behaviour literature because theory and findings here highlight that innovative work behaviour is a highly dynamic construct, which should be approached with appropriate (longitudinal) methods in order to have an improved understanding of its antecedents and consequences. This has not, to my knowledge, been shown before.

9.2.4 *Job-Related Moods Denote both Affective Valence and Activation*

The central goal of this thesis was to examine the feasibility of understanding innovation as an affect-driven behaviour. This endeavour involved a careful review about how the literature on organisational behaviour has been addressing issues on affect at work (Chapter 4), in order to identify limitations and opportunities for new research. As a result of this review, neglect of the activation dimension of affect was observed as a major limitation in most of the theoretical and empirical work in organisational behaviour in general, and in research on innovation in particular. Specifically, most studies on affect in this field have relied on the

distinction between positive and negative affect *high activation* (e.g. enthusiasm, excitement, tension, anxiety), but results of these studies have often been generalised as representing all type of positive or negative affect respectively (including those low in activation such as comfort, relaxation, depression, despondency). This thesis has challenged this (Chapter 4 and 7), since today there is a weight of theoretical arguments and empirical evidence from basic and social psychology research, supporting the idea that differences in affective activation matter (Gable & Harmon-Jones, 2008, 2010; Harmon-Jones & Gable, 2008, 2009).

According to the circumplex model of affect (Russell, 1980), which is the descriptive framework explicitly adopted here to understand job-related moods, both valence and activation are *basic* dimensions of any affective experience. Affective valence refers to the extent to which affect is experienced as pleasant (positive) or unpleasant (negative); while activation denotes energy expenditure and action readiness (high versus low) embedded in the same feelings. For a long time, social and experimental psychologists only concentrated on how positive valence lead to broadening cognition (e.g. divergent thinking), and how negative valence leads to narrow cognition (e.g. convergent thinking) (Forgas, 1995; Fredrickson, 2004; Schwarz, 1990). In turn, other scholars have proposed that activation of affect is essentially linked to action readiness and behavioural intentions; namely, high activation leads to action readiness whereas low activation is linked to passiveness (Frijda, 1986; Nolenhoeksema et al., 1994). In this thesis, a more recent approach was adopted, which indicates that a specific combination of valence and activation is associated with a specific blend of cognition and behaviour (Harmon-Jones & Gable, 2008). In other words, valence and activation does not operate in a separated way (valence influencing cognition, while activation influences behaviour), because the interplay of both affective dimensions are involved in both cognition and behaviour. For example,

activation would not be only associated with behavioural processes, because energy expenditure has been also observed to be associated with differences in broadening-narrowing cognition, such that low activation is linked to a broader attentional focus, while high activation is related to a narrow attentional focus (Gable & Harmon-Jones, 2008, 2010).

Issues on affect and creativity are used to exemplify the above discussion. According to the traditional approach of affect, influences of high-activated positive moods on idea generation would be explained by broadened psychological process (e.g. divergent thinking) associated with the positive valence of these feelings (Fredrickson, 2001, 2004). However, this explanation is incompatible with the high activation involved in the same feelings, because increased energy expenditure is associated with narrowed more than broadened cognition (e.g. greater attentional focus) (Gable & Harmon-Jones, 2008, 2010). This theoretical tension is solved when affective experience is considered as an irreducible blend of valence and activation. Thus, idea generation would be explained by divergent thinking (broadened cognition) linked to positive valence, *together with* increased attentional focus (narrowed cognition) associated with high-activation, which co-operate at the same time. In this complex psychological process, positive valence increases fluency of idea generation whilst high activation increases focus of creative thinking on tasks that demand a novel answer, because being creative refers to the production of *novel* and *useful* solutions (Amabile, 1983, 1988), but not the creation of random ideas. Supporting this, the empirical studies of this thesis showed that idea generation was positively related to high-activated positive moods, but it was not related to low-activated positive moods (Chapter 7). This suggests that an exacerbated broadening cognition denoted by the combination of positive valence and low activation is not enough to produce ideas considered as novel in work environments. Similar results were observed for idea suggestion, coalition building and idea realisation.

In these cases, it was argued that, joined to divergent thinking and a narrow attentional focus, a combination of positive valence and high activation increases positive attitudes and behavioural persistence to strive for changes based on novel ideas in organisations.

In sum, this thesis contributes to the organisational behaviour literature highlighting that splitting valence and activation of affect is only possible and needed for the sake of a heuristic goal, because neglecting any of these dimensions unavoidably leads to only a partial view of what moods are, and what are their cognitive and behavioural consequences. This proposal is getting well established in theory and research in basic and social psychology; however, it has not percolated enough into organisational behaviour. So, theory and evidence presented here is believed to be a major contribution to improve the understanding of how and why moods relate to work behaviour.

9.2.5 High-Activated Positive Mood is a Core Antecedent of Innovative Work Behaviour

Examination of possible relationships between moods states described by differences in valence and activation indicated that high-activated positive mood is a key affective antecedent of innovative work behaviour (Chapter 7). These feelings directly, uniquely and strongly predict idea generation, idea suggestion, coalition building and idea realisation. This may appear not surprising since the weight of studies showing a positive effect of positive affect on work-related outcomes (Baas et al., 2008; Hennessey & Amabile, 2010); however, results presented here offered a finer grained vision compared with previous research. Specifically, this thesis argued and supported that not any positive moods are relevant for generating, promoting and realising novel ideas, because both positive valence and high-activation are essential to think creatively

and behave innovatively. In contrast, positive moods low in activation were observed as unrelated to any dimension of innovative work behaviour. This highlights that simply feeling good is not enough to perform a challenging behaviour such as innovation, because the state given by both feeling good and feeling energised provides the psychological resources and action tendencies needed to spend time on thinking of alternative solutions and opportunities, and striving for getting support for novel ideas and implementing them.

The above findings contribute to an improved understanding of how affective experiences influence cognition and behaviour at work. As discussed in Section 9.2.4, the fact that innovative work behaviour is related to high-activated positive moods, but not to low-activated positive moods, suggests that cognitive-behavioural processes embedded in affective experience are more complex than the understanding held by organisational scholars in the last few decades. As a result, this thesis proposes that a complex blend of cognition and behaviour, described by both broadened and narrowed cognition linked to high-activated positive moods, is involved in generating, promoting and realising novel ideas. Evidence provided here is still insufficient to categorically support the above proposal; however, argumentation and initial empirical results offered here suggest interesting opportunities for future research, based on both experiential and field studies, on affect and organisational behaviour in general, and innovative work behaviour in particular.

Interestingly, post-hoc longitudinal cross-lagged analysis indicated that over time (a week later), high-activated positive mood does not predict innovative work behaviour, which is consistent with theory and research indicating that effects of moods are limited to short periods of time (e.g. within the same week). However, idea suggestion, coalition building and idea realisation predicts high-activated positive mood over a

week later, suggesting that working on novel ideas have long-lasting effects on employee well-being, particularly when innovative work behaviour involves achievement (idea realisation). However, this evidence is still insufficient as the studies presented here were not designed to deal with longitudinal effects issues. So, the above represent a meaningful finding to be explored in depth in further research. For example, diary studies based on intensive longitudinal data collected every day over two or more weeks, would provide more accurate information about life span of high-activated positive mood effects on innovative behaviour and vice versa.

Regarding negative feelings, empirical results convincingly suggest that high-activated negative moods do not have a direct effect on dimensions of innovative work behaviour. Furthermore, in contrast to findings recently published in the organisational behaviour literature (George & Zhou, 2007; To et al., 2011), plausibility of interaction effects between this kind of mood and other third variables (e.g. individual dispositions, contextual conditions) were also not supported. Obviously, an effect of high-activated negative moods on innovative work behaviour cannot be ruled out based only on the studies presented here, due to the limitations of these studies (discussed latter). However, the strength of methods used in this thesis (diary research) compared to the other research initiatives available in the literature (experiments using undergraduate students, cross-sectional designs) leads to the belief that findings observed here are highly valid and reliable.

Results on low-activated negative moods were the least consistent over the studies (Chapter 7). When using a cross-sectional design, a positive and strong effect was observed between this affective state and dimensions of innovative work behaviour. These results, however, were not replicated when adopting a diary methodology, offering a puzzling situation. A couple of previous studies have indicated the likelihood that

low-activated negative affect (e.g. depressive feelings and moods) can lead to creative thinking, since low activation leads to an increased cognitive reflection stimulating envisioning of alternative courses of actions in a given context (Bindl et al., 2012; Verhaeghen et al., 2005). This makes sense to idea generation; nevertheless, it is hard to believe a similar process applied to idea suggestion, coalition building and idea realisation. The latter dimensions of innovative work behaviour require a great amount of energy and vitality, which is not available in low-activated negative moods, in order to challenge the status quo, face resistance to change and pass obstacles in the adoption of novel ideas often present within a work environment (Janssen et al., 2004). As a result, positive effects of low-activated negative moods on innovative work behaviour observed in one of the studies of this thesis are believed to be statistical artefacts (MacKinnon et al., 2000; Tzelgov & Henik, 1991). However, these findings together with previous supporting evidence of previous studies, highlight that more research is still needed for clarifying and understanding the possible relationship between low-activated negative affect and job-related outcomes.

A final note on this chapter refers to the motivational meaning of moods. Through this thesis, moods have been conceptualised as psychological states with strong motivational (directive) properties for cognition and behaviour; however, this does not mean that moods are equated with motivation. In work settings, motivation denotes a complex psychological process comprised of affect, cognition and behavioural tendencies, oriented to initiate specific actions toward a job, task, role or project, and to determine the form, direction, intensity and duration of these actions (Grant & Shin, 2012; Latham & Pinder, 2005). As such, affect (moods) represents only one component of the complex processes involving motivation (Kanfer & Stubblebine, 2008; Seo et al., 2004; Seo, Bartunek, & Barrett, 2010), which is primarily linked to the intensity and

duration of a motivational state. As discussed in Chapter 4, 7 and 9, differences in valence and activation of moods elicit changes in information processing and action readiness, which can last over several days. In addition, when third variables from the individual and contextual domain are taken in account, the motivational meaning of moods increases by incorporating elements of form and direction. As discussed in Chapter 4 and 8, and in the next section, support for innovation and openness to experience are variables that interplay with high-activated positive mood increasing the willingness, and likelihood, of performing innovative work behaviour. This is the reason why this thesis is titled “On innovation as an *affect-driven* work behaviour”, because innovation is proposed as a work behaviour driven by a complex motivational process described by contextual and individual variables, where moods (affect) plays a central role. In other words, this thesis has disentangled a motivational process involved in innovation, in order to be examined in the light of the affective experience.

9.2.6 Job-Related Mood Mediates Work Climate Influences on Innovative Work Behaviour and this is Moderated by Personality

In Chapter 4 and 8, a complex model described by job-related moods, climate of support for innovation and openness to experience predicting innovative work behaviour was theorised, discussed and empirically tested. Basic premises of this model were that moods mediate influences of context on individual behaviour, and that personality traits regulate the strength of this mediational process.

As a first step to testing the proposed model, elicitation of high-activated moods was observed as resulting from the interaction between support for innovation and openness to experience, which is congruent with the cognitive appraisal approach adopted here (Lazarus & Folkman,

1984; Lazarus, 1982, 2001). According to the latter, a specific kind of mood results from the congruence of goals and commitments between contextual characteristics and the extent to which these goals and commitments are relevant for an individual, which has been called *primary appraisal*. As such, an environment supportive of innovation was observed as a source of positive feelings high in activation only for individuals scoring high in openness to experience, which denotes a process of goal relevance, goal congruency and ego involvement in working on novel ideas (cf. Lazarus, 2001). In other words, the match between organisational and individual interest on novel ideas offers to individuals information that the work environment provides opportunities for yielding valuable rewards and nurturing needs and, therefore, increasing the sense of job-related well-being (Harmon-Jones & Gable, 2009; Watson, 2000). In the case of the innovative situation, rewards and needs are linked to the experience of autonomous thinking and behaving, and chances for increasing mastery and relatedness at work (Deci & Ryan, 2000; Ryan & Deci, 2001), all of which are integral parts of working with novel ideas (Conti, Coon, & Amabile, 1996; Hennessey & Amabile, 1998).

Following cognitive appraisal theory, it should be emphasised that the affective meaning of information that individuals gathered from the context is dependent on whether the characteristics of this context are valuable for these individuals. Lazarus (2001), highlighted that information is not equal to affective meaning (i.e. lack or achievement of well-being) and a source of affect itself, because affective meaning requires that contextual information has substantive relevance for a given person. In terms of the model developed here, this entails that work environments characterised by high support for innovation are not necessarily a source of affective meaning (high-activated positive moods). This relationship is particularly true for employees high in openness to experience, but not for those low in openness to experience. Taken together, these findings

provide a substantive contribution to the organisational behaviour research through describing how job-related moods are triggered at work, since most research in this field has focused on the consequences of moods in attitudes and behaviour, disregarding the aetiology of these affective states (see Chapter 4).

The second step in the proposed model was determining if openness to experience influences the strength of the relationship between high-activated positive mood and innovative work behaviour, such that influences of moods on behaviour is greater when openness is high rather than low. From the perspective of cognitive appraisal theory, this interactional effect corresponds to a process of *secondary appraisal* (Lazarus & Folkman, 1984). This involves, an evaluation of what can be done in the context where the affective experience was elicited, based on the information provided by the same feelings. Applying this rationale to the model proposed here, a greater performance of innovative work behaviour when both high-activated positive mood and openness to experience are high is suggesting that individuals may interpret these feelings as opportunities to work on novel ideas. This is consistent with proposals of theories of moods-as-information (Martin & Stoner, 1996) which emphasises that affective experiences carry information about the context where individuals are performing. However, integrating the cognitive appraisal approach, this information is particularly meaningful for performing a specific behaviour (innovation) for those individuals that value this behaviour (high-openness to experience) (cf. Lazarus, 2001).

An alternative explanation for the interaction effect discussed above refers to the functional properties of openness to experience. Drawing on the big five model of personality (Costa & McCrae, 1992; McCrae & Costa, 1987), this trait has been described as having an experiential function in the relationship between an affective experience

and its correlates (antecedents and consequences) (McCrae & Costa, 1991, 1996; McCrae, 1987). Integration of previous theory and research (Chapter 3 and 8) suggests that high openness to experience amplifies the experience of both positive and negative feelings, because it involves emotionality, passion, impulsiveness and a great attunement with one's own affect. The latter has been also argued as reasons to believe that high openness to experience would lead to experiencing activation of moods with an enlarged intensity. Taken together, characteristics of openness interacting with properties and functions of high-activated positive moods were proposed as increasing innovative work behaviour. Empirical results offered in this thesis supported this interaction effect for idea generation and idea realisation, but not for idea suggestion and coalition building. The amplifying effect of openness in the association between high-activated positive mood with idea generation denotes that openness strengthens access to variety in ideas, divergent thinking together with attentional focus on task performance. In turn, the same interactional effect on idea realisation can be explained as an intensified process of approach behaviour, attentional focus and persistence oriented to making novel ideas happen at work.

On the other hand, the lack of support of the interaction between openness and mood on idea suggestion and coalition building challenges the theory developed in this thesis. A likely explanation for this is the highly interpersonal meaning of these dimensions of innovative work behaviour (Chapter 2). As such, suggesting ideas and looking for support for them are very sensitive to the quality of relationships at work and the extent to which individuals are oriented to interpersonal behaviour. So, a high participative safety climate (Anderson & West, 1998; Edmondson, 1999) and a personality described by high agreeableness (Costa & McCrae, 1992; McCrae & Costa, 1987) might be more relevant in this case rather than support for innovation and openness to experience. Future longitudinal

studies, where time invariant factors relevant for interpersonal behaviour (e.g. psychological safety, agreeableness) are tested in relation to time variant moods and suggesting ideas and coalitions building, will offer a more comprehensive understanding of complexities between affect and these dimensions of innovative work behaviour.

A final step was testing the model proposed as a whole, to determine if a mediational process between support for innovation, high-activated positive moods and innovative work behaviour (idea generation and idea realisation) was moderated by openness to experience. Results supported the moderated mediation process for idea realisation, describing a complex psychological process given between contextual and individual variables, some of them varying over time (idea realisation, high-activated positive moods), while others being considered as time invariant (support for innovation, openness to experience). Taken together, effects described by this model highlight high-activated positive moods as a core psychological variable to transform both contextual and individual resources into behaviours oriented to transforming work environments based on novel ideas. Also, this model highlights the self-regulation value of openness to experience, since this individual disposition seems to be critical to an increased affective engagement under a climate of support for innovation, and also critical to transforming this affective engagement into innovative work behaviour. These findings represent a valuable contribution to the literature, since they have had not received sufficient attention in theory and research on organisational behaviour before.

9.3 METHODOLOGICAL CONTRIBUTIONS

As discussed in Chapter 5, this thesis used quantitative methods to address its research questions. As such, one implicit goal of the work

developed here was to contribute in methodology used to study affect and behaviour in organisations. Such contributions are detailed below.

9.3.1 *Validation of a Dimensional Measure of Innovative Behaviour*

Surpassing the misspecification between theory and measurement of the innovative work behaviour construct has been a major challenge over time. Specifically, scales typically used in empirical research poorly denote the behavioural components described by theoretical models (lack of content validity), which has unfolded in a broad approach to innovative work behaviour phenomenon, disregarding its behavioural singularities. This issue has been tackled in this thesis, developing and empirically supporting a multidimensional scale of innovative work behaviour, which discriminates between idea generation, idea suggestion, coalition building and idea realisation.

Attempts to validate a multidimensional measure of innovative work behaviour are not new in the literature; however, previous research has failed to achieve this goal. The basic problem in earlier validation studies has been the high-correlation between dimensions of innovative work behaviour [.70 – .74] (De Jong & Den Hartog, 2010), which has lead scholars to conclude that there is not enough empirical support for dimensionality of this construct. However, these high correlations can be explained by overconfident use of supervisor ratings of innovative work behaviour and use of extended frames of time when measuring. When using supervisor measures of behaviour, the tendency to rate behavioural processes in a general way neglecting differences between them (halo effect) has been a well established as a source of error (inflated correlations between dimensions). Furthermore, high correlations between behavioural dimensions are also observed when extended time frames (e.g. over the last months or last year) are used as time reference to

measure behaviour. This issue is explained because frequency of conceptually different behaviours tends to be similar (equated) when time reference gets longer.

For example, imagine an individual being asked about the extent to which he or she has generated novel ideas, and the extent to which he or she has suggested novel ideas at work. Over a period several months or a year, this individual may report that he/she has generated novel ideas several times, and that he/she has suggested novel ideas several times as well. Thus, the correlation between idea generation and idea suggestion is very high, leading to the conclusion that when novel ideas are generated they are necessarily suggested. However, this might not be the case. As discussed in this thesis, dimensions of innovative work behaviour are highly dynamic, which have been supported as fluctuating substantively within subjects over short periods of time (Chapter 7). Furthermore, these dimensions have been proposed as being different in terms of social meaning since, for example, idea generation is primarily an intrapersonal process, while idea suggestion is highly interpersonal. As such, when a novel idea is generated in a given moment at work, the suggestion of this idea is not guaranteed at the same period of time, because different scenarios are possible, namely, ideas could be proposed, withheld for a while, or silenced forever.

Tackling the above issues, this thesis operationalised innovative work behaviour using a weekly time reference, arguing that idea generation, idea suggestion, coalition building and idea realisation substantively vary between every work week (Chapter 6). Furthermore, self-report ratings were used for measuring innovative work behaviour, drawing on theory and evidence supporting that individuals are more aware about discretionary performance of different behavioural processes compared with third individuals, such as supervisors or colleagues.

Furthermore, the dimension of idea generation was argued as better captured by self-reported ratings, because it mainly corresponds to an intrapersonal processes directly observed by the individual generating ideas. In contrast, supervisors can primarily rate idea suggestion, which involves idea generation but it is not idea generation itself. Results of operationalizing and measuring innovative work behaviour in the above way were successful because measures scales of idea generation, idea suggestion, coalition building and idea realisation were strongly supported based on both cross-sectional and diary data, using single level and multilevel confirmatory factor analysis. Specifically, correlations between dimensions of innovative work behaviour were moderated in size [.46 – .55] and fairly weaker than correlations observed in previous research. Some limitations, however, should be mentioned and addressed in future research. Firstly, this validation was based only in Spanish-speaking samples of employees, thus a cross-validation using English-speaking individuals (and other languages of course) are needed. Secondly, testing the longitudinal invariance of innovative work behaviour measures is recommended, since this construct has been proposed and supported as a highly dynamic construct over time.

In sum, this thesis provides a major contribution to further research on innovative work behaviour, through offering a measurement tool to capture its multidimensionality.

9.3.2 Validation of a Spanish Form of the Multi-Affect Indicator

Understanding job-related moods as states described for differences of both valence and activation require appropriate quantification of the affective experience (Briner & Kiefer, 2009), through the use of an instrument able to capture these differences in valence and activation. Since, before this thesis, such an instrument has been only

recently developed in organisational behaviour in general, and not available in research on organisational behaviour in Spanish-speaking samples in particular, a first empirical step conducted was to validate a Spanish form of the multi-affect indicator recently developed by Warr and Parker. This instrument informs about four affective states (moods) described by the linear combination of valence and activation, namely, high-activated positive affect (HAPA), high-activated negative affect (HANA), low-activated negative affect (LANA) and low-activated positive mood (LAPA). As such, this instrument offers a more comprehensive view of mood experienced at work, compared with the widely adopted PANAS, which is limited to high-activated positive mood (PA) and high-activated negative mood (NA). Thus, researchers working within a Spanish-speaking environment have available now a tool to obtain a finer grained measurement and evaluations of moods experienced at work.

Some limitations of the instrument validated should be mentioned. Opposite measures in the circumplex (see Chapters 4 and 6) (HAPA-LANA, HANA-LAPA) of the Spanish form of the multi-affect indicator were observed as fairly bipolar; while adjacent measures were observed only few orthogonal (e.g. HAPA-HANA, HANA-LANA). These results suggest that the validated instrument captures well both positive and negative moods high in activation, but the instrument is sensitive to both positive and negative moods only with mild activation instead of extreme deactivation. Furthermore, issues on lack of orthogonal relationships observed suggest that there would be some degree of overlap between measures of adjacent areas of the circumplex. This situation does not invalidate the instrument developed and the inferences based on its scores, because the Spanish form of multi-affect indicator described four types of moods logically and meaningfully distinct. However, further research would be helpful to improve this instrument in order to cover the whole circumplex and control possible issues of collinearity between moods measures.

Furthermore, future test of longitudinal invariance of the instrument validated here would be valuable, since mood is a highly dynamic construct fluctuating over time,

9.3.3 Development of Improved Research Design to Approach Moods and Innovative Work Behaviour

Practising good research involves working on appropriate research designs to tackle the research problem of interest. As such, determining whether a cross-sectional or longitudinal approach will provide information to deal with research questions, defining operationalisation of variables measures in an comprehensive way, deciding which methods of data collection are appropriate, and sampling relevant individuals for being part of studies are essential features when designing a research initiative. This thesis contributes to these issues in several ways, as detailed below.

Firstly, testing possible relationships between job-related moods and behaviour required a longitudinal approach, since both moods and behaviour are constructs highly fluctuating over time. Furthermore, this longitudinal approach should be able to deal with within-subject variability of the constructs over time, because experiencing affect and its correlates denotes a deep singular experience which is lost if a between-subject approach is imposed. However, before this thesis, research on innovative work behaviour has only adopted a between-subject approach, being uncertain whether a more comprehensive view of its antecedents is possible or not, particularly in relation to job-related moods. In order to tackle this, this thesis adopted an intensive longitudinal method being based on diary studies which were able to deal with within and between-subjects variance of moods and behaviour. Advantages of intensive longitudinal methods were demonstrated here, since results of diary studies were observed as more theoretically and empirically valid and

reliable than results observed using cross-sectional data. The latter was shown to be affected by inflated estimations and suppression issues in regression analyses.

Secondly, time operationalisation of dynamic constructs of interest was another design issue. Specifically, determining which specific frame of time should be adopted to measure moods and behaviour is not a straightforward task, particularly when previous research does not offer clear information about it (e.g. innovative work behaviour). Adopting a theoretical approach, a weekly frame of reference was selected to measure innovative work behaviour, since this is dependent on events and work conditions that unfold over days and even weeks (Chapter 6). Based on this, defining the time frame of job related moods was the next challenge. Today's tendency in research is investigating moods varying within days or between a couple of days, since the observation of within variance of moods unfolding in short periods of time. However, this does not necessarily represent a rule of thumb because time calibration between a dependent variable (innovative work behaviour) and an independent variable (job-related moods) is essential to control issues of inflation/deflation in effects tested (Cronbach & Gleser, 1965). Thus, a weekly time of reference was adopted for both moods and innovative work behaviour. This decision is supported by previous research that shows the correspondence between weekly and daily measures of affect, and evidence supporting the value of weekly affect to understand work cognition and behaviour. This weekly basis operationalisation is believed to contribute to organisational behaviour research, because it offers information about moods and behaviour given in a meaningful unit of analysis (workweek), which is not too long for masking time dynamics of affect and behaviour over time. Daily time frame is indeed very valuable to capture dynamisms of moods, but at the same time it would be a pitfall if

dependent variables (e.g. behaviour) are not varying substantially over days.

Thirdly, in terms of data collection, studies of this thesis were based on self-reported measures of the variables of interest. This strategy is the gold standard for measuring moods, since this construct properly reflects psychological processes of the internal world of individuals, so they are the most reliable source of information of affective experience. Furthermore, self-ratings of innovative work behaviour were considered as appropriate to deal with its multidimensionality, since these measures are less prone to high spurious collinearity between behavioural dimensions (halo effect) often linked to third-party behavioural ratings (e.g. supervisors). Even more importantly, use of self reported measures are proposed as unavoidable to have a proper distinction between idea generation and the others dimensions of innovative work behaviour. Idea generation is hardly conceived as being accurately captured by other individuals (e.g. colleagues, supervisors), since it has been proposed as limited in social meaning. So, in order to determine if idea generation is meaningfully different than, for example, idea suggestion, it is proposed that self-reports of these actions are needed, because third-party individuals only can be inferred idea generation through idea suggestion. However, as demonstrated here, idea generation and suggestion are not the same.

Nevertheless, use of self-ratings of both moods and innovative work behaviour represent a problem for testing their relationship. Several biases would arise from this strategy associated with common-method variance issues. Inflated estimations between, in this case, moods and behaviour represents the main concern about it. However, typical use of others ratings of behaviour to control common method variance is also problematic, because it offers room for deflation issues (underestimation) when testing the relationship between two variables (Conway & Lance,

2010), and others ratings cannot deal with the intrapersonal feature of idea generation. This scenario requires additional methodological strategies for controlling possible common method variance if self-reported measures are used for both innovative work behaviour and their correlates tested. In this thesis, use of trait affect tendencies operationalised as extroversion/positive-activation and neuroticism/negative-activation, whilst using confirmatory factor analysis (Harman's test) were used to control possible common variance issues. However, several other methodological alternatives are also available, which are more or less suitable depending on the research design of studies in question. In synthesis, this thesis contributes to discussions on how innovative work behaviour should be operationalised and measured, according to the conceptual model offered. In concrete terms, use of self-reports of innovative work behaviour is encouraged based on theoretical and methodological arguments, but not demonised as in much of research in organisational behaviour. However, this requires adopting appropriate strategies to control potential common method variance threats, in order to develop appropriate conclusions.

A final methodological contribution is related to samples utilised in empirical research of this thesis. As discussed in Chapters 4 and 5, several studies addressing the relation of moods and innovative-related outcomes have been based on experimental research using university students, which limits generalisation of results to populations of actual employees working in organisations. In order to deal with this, studies presented here were based on multiple samples of actual members of professional staffs in hundred organisations showing diverse gender, age, occupation, organisational tenure and job role (see Chapters 6, 7 and 8). This offers increased external validity of findings observed, such that results of hypothesis testing are likely to be generalised to any individual working as part of a professional staff at any organisation.

9.3.4 Development of Accurate Data Analyses to Study Moods, Innovative Work Behaviour and their Contextual and Individual Antecedents

In this thesis, using the strongest methods possible for data analysis was a major effort in order to test the hypotheses. When developing the measures of innovative work behaviour and job-related moods, inter-rater agreement techniques were used to evaluate content validity of the instruments (Chapter 6). In addition, single-level and multilevel confirmatory factor analyses (Chapters 6 and 7) were conducted to determine validity and robustness of measurement model defined for behaviour and moods. Measures of moods, furthermore, were submitted to circular stochastic modelling with a series of Fourier to test whether these measures represented the basic characteristics defined by the circumplex model of affect. As a result, research offered here contributes to the organisational behaviour literature offering measures of innovative work behaviour validated through advanced and strong analytical techniques.

In turn, when testing associations between job-related moods and innovative work behaviour, multilevel modelling was crucial to avoid sources of error linked to inflated estimations and suppression effects observed in cross-sectional data. In studies of this thesis, multilevel approach allows accounting for within-subjects variance of moods and behaviour over time (level-1), while variance of the same constructs between-subjects (level-2). Additional resources of multilevel modelling were also helpful to have a comprehensive approach when testing the hypotheses. For instance, use of random intercepts and random slopes in regression analysis offered opportunities to observe how the relationships between moods and dimensions of innovative work behaviour vary between participants and within every participant. Furthermore, centering

techniques facilitated interpretation of the relationships given between constructs examined, removing between variance for constructs defined as fluctuating over time (person-mean centering), while removing within variance for constructs defined as time invariant (grand-mean centering). Using linear time tendencies as a control variable, accounting for serial auto-correlation of innovative work behaviour over longitudinal waves of data, and empirically estimating the amount of common method variance involved in the associations of moods with behaviour also strengthened the validity of results.

Use of multilevel structural equation modelling for testing the moderated mediation processes between work climate, personality, moods and behaviour represents a cutting-edge analytical strategy in organisational behaviour research. In this model diverse type of effects was modelled, namely, lower level direct effects, cross-level direct effects, cross-level moderation, multilevel mediation and multilevel moderated-mediation. Since a multivariate procedure was not documented in the psychological literature to test a model with such complexity, two separated statistical frameworks were integrated for the purposes of this thesis. Firstly, a framework for multilevel mediation (Preacher et al., 2010) allowed the observation of how time invariant ratings of work climate influenced time variant ratings of innovative work behaviour through time-variant moods. Secondly, a framework for conditional indirect effects (Preacher, Rucker, & Hayes, 2007) was integrated to determine the extent to which time invariant ratings of openness to experience moderate the mediation process aforementioned. This innovative integration is a substantive contribution to psychological methods oriented to describe complex psychological processes.

9.4 PRACTICAL IMPLICATIONS

Important practical implications derive from the work developed in this thesis. Innovation and employee sense of affective well-being (e.g. high-activated positive feelings) are fundamental for an organisational effectiveness and quality of life of their members. Thus, Spanish forms of scales for measuring job-related moods and innovative work behaviour validated represent a valuable assessment and diagnosis tool for organisational practitioners working in Spanish speaking contexts. Depending on focus of practical programmes in organisations, measures of innovative work behaviour and moods can be used with descriptive or predictive purposes. In appendix, norms of the mean scores observed in the Spanish-Speaking sample for HAPA, HANA, LANA, LAPA are presented. This is intended to facilitate benchmarking initiatives and the interpretation of results observed in the application of this instrument. Availability of this instrument can also stimulate new research on affect within Spanish speaking contexts.

In turn, knowledge on moods and innovation is also relevant for human resource and organisational development practices related to, for example, staffing, management of work environment and promotion of work performance. Specifically, results of empirical studies presented here suggests that disconnected strategies for selecting and retaining “innovative” people (e.g. high in openness to experience) or communicating and practicing organizational support for innovation do not guarantee greater innovative performance. Engaging innovative work behaviour is associated with the meeting of *both* high organizational and individual interests to develop different or novel solutions and approaches. Thus, organizational practices oriented to achieving higher levels of innovation have to be based on effective strategies for identifying

individuals with innovative potential and creating work environments that are perceived as encouraging innovation.

Processes of selection and retention of employees could consider the use of measures and techniques to inform about the degree of openness to experience of individuals. Examples of this are standardised psychometric tests such as the NEO-PI inventory (Costa & McCrae, 1992), or in depth interviews exploring interest, attitudes and dispositions towards novel ideas of applicants. Openness to experience might also be evaluated through assessment centre techniques (Arnold et al., 2005), where applicants participate in simulated activities that involve expressing autonomous thinking, and engagement in unconventional solutions in problem solving and decision-making.

Managing a climate of support for innovation involves improving both articulated and enacted support (Anderson & West, 1998; West, 2002). The former implies that the mission of an organisation explicitly declares that novel ideas are expected, encouraged and acknowledged. This articulated support could be offered through oral communication activities (e.g. speeches, seminars), or being documented in personnel files, policy statements and intra-organisational informative leaflets. In turn, enacted support involves offering concrete resources to work on innovation, such as time within a regular shift to explore novel ideas within a job or work unit, or providing budget funding to examine new work processes, procedures or products. Organisations can also implement an innovation competition, where employees participate in proposing ideas which can get approval and resources for their adoption in a specific work unit.

With the focus on affect, managing and promoting work environments that effectively facilitate the predominance of positive

feelings emerge as a central practice to foster work performance. This requires that, for example, team leaders facilitate interaction processes between team members denoting inquiry, exploration and examination of diverse approaches to improve performance (Losada & Heaphy, 2004). Furthermore, developing styles of supervision/leadership that encourage collective vision, inspiration and decision-making (e.g. transformational leadership, Mumford, Scott, Gaddis, & Strange, 2002) whilst providing proper support, feedback and recognition enhances positive feelings high in activation (Baer & Oldham, 2006; Madjar et al., 2002). This requires designing and implementing training programmes oriented to improving knowledge and skills of individuals with leading roles, in order to use, in an efficient way, a diversity of ideas within their teams and manage effectively possible diverse opinions or conflicts between team members around novel ideas (Tjosvold, Wedley, & Field, 1986). Complementarily training courses oriented to improve strategies for self-regulation of employees (Gross & Thompson, 2007; Parkinson et al., 1996), such as sustaining high-activated positive mood over time, would be very valuable for the affective processes involved in innovation. Examples of adaptive self-regulation strategies are reappraisal of contextual characteristics that decrease high-activated positive feelings, or the active search for recovery and distraction activities when the same feelings become weaker (Loewenstein, 2007).

Similarly, job design/enrichment should enhance the conditions for developing work environments linked with high-activated positive mood and with innovative potential (Axtell et al., 2000). Designing or enriching jobs is a major endeavour, where human resources departments invest time and resources in diagnosing whether characteristics of jobs are motivating. Based on this assessment, organisations should implement changes in their jobs to increase skill variety, task identity, task significance, autonomy and access to developmental feedback (Hackman & Oldham, 1975, 1976, 1980; Parker & Wall, 1998). Similarly, increasing opportunities

to have contact with beneficiaries of one's own job (e.g. customers, stakeholders), and working to have a positive impact on these beneficiaries could also enhance a positive experience among employees (Grant, 2007; 2008).

Finally, results of this study also indicate that innovation in the workplace is positively related to job-related well-being, because it is substantively associated with experiencing positive feelings while working (Warr, 2007). As such, organisations should bear in mind that when organisational conditions are managed to enhance innovation (improving climate for innovation, leadership, team processes, and job characteristics), a positive and satisfactory employee experience is also enhanced.

9.5 LIMITATIONS

As any research initiative, work presented in this thesis has limitations that should be acknowledged and mentioned. Limitations discussed here are those that have not been considered over the previous sections of this Chapter.

9.5.1 *Micro Psychological Processes Involved in the Theoretical Model*

Argumentation of the theoretical model offered in this thesis draws on a series of detailed psychological processes, which were not empirically tested. For example, effects of high-activated positive moods on innovative work behaviour were argued as resulting from micro cognitive-behavioural processes (e.g. attentional focus, divergent thinking, action readiness), described by previous basic psychological research (experimental) not applied to organisational settings (e.g. Gable & Harmon-Jones, 2008; Harmon-Jones & Gable, 2009). Similarly, only a general approach to cognitive appraisal processes was adopted to understand elicitation of

moods, assuming that micro processes of goal relevance, goal congruence-incongruence and ego involvement participate in eliciting moods at work (Lazarus, 2001). A macro approach was justified in this thesis because this was focused on affect and behaviour in organisational contexts. Nevertheless, future research would enrich findings provided here through examining relevant micro psychological processes in relation to innovative work behaviour in organisational settings. This requires, for example, the use of experience sampling methodologies (Beal & Weiss, 2003; Fisher & To, 2012), which are able to offer detailed information about how affect and its correlates unfolds ecologically in work settings. Alternatively, experimental designs that simulate work environments (e.g. teamwork) (e.g. Barsade, 2002) would offer a more detailed description of psychological processes involved in influences of work climate and personality dispositions on affective states such as moods.

9.5.2 Long-Lasting Approach of Moods

In this thesis, a long-lasting approach of affect was adopted, through operationalising moods in a weekly basis. This relied on proposals of bandwidth-fidelity theory (Cronbach & Gleser, 1965), which highlights that independent and dependent variables examined should be corresponding in terms of operationalisation parameters, in order to obtain appropriate information when testing their relationships. In case of this thesis, calibration of bandwidth given by life span of moods and behaviour was critical, because while innovative work behaviour was argued as a dynamic construct fluctuating over weeks, previous research supported moods as fluctuating over shorter periods of time (e.g. couple of days, or within days) (Chapter 7). Because innovative work behaviour was the outcome (dependent variable) in this thesis, this was adopted as the construct of reference for calibrating life span (i.e. weekly basis). Then, revision of previous theory and research showed that weekly moods have

been largely supported as representative of daily moods, and weekly moods have been also supported as valuable to predict attitudes and behaviour in organisational behaviour research (Chapter 7). Nevertheless, alternative streams of research have also shown the value of investigating moods and behaviour adopting an approach limited to hours or days, proposing that contingent events at work, rather than more stable perceptions of work environments, predict moods and behaviour (Weiss & Beal, 2005; Weiss & Cropanzano, 1996).

The above stresses the need for conducting more research using a short-lasting approach to moods and behaviour, which would be particularly valuable for idea generation and idea suggestion which seems to have a more intensive fluctuation over time than coalition building and idea realisation (Chapter 7). Such a short-lasting approach will also demand the building and validating of a nomological network of innovative-relevant events, which potentially predict innovative work behaviour through the experience of momentary moods. In concrete terms, diary studies where events, moods and behaviour are measured once a day, or a couple of times a day, will show whether a short time frame is more informative about dynamics between moods and innovative work behaviour. Indeed, this offers exciting opportunities for future research.

9.5.3 Causality Issues

The theoretical model developed here involves a causal process between support for innovation, openness to experience, high-activated positive mood and innovative work behaviour (Chapter 8). However, the research designs adopted did not absolutely deal with causality issues (cf. Briner & Kiefer, 2009). Using a cross-sectional study (Chapter 7) does not allow the determination of whether high-activated positive mood is a cause or effect of innovative work behaviour, so causality of moods on

behaviour was only theoretically inferred. In turn, diary studies conducted (Chapters 7 and 8) are stronger for assuming a causality effect of moods on behaviour, and a causal effect of support for innovation and openness to experience on moods and behaviour respectively (cf. Bolger & Laurenceau, 2013). However, diary studies can only offer evidence but not strict proof of causality (Bolger et al., 2003). Dealing with these issues is not straightforward, since experimental studies, which excel in determining causality, are not easy to conduct in organisational settings without limitations as well (e.g. lack of strict experimental control). So, even when diary studies are believe as a reliable way of dealing with causality in applied settings, future longitudinal experimental research has the challenge of examining whether innovative work behaviour may or may not be a predictor of job-related moods as well.

9.5.4 Use of Self-Reported Measures and Inflated-Deflated Estimation

All empirical studies of this thesis were based on self-reported data of behaviour, since this was argued as valuable to capturing multidimensionality of innovative work behaviour, and it also accounts better for idea generation as an intrapersonal psychological process (Chapter 6). However, common method variance issues are well established as a source of error when using self-reported data, due to risk of *inflation* in parameters estimated in relation to other variables (e.g. moods) as part of hypothesis testing (Podsakoff et al., 2003, 2012). However, use of others report of innovative work behaviour is not necessarily a solution because, for example, supervisors can miss behaviour performance of employees over daily activities (they are not interacting each other all day long), leading to risks of *deflation* in parameters estimated (Conway & Lance, 2010; Griffin et al., 2007; Kammeyer-Mueller et al., 2010). Issues on common method variance has been theoretically and empirically addressed here, showing that the typical

amount of common variance between affective and behavioural constructs would not invalidate the results observed between moods and innovative work behaviour (Chapter 7). Nevertheless, the use of both self-reported and other-reported (e.g. supervisors, colleagues) of innovative work behaviour in a single study is highly recommended, in order to have a more comprehensive approach to moods in relation to idea suggestion, coalition building and idea realisation, since these behavioural dimensions are high in interpersonal meaning.

9.5.5 Sampling

Studies of this thesis relied on samples comprised hundreds of individuals performing in hundreds of organisations, which offered an increased external validity of results observed. However, generalisation of results would be threatened by the use of a snowballing strategy for cross-sectional studies, and use of MBA students as participants for diary studies. Use of snowballing involved that contacts of the leading researcher of this thesis sent to his contacts working in a organisation an invitation to participate in the study, who in turn invited their contacts and so on (Chapter 6). Therefore, a group of highly committed individuals, since proximity to the lead researcher, would comprise the sample of the cross-sectional study, affecting generalisation of findings. Even when this sounds unfeasible since this study entailed more than four hundred individuals (I have not this number of friends in reality), some degree of error attributed to this cannot be ruled out. A similar situation would be arguable for MBA students, because they represent an exclusive group of individuals who have access to this kind of highly qualified, and costly, training. Therefore, future studies on moods and behaviour should consider replicating findings observed here, using stronger methods of sampling.

9.6 SUMMARY AND CONCLUSION

As stated in its title, this thesis aimed to determine whether innovation can be understood as an affect-driven behaviour at work. After a comprehensive review of the literature, thorough theorising and rigorous empirical research, the answer to this question is “most likely, under certain conditions”, because innovative work behaviour is linked to high-activated positive moods, and this relationship depends on the interaction between organisational and individual interest for novel ideas (support for innovation and openness to experience). Development of this knowledge entailed a major research endeavour, which involved developing a theoretically and empirically sound model of innovative work behaviour, integrating knowledge about the affective experience from basic psychology and organisational behaviour research, validating psychometric instruments to measure job-related moods and innovative behaviour, and using cutting-edge methodologies and data analysis to deal with moods and behaviour understood as highly dynamic constructs.

In terms of unique contributions, in this thesis innovative work behaviour was discussed and supported as a dynamic construct fluctuating over time, which dimensions differ in social meaning. Furthermore, a finer grained understanding of implications of moods to work relevant outcomes was offered, since both affective valence and activation were conceived as basic and irreducible dimensions of moods. Finally, this thesis offers empirical support for the widely, but untested, notion that affect mediates the influences of work context on innovative behaviour. A complex psychological mechanism was theorised and empirically supported, where most of constructs of interest for psychology research interplay to explain behaviour (innovation), namely, affect (moods), cognition (perceptions of support for innovation), and personal dispositions (openness to experience).

It is hope that knowledge developed here stimulates further research and improves practice in organisational behaviour, in order to increase organisational effectiveness and employee well-being, through fostering one of the most salient features of human beings, namely, to think and behave innovatively.

Table 9.1: Summary of Hypothesis Testing

	Hypothesis	Study				
		1	2	3	4	5
1	A three-dimensional model comprised by idea generation, idea promotion and idea realisation will best represent the construct of innovative work behaviour*	---	No	No	No	No
2	A three-dimensional model comprised by idea generation, idea promotion and idea realisation will best represent the construct of innovative work behaviour.	---	Yes	Yes	Yes	Yes
3	High-activated positive mood will be positively related to idea generation.	---	---	Yes	Yes	---
4	Low-activated positive mood will be positively related to idea generation.	---	---	No	No	---
5	The relationship between low-activated positive mood and idea generation will be weaker than the relationship between high-activated positive mood and idea generation.	---	---	No	No	---
6	Low-activated negative mood will be negatively related to idea generation.	---	---	No	No	---
7	High-activated positive mood will be positively related to idea suggestion and coalition building.	---	---	Yes	Yes	---
8	Low-activated negative mood will be negatively related to idea suggestion and coalition building.	---	---	No	No	---
9	High-activated positive mood will be positively related to idea realisation.	---	---	Yes	Yes	---
10	Low-activated negative mood will be negatively related to idea realisation.	---	---	No	No	---
11	High-activated positive mood will mediate the relationship between support for innovation and idea generation, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea generation.	---	---	---	---	No
12	High-activated positive mood will mediate the relationship between support for innovation and idea suggestion, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea suggestion.	---	---	---	---	No
13	High-activated positive mood will mediate the relationship between support for innovation and coalition building, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to coalition building.	---	---	---	---	No
14	High-activated positive mood will mediate the relationship between support for innovation and idea realisation, such that high support for innovation will be positively related to high-activated positive mood, which in turn will be positively related to idea realisation.	---	---	---	---	No
15	The relationship between support for innovation and high-activated positive mood will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.	---	---	---	---	Yes
16	The positive relationship between high-activated positive mood and idea generation will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.	---	---	---	---	Yes
17	The positive relationship between high-activated positive mood and idea suggestion will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.	---	---	---	---	No
18	The positive relationship between high-activated positive mood and coalition building will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.	---	---	---	---	No
19	The positive relationship between high-activated positive mood and idea realisation will be moderated by openness to experience, such that this relationship will be stronger for people high in openness to experience than those low in openness to experience.	---	---	---	---	Yes
20	The mediation mechanism between support for innovation, high-activated positive mood and innovative work behaviour (idea generation, idea suggestion, coalition building and idea realisation) will be moderated by openness to experience, such that this mediation would be stronger for individuals high in openness to experience than those low in openness to experience.	---	---	---	---	Yes

* Results of all studies conducted indicated that instead of three, four are the dimensions that better describe innovative work behaviour, namely, idea generation, idea suggestion, coalition building and idea realisation.

APPENDICES

A. POOL AND RATINGS OF INNOVATIVE WORK BEHAVIOUR MEASURES ASSESSED BY SUBJECT-MATTER EXPERTS (STUDY 1)

Table AP1: Assessment of Subject-Matter Experts for Items of Innovative Work Behaviour in English

Item ID	Item	Original Construct	Code Expert-1	Code Expert-2	Inter-Expert Agreement	Original Construct	Match with Original Construct
Tierney, Farmer & Graen (1999) , please indicate how often the following statements characterize this employee:							
IT_E1	Demonstrated originality in his/her work	Creativity	4	5	No	No	No
IT_E2	Took risks in terms of producing new ideas in doing job	Creativity	5	5	Yes	No	No
IT_E3	Found new uses for existing methods or equipments	Creativity	4	1	No	Disagreement	Disagreement
IT_E4	Solved problems that had caused other difficulty	Creativity	2	5	No	No	No
IT_E5	Tried out new ideas and approached to problems	Creativity	4	4	Yes	No	No
IT_E6	Identified opportunities for new products/processes	Creativity	---	5	No	Disagreement	Disagreement
IT_E7	Generated novel, but operable work-related ideas	Creativity	1	1	Yes	Yes	Yes
IT_E8	Served as a good role model for creativity	Creativity	5	5	Yes	No	No
IT_E9	Generated ideas revolutionary to our field	Creativity	1	1	Yes	Yes	Yes
Zhou & George (2001) , how characteristic each of the following behaviors was of the employee being rated?							
IT_E10	Suggests new ways to achieve goals or objectives	Creativity	2	2	Yes	No	No
IT_E11	Comes up with new and practical ideas to improve performance	Creativity	1	2	No	Disagreement	Disagreement
IT_E12	Searches out new technologies, processes, techniques, and/or product ideas	Creativity	5	5	Yes	No	No
IT_E13	Suggests new ways to increase quality	Creativity	2	2	Yes	No	No
IT_E14	Is a good source of creative ideas	Creativity	1	1	Yes	Yes	Yes
IT_E15	Not afraid to take risks	Creativity	5	5	Yes	No	No
IT_E16	Promotes and champions ideas to others	Creativity	3	3	Yes	No	No
IT_E17	Exhibits creativity on the job when given the opportunity to	Creativity	5	2	No	No	No
IT_E18	Develops adequate plans and schedules for the implementation of new ideas	Creativity	4	4	Yes	No	No
IT_E19	Often has new and innovative ideas	Creativity	1	1	Yes	Yes	Yes
IT_E20	Comes up with creative solutions to problems	Creativity	2	2	Yes	No	No
IT_E21	Often has a fresh approach to problems	Creativity	1	1	Yes	Yes	Yes
IT_E22	Suggests new ways of performing work tasks	Creativity	2	2	Yes	No	No

Janssen (2000), how often employees performed those innovative work behaviors in the workplace?

IT_E23	Creating new ideas for difficult issues	Idea generation	1	1	Yes	Yes
IT_E24	Searching out new working methods, techniques, or instruments	Idea generation	5	1	No	Disagreement
IT_E25	Generating original solutions for problems	Idea generation	1	1	Yes	Yes
IT_E26	Mobilizing support for innovative ideas	Idea promotion	3	3	Yes	Yes
IT_E27	Acquiring approval for innovative ideas	Idea promotion	3	3	Yes	Yes
IT_E28	Making important organizational members enthusiastic for innovative ideas	Idea promotion	3	3	Yes	Yes
IT_E29	Transforming innovative ideas into useful applications	Idea realization	4	4	Yes	Yes
IT_E30	Introducing innovative ideas into the work environment in a systematic way	Idea realization	4	4	Yes	Yes
IT_E31	Evaluating the utility of innovative ideas	Idea realization	5	5	Yes	No

Scott & Bruce (1994), please rate each of your subordinates on the extent to which he or she:

IT_E32	Searches out new technologies, processes, techniques, and/or product ideas	Innovative behaviour	---	1	No	Disagreement
IT_E33	Generates creative ideas	Innovative behaviour	1	1	Yes	Yes
IT_E34	Promotes and champions ideas to others	Innovative behaviour	3	3	Yes	Yes
IT_E35	Investigates and secures funds needed to implement new ideas	Innovative behaviour	4	3	No	Disagreement
IT_E36	Develops adequate plans and schedules for the implementation of new ideas	Innovative behaviour	4	5	No	Disagreement
IT_E37	Is innovative	Innovative behaviour	5	5	Yes	No

Holman et al. (2011a), how extent to which this employee had done this within the last year:

IT_E38	Thought of new ideas	Idea generation	1	1	Yes	Yes
IT_E39	Had ideas about how things might be improved	Idea generation	1	1	Yes	Yes
IT_E40	Found new ways of doing things	Idea generation	1	1	Yes	Yes
IT_E41	Attempted to get support from others for your ideas	Idea promotion	3	3	Yes	Yes
IT_E42	Tried to get approval for improvements you suggested	Idea promotion	3	3	Yes	Yes
IT_E43	Got involved in persuading others to adopt your proposals for doing things differently	Idea promotion	3	3	Yes	Yes
IT_E44	Had your ideas implemented	Idea implementation	4	4	Yes	Yes
IT_E45	Had your suggestions for improvements adopted	Idea implementation	4	4	Yes	Yes
IT_E46	Had your proposals for doing things differently carried out	Idea implementation	4	4	Yes	Yes

Codes: 1 "Idea Generation", 2 "Suggestion of Novel Ideas", 3 "Idea Promotion", 4 "Idea Realization", 5 "Other Behaviour". **Match disagreement:** only one judge matched the item with the original label.

Table AP2: Assessment of Subject-matter Experts for Items of innovative work behaviour in Spanish

Item ID	Item	Original Construct	Code Expert-1	Code Expert-2	Inter-expert Agreement	Original Construct	Match with Original Construct	Retained
Janssen (2000):								
IT_S23	Created new ideas for difficult issues [Ha tenido nuevas ideas para resolver dificultades en el trabajo]	Idea generation	1	1	Yes	Yes	Yes	Yes
IT_S24	Searched out new working methods, techniques, or instruments [Ha buscado nuevos métodos para realizar el trabajo]	Idea generation	4	1	No	Disagreement	No	No
IT_S25	Generated original solutions for problems [Ha generado soluciones originales para problemas en el trabajo]	Idea generation	1	1	Yes	Yes	Yes	Yes
IT_S26	Mobilized support for innovative ideas [Ha buscado apoyo de otros para llevar a cabo ideas innovadoras]	Idea promotion	3	3	Yes	Yes	Yes	Yes
IT_S27	Acquired approval for innovative ideas [Ha solicitado autorización para llevar a cabo ideas innovadoras]	Idea promotion	3	3	Yes	Yes	No	No
IT_S28	Made important organizational members enthusiastic for innovative ideas [Ha hecho que personas importantes de su organización se entusiasmen para implementar ideas innovadoras]	Idea promotion	4	3	No	Disagreement	No	No
IT_S29	Transformed innovative ideas into useful applications [Ha transformado ideas innovadoras en aplicaciones concretas]	Idea realization	4	4	Yes	Yes	Yes	Yes
IT_S30	Introduced innovative ideas into the work environment in a systematic way [Ha implementado ideas innovadoras en el trabajo]	Idea realization	4	4	Yes	Yes	Yes	Yes
IT_S31	Evaluated the utility of innovative ideas [Ha evaluado la utilidad de ideas innovadoras en su trabajo]	Idea realization	1	5	No	No	No	No

Holman et al. (2011a):						
IT_S38	Thought of new ideas [Ha pensado en ideas novedosas relacionadas con su trabajo]	Idea generation	1	1	Yes	Yes
IT_S39	Had ideas about how things might be improved [Ha tenido ideas acerca de como mejorar algunas cosas en su trabajo]	Idea generation	1	1	Yes	No
IT_S40	Found new ways of doing things [Ha encontrado nuevas formas de hacer el trabajo]	Idea generation	1	1	Yes	No
IT_S41	Attempted to get support from others for your ideas [Ha buscado apoyo de otros para implementar sus ideas]	Idea promotion	3	3	Yes	No
IT_S42	Tried to get approval for improvements you suggested [Ha solicitado autorización para llevar a cabo sus propuestas de mejora en el trabajo]	Idea promotion	3	3	Yes	Yes
IT_S43	Got involved in persuading others to adopt your proposals for doing things differently [Ha intentado convencer a otros para que se adopten sus propuestas]	Idea promotion	3	3	Yes	No
IT_S44	Had your ideas implemented [Ha llevado a cabo sus ideas en el trabajo]	Idea implementation	4	4	Yes	No
IT_S45	Had your suggestions for improvements adopted [Ha llevado a cabo sus propuestas de como realizar mejoras en el trabajo]	Idea implementation	4	4	Yes	Yes
IT_S46	Had your proposals for doing things differently carried out [Ha implementado sus propuestas de como hacer el trabajo de manera diferente]	Idea implementation	4	4	Yes	No
Holman et al. (2011b):						
IT_S47	Offered new ideas to others [Ha propuesto nuevas ideas a otras personas en su trabajo]	Idea suggestion	2	2	Yes	Yes
IT_S48	Suggested how things might be improved [Ha sugerido a otros cómo mejorar el trabajo]	Idea suggestion	2	2	Yes	No
IT_S49	Made proposals about doing things differently [Ha propuesto formas diferentes de hacer el trabajo]	Idea suggestion	2	2	Yes	Yes

Codes: 1 “Idea Generation”, 2 “Suggestion of Novel Ideas”, 3 “Idea Promotion”, 4 “Idea Realization”, 5 “Other Behavior”. **Match disagreement:** one judge matched the item with the original label, but the other does not. Spanish translations are in parenthesis.

B. MEASURES USED IN EMPIRICAL STUDIES

Innovative Work Behaviour (Studies 2, 3, 4 and 5)

“During the last week to what extent have you... [Durante la última semana, ¿en qué medida usted...?]” (1 = never [nunca], 2 = very few times [muy pocas veces], 3 = sometimes [a veces], 4 = many times [muchas veces], 5 = almost always [casi siempre]).

Idea Generation:

- Created new ideas for difficult issues [Ha tenido nuevas ideas para resolver dificultades en el trabajo]
- Generated original solutions for problems [Ha generado soluciones originales para problemas en el trabajo]
- Thought of new ideas [Ha pensado en ideas novedosas relacionadas con su trabajo]

Idea Suggestion:

- Offered new ideas to others [Ha propuesto nuevas ideas a otras personas en su trabajo]
- Suggested how things might be improved [Ha sugerido a otros cómo mejorar el trabajo]
- Made proposals about doing things differently [Ha propuesto formas diferentes de hacer el trabajo]

Coalition Building:

- Mobilized support for innovative ideas [Ha buscado apoyo de otros para llevar a cabo ideas innovadoras]
- Made important organizational members enthusiastic for innovative ideas [Ha hecho que personas importantes de su organización se entusiasmen para implementar ideas innovadoras]
- Tried to get approval for improvements you suggested [Ha solicitado autorización para llevar a cabo sus propuestas de mejora en el trabajo]

Idea Realisation:

- Transformed innovative ideas into useful applications [Ha transformado ideas innovadoras en aplicaciones concretas]
- Introduced innovative ideas into the work environment in a systematic way [Ha implementado ideas innovadoras en el trabajo]
- Had your suggestions for improvements adopted [Ha llevado a cabo sus propuestas de como realizar mejoras en el trabajo]

Job-Related Moods (Studies 2, 3, 4 and 5)

“During the last week, how often have you felt in your workplace...? [Durante la última semana, ¿en qué medida usted se ha sentido en el trabajo?]” (1 = never/almost never [nunca/casi nunca], 2 = few times [pocas veces], 3 = about half the time [la mitad del tiempo], 4 = a lot of the time [muchas veces], 5 = always/almost always [siempre/casi siempre]).

High-Activated Positive Mood:

- Enthusiastic [Entusiasmado(a)]
- Joyful [Alegre]
- Inspired [Inspirado(a)]

High-Activated Negative Mood:

- Anxious [Ansioso(a)]
- Tense [Tenso(a)]
- Worried [Preocupado(a)]

Low-Activated Negative Mood:

- Depressed [Deprimido(a)]
- Dejected [Decepcionado(a)]
- Despondent [Decaído(a)]

Low-Activated Positive Mood:

- Calm [Calmado(a)]
- Relaxed [Relajado(a)]
- At ease [Tranquilo(a)]

Extroversion, Neuroticism and Openness to Experience (Study 3 and 5)

“Indicate how accurately each statement describes you, I see myself as someone who... [Indique con cuánta precisión las siguientes afirmaciones lo describen a usted, me veo a mí mismo como alguien que...]” (1 = strongly disagree [muy en desacuerdo] – 5 = strongly agree [muy de acuerdo]).

Extroversion

- Is outgoing, sociable [Es extrovertido(a), sociable]
- Is talkative [Es bien hablador(a)]
- Is sometimes shy, inhibited [Es a veces tímido(a), inhibido(a)]
(reverse scored)

Neuroticism

- Gets nervous easily [Se pone nervioso(a) con facilidad]
- Worries a lot [Se preocupa mucho por las cosas]
- Can be moody [Es temperamental, de humor cambiante]

Openness to Experience

- Get excited by new ideas [Se entusiasma con las ideas nuevas]
- Enjoy thinking about things [Le gusta pensar acerca de las cosas]
- Believe in the importance of art [Cree en la importancia del arte]
- Enjoy hearing new ideas [Disfruta escuchando nuevas ideas]

Trait Affect (PANAS) (Study 4 and 5)

“Indicate to what extent you feel the following feelings in general [Indique en qué medida usted siente lo siguiente en general]” (1 = very slightly or not at all [muy poco o para nada] – 5 = extremely [extremadamente]).

Positive Activation

- Enthusiastic [Entusiasmado(a)]
- Excited [Animado(a)]
- Strong [Fuerte(a)]
- Interested [Interesado(a)]
- Determined [Determinado]

Negative Activation

- Irritable [Irritado(a)]
- Jittery [Intranquilo(a)]
- Hostile [Hostil]
- Upset [Disgustrado]
- Nervous [Nervioso]

Climate of Support for Innovation (Study 5)

“Indicate the extent to which you agree or disagree with the following statements [Indique en qué medida usted está de acuerdo o en desacuerdo con las siguientes afirmaciones]” (1 = strongly disagree [muy en desacuerdo) – 5 = strongly agree [muy de acuerdo]).

- In my organisation people are allowed to try to solve the same problems in different ways [En mi organización se permite que las personas intenten nuevas formas para resolver problemas ya conocidos]
- My organisation can be described as flexible and continually adapting to change [Mi organización puede ser descrita como flexible y siempre abierta al cambio]
- Assistance in developing new ideas is readily available in my organisation [En mi organización la ayuda para desarrollar nuevas ideas está fácilmente disponible]
- Innovation is encouraged in my organisation [La innovación se promueve en la organización donde trabajo]
- This organisation publicly recognises those who are innovative [La organización entrega reconocimiento público a quienes son innovadores]

C. NORMS MEASURES OF MOODS IN SPANISH

The table presented below summarizes the mean scores and standard deviations of job-related moods measures observed for groups of employees that comprised the Chilean sample used in studies 2 and 3 of this thesis ($N_{total} = 430$).

Table AP3: Comparative Data by the Diverse Groups that Comprised the Samples of the Spanish-Speaking Employees

Group	HAPA		HANA		LANA		LAPA	
	M	SD	M	SD	M	SD	M	SD
Gender								
Male ($N=183$)	3.52	.83	2.82	.93	1.97	.79	3.20	.85
Female ($N=242$)	3.49	.91	2.67	.89	1.98	.83	3.24	.39
Age								
18 – 29 years ($N=125$)	3.46	.80	2.82	.90	1.91	.78	3.18	.95
30 – 39 years ($N=217$)	3.43	.92	2.71	.93	2.01	.83	3.19	.95
40 – 49 years ($N=53$)	3.57	.74	2.64	.83	2.03	.83	3.30	.91
50 – 65 years ($N=25$)	4.21	.63	2.72	.88	1.82	.73	3.59	.78
Job Role								
Administrative Staff ($N=39$)	3.27	.88	2.71	.96	2.20	.88	3.20	.98
Professional Staff ($N=241$)	3.44	.83	2.65	.86	1.99	.80	3.27	.88
Managerial Staff ($N=123$)	3.76	.80	2.85	.95	1.80	.74	3.21	.91
Organizational Sector								
Private ($N=235$)	3.53	.88	2.68	.89	1.90	.81	3.26	.90
Public ($N=112$)	3.35	.87	2.81	.95	2.14	.81	3.12	.96
Industry								
Services ($N=264$)	3.50	.86	2.82	.92	2.01	.83	3.18	.90
Manufactory ($N=26$)	3.25	.67	2.61	1.09	1.71	.50	3.18	.91
Consultancy ($N=85$)	3.53	.95	2.49	.83	1.95	.77	3.37	.91

Note. Technical staff was excluded from this data because its sample size ($N = 12$) was insufficient ($N < 20$) to warrant descriptive statistics.

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